



Version 12 Xbase  
Edition  
User Guide



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# Table Of Contents

|  |           |
|--|-----------|
| <b>TABLE OF CONTENTS</b> .....                           | <b>1</b>  |
| <b>WHAT'S NEW IN VERSION 12</b> .....                    | <b>58</b> |
| Introduction (What's New in Version 12).....             | 59        |
| Updated Installer (New in 12.5).....                     | 61        |
| Password Protection.....                                 | 62        |
| Auto Recovery.....                                       | 63        |
| Enhanced Ruler Display.....                              | 64        |
| Multiple Field Alignment.....                            | 65        |
| No Records Found Band Line.....                          | 66        |
| Enhanced Undo and Redo.....                              | 68        |
| Enhanced Field Lists.....                                | 69        |
| <b>What is displayed</b> .....                           | 69        |
| <b>Customizing the list</b> .....                        | 69        |
| <b>Filtering the list</b> .....                          | 69        |
| Longer Computed Field Names.....                         | 71        |
| Find and Replace in Expressions.....                     | 72        |
| Total field enhancements.....                            | 73        |
| Updated ParameteRR Dialog.....                           | 75        |
| Static ParameteRR Lists.....                             | 78        |
| Dynamic ParameteRR Lists.....                            | 79        |
| Updated Relation Dialog.....                             | 80        |
| Table Dictionary Support.....                            | 81        |
| Data Dictionary Table Pairs.....                         | 83        |
| Support for >2GB DBF files.....                          | 84        |
| Visual FoxPro 9 Support.....                             | 85        |
| On Demand Flexlink Indexing.....                         | 86        |
| Recompiled Utility Programs and Updated Help files.....  | 87        |
| Runtime ASP interface.....                               | 88        |
| Updated Export.....                                      | 89        |
| Duplicate Field Export Warning.....                      | 90        |
| Report File Compatibility with Earlier R&R Releases..... | 91        |
| <b>INSTALLATION</b> .....                                | <b>92</b> |
| Installing ReportsWorks.....                             | 93        |

|  |            |
|--|------------|
| <b>USING R&amp;R.....</b>                                    | <b>120</b> |
| Chapter 1 Using Menus and Dialogs.....                       | 121        |
| Understanding the Main Window .....                          | 122        |
| Understanding the Main Window .....                          | 123        |
| Using the Menu Bar .....                                     | 125        |
| Using the Standard Toolbar .....                             | 126        |
| Using the Formatting Toolbar .....                           | 128        |
| <b>Using the Formatting Toolbar</b> .....                    | 129        |
| <b>Using the Bold, Italic, and Underline Buttons</b> .....   | 130        |
| <b>Using the Alignment Buttons</b> .....                     | 131        |
| <b>Using the Other Formatting Buttons</b> .....              | 132        |
| Changing Horizontal and Vertical Ruler Settings.....         | 133        |
| <b>Changing Horizontal and Vertical Ruler Settings</b> ..... | 134        |
| Work Space.....  | 136        |
| <b>Work Space</b> .....                                      | 137        |
| <b>Band Area</b> .....                                       | 138        |
| <b>Layout Area</b> .....                                     | 139        |
| Using the Status Bar and Scroll Bars .....                   | 140        |
| <b>Using the Status Bar and Scroll Bars</b> .....            | 141        |
| <b>Status Bar</b> .....                                      | 142        |
| <b>Scroll Bars</b> .....                                     | 143        |
| Selecting from Menus.....                                    | 144        |
| Selecting from Menus.....                                    | 145        |
| File Menu.....   | 146        |
| Edit Menu .....  | 147        |
| View Menu .....  | 148        |
| <b>View Menu</b> .....                                       | 149        |
| <b>Toolbar and ToolTips Settings</b> .....                   | 150        |
| <b>Horizontal and Vertical Rulers</b> .....                  | 151        |
| <b>Grid</b> .....  | 152        |
| <b>Field Names</b> .....                                     | 153        |
| Insert Menu.....   | 154        |
| <b>Insert Menu</b> .....                                     | 155        |
| Format Menu .....  | 156        |
| <b>Format Menu</b> .....                                     | 157        |
| Options Menu .....   | 158        |
| <b>Options Menu</b> .....                                    | 159        |
| Database Menu .....  | 160        |

|  |     |
|--|-----|
| <b>Database Menu</b> .....                         | 161 |
| Calculations Menu .....                            | 162 |
| <b>Calculations Menu</b> .....                     | 163 |
| Using Dialog Boxes .....                           | 164 |
| Using Dialog Boxes .....                           | 165 |
| List and Edit Boxes .....                          | 166 |
| <b>List and Edit Boxes</b> .....                   | 167 |
| <b>List Boxes</b> .....                            | 168 |
| <b>Edit Boxes</b> .....                            | 169 |
| Buttons and Check Boxes .....                      | 170 |
| <b>Buttons and Check Boxes</b> .....               | 171 |
| <b>Selecting a Command Button</b> .....            | 172 |
| <b>Selecting an Option Button</b> .....            | 173 |
| <b>Check Boxes</b> .....                           | 174 |
| Using Command-Line Switches .....                  | 175 |
| Using Command-Line Switches .....                  | 176 |
| Chapter 2 Managing Reports .....                   | 177 |
| Introduction (Managing Reports) .....              | 178 |
| Introduction (Managing Reports) .....              | 179 |
| Compound Document Files and Report Libraries ..... | 180 |
| Templates .....                                    | 181 |
| Instant Reports .....                              | 182 |
| Creating and Modifying Reports .....               | 183 |
| Creating and Modifying Reports .....               | 184 |
| Creating a Report .....                            | 185 |
| Saving an Untitled Report .....                    | 187 |
| Report Security .....                              | 188 |
| Saving a Report Template .....                     | 189 |
| Using a Template to Create a Report .....          | 190 |
| Modifying Reports .....                            | 191 |
| <b>Modifying Reports</b> .....                     | 192 |
| <b>Opening an Existing Report</b> .....            | 193 |
| Using R&R Report Wizards .....                     | 194 |
| Using Report Wizards .....                         | 195 |
| Using the Label Wizard .....                       | 196 |
| <b>Using the Label Wizard</b> .....                | 197 |
| <b>Selecting and Arranging Label Data</b> .....    | 198 |
| <b>Determining Printing Order</b> .....            | 199 |

|  |     |
|--|-----|
| <b>Specifying Label Type or Dimensions</b> ..... | 200 |
| Using the Basic Columnar Wizard.....             | 201 |
| <b>Using the Basic Columnar Wizard</b> .....     | 202 |
| <b>Selecting and Arranging Data</b> .....        | 203 |
| <b>Defining Totals</b> .....                     | 204 |
| <b>Determining Printing Order</b> .....          | 205 |
| <b>Specifying Band Areas</b> .....               | 206 |
| Using the Grouped Columnar Wizard .....          | 207 |
| <b>Using the Grouped Columnar Wizard</b> .....   | 208 |
| <b>Selecting and Arranging Data</b> .....        | 209 |
| <b>Defining Totals</b> .....                     | 210 |
| <b>Determining Printing Order</b> .....          | 211 |
| <b>Specifying Band Areas</b> .....               | 212 |
| Documenting Reports and Templates.....           | 213 |
| Documenting Reports and Templates .....          | 214 |
| Adding File Properties Information .....         | 215 |
| Printing a Report Specification.....             | 217 |
| <b>Header information</b> .....                  | 217 |
| <b>Field Information</b> .....                   | 217 |
| Chapter 3 Working with Bands.....                | 219 |
| Introduction (Working with Bands) .....          | 220 |
| Introduction (Working with Bands).....           | 221 |
| Selecting Lines.....                             | 222 |
| Displaying the Band Line Properties Dialog ..... | 223 |
| Creating Bands and Inserting Band Lines .....    | 224 |
| Creating Bands and Inserting Band Lines .....    | 225 |
| Creating a Band.....                             | 227 |
| Inserting Single Band Lines .....                | 229 |
| Inserting Multiple Band Lines.....               | 230 |
| Inserting Page Breaks.....                       | 231 |
| Manipulating Band Lines .....                    | 232 |
| Manipulating Band Lines.....                     | 233 |
| Copying or Moving Band Lines.....                | 234 |
| Deleting Band Lines.....                         | 235 |
| Modifying Band Line Characteristics.....         | 236 |
| Modifying Band Line Characteristics .....        | 237 |
| Justifying All Fields on One or More Lines ..... | 238 |
| Controlling Automatic Trim .....                 | 239 |

|   |     |
|---|-----|
| <b>Controlling Automatic Trim</b> .....                             | 240 |
| <b>Auto-Trim Examples</b> .....                                     | 241 |
| <b>Auto-Trim and Field Alignment</b> .....                          | 242 |
| Specifying Band Line Height.....                                    | 243 |
| <b>Specifying Band Line Height</b> .....                            | 244 |
| <b>Automatic Line Height</b> .....                                  | 245 |
| <b>Freeform Line Height</b> .....                                   | 246 |
| <b>Switching Between Freeform and Automatic Line Settings</b> ..... | 246 |
| <b>Adjusting the Height of a Freeform Line</b> .....                | 246 |
| Specifying Conditional Line Printing.....                           | 247 |
| Specifying Conditional Line Printing .....                          | 248 |
| Specifying Scan Conditions .....                                    | 249 |
| Specifying Scan Conditions.....                                     | 250 |
| Printing a band line when no record are found .....                 | 251 |
| No records found band lines.....                                    | 252 |
| Chapter 4 Working with Fields .....                                 | 253 |
| Introduction (Working with Fields) .....                            | 254 |
| Introduction (Working with Fields) .....                            | 255 |
| Selecting Fields.....   | 256 |
| Methods of Applying Field Characteristics .....                     | 257 |
| Manipulating Fields .....   | 258 |
| Manipulating Fields.....  | 259 |
| Inserting Fields.....   | 260 |
| Right Click Options .....   | 263 |
| Copying Fields.....   | 264 |
| Moving Fields .....   | 265 |
| Deleting Fields .....   | 266 |
| Applying Fonts, Styles, Effects, and Colors .....                   | 267 |
| Applying Fonts, Styles, Effects, and Colors.....                    | 268 |
| Font Characteristics .....  | 269 |
| <b>Font Characteristics</b> .....                                   | 270 |
| <b>Spacing and Pitch</b> .....                                      | 271 |
| <b>Point Size</b> .....   | 272 |
| Specifying Font, Styles, Effects, and Color.....                    | 273 |
| <b>Specifying Font, Styles, Effects, and Color</b> .....            | 274 |
| <b>Default Font Assignments</b> .....                               | 275 |
| <b>Specifying Font and Point Size</b> .....                         | 276 |
| <b>Specifying Styles and Effects</b> .....                          | 277 |

|   |     |
|---|-----|
| <b>Specifying Color</b> .....                                   | 278 |
| Formatting and Sizing Fields .....                              | 279 |
| Formatting and Sizing Fields .....                              | 280 |
| Specifying Character, Memo, or Logical Field Width .....        | 281 |
| <b>Specifying Character, Memo, or Logical Field Width</b> ..... | 282 |
| <b>Sizing a Field on the Layout</b> .....                       | 283 |
| <b>Sizing a Field Using the Width Tab</b> .....                 | 284 |
| Specifying Date Formats .....                                   | 285 |
| <b>Specifying Date Formats</b> .....                            | 286 |
| Specifying Datetime Formats .....                               | 287 |
| <b>Specifying Datetime Formats</b> .....                        | 288 |
| Specifying Numeric Formats .....                                | 289 |
| <b>Specifying Numeric Formats</b> .....                         | 290 |
| <b>Show Zero Option</b> .....                                   | 292 |
| <b>Leading Zeros Option</b> .....                               | 293 |
| Specifying Alignment .....                                      | 294 |
| Specifying Alignment .....                                      | 295 |
| Applying Left, Center, or Right Alignment .....                 | 297 |
| <b>Applying Left, Center, or Right Alignment</b> .....          | 298 |
| <b>Positioning of Left-Aligned Data</b> .....                   | 299 |
| <b>Positioning of Right-Aligned and Centered Data</b> .....     | 300 |
| Applying Word-Wrap Alignment .....                              | 301 |
| <b>Applying Word-Wrap Alignment</b> .....                       | 302 |
| <b>Word-Wrap Format</b> .....                                   | 303 |
| Aligning Multiple Fields .....                                  | 304 |
| <b>Aligning Multiple Fields</b> .....                           | 305 |
| Controlling Automatic Trim .....                                | 306 |
| Controlling Automatic Trim .....                                | 307 |
| Adding Field Comments .....                                     | 308 |
| Adding Field Comments .....                                     | 309 |
| Chapter 5 Setting Defaults .....                                | 310 |
| <b>Introduction (Setting Defaults)</b> .....                    | 311 |
| Changing Preferences .....                                      | 312 |
| Changing Preferences .....                                      | 313 |
| Changing Settings with the View Menu .....                      | 314 |
| <b>Changing Settings with the View Menu</b> .....               | 315 |
| <b>Controlling Grid Display</b> .....                           | 316 |
| <b>Changing Field Display</b> .....                             | 317 |
| Changing Preferences Dialog Box Settings .....                  | 318 |

|  |     |
|--|-----|
| <b>Changing Preferences Dialog Box Settings</b> .....              | 319 |
| <b>Changing Scroll Bar Displays</b> .....                          | 320 |
| <b>Specifying Starting Point for New Report</b> .....              | 321 |
| <b>Specifying Memo Editor</b> .....                                | 322 |
| <b>Specifying the Content of Field Lists</b> .....                 | 323 |
| <b>Auto Save</b> .....   | 324 |
| Changing Layout and Formatting Settings .....                      | 325 |
| Changing Layout and Formatting Settings.....                       | 326 |
| Paper Size.....  | 327 |
| Margin Settings .....  | 328 |
| Font, Point Size, and Color .....                                  | 329 |
| Ruler Spacing and Snap-To-Grid.....                                | 330 |
| Specifying Logical Strings .....                                   | 331 |
| Changing File Write Access Setting.....                            | 332 |
| Specifying Default Directories and Extensions .....                | 333 |
| Specifying Default Directories and Extensions.....                 | 334 |
| Specifying Data, Report, Lookup, Image, and Template Folders ..... | 335 |
| <b>Specifying Data, Report, Image, and Template Folders</b> .....  | 336 |
| <b>Default Data Folder</b> .....                                   | 337 |
| <b>Default Report Folder</b> .....                                 | 338 |
| <b>Default Image Folder</b> .....                                  | 339 |
| <b>Default Lookup Folder</b> .....                                 | 340 |
| <b>Default Template Folder</b> .....                               | 341 |
| Specifying Index and Text File Extensions.....                     | 342 |
| <b>Specifying Index and Text File Extensions</b> .....             | 343 |
| <b>Default Index File Extension</b> .....                          | 344 |
| <b>Default Text File Extension</b> .....                           | 345 |
| Changing Regional Settings.....                                    | 346 |
| Changing Regional Settings.....                                    | 347 |
| Unit of Measurement.....   | 348 |
| Date, Currency, and Number Formats .....                           | 349 |
| Modifying Case Sensitivity .....                                   | 350 |
| Modifying Case Sensitivity .....                                   | 351 |
| The RRWHANDLES Environment Variable .....                          | 352 |
| RRWHANDLES setting .....   | 353 |
| Chapter 6 Selecting Data Files .....                               | 354 |
| <b>Introduction (Selecting Data Files)</b> .....                   | 355 |
| Types of Database Relations .....                                  | 356 |

|   |     |
|---|-----|
| Types of Database Relations .....                   | 357 |
| Exact Lookup Relations.....                         | 358 |
| Approximate Lookup Relations .....                  | 359 |
| Scan Relations .....                                | 360 |
| Single-Field Lookups .....                          | 361 |
| Specifying Database Relations .....                 | 362 |
| Specifying Database Relations.....                  | 363 |
| Modifying Database Relations .....                  | 368 |
| Modifying Database Relations .....                  | 369 |
| Editing a Relation .....                            | 370 |
| Deleting a Relation .....                           | 371 |
| Case Sensitivity in Database Relations.....         | 372 |
| <b>Case Sensitivity in Database Relations</b> ..... | 373 |
| Defining Scan Groups.....                           | 374 |
| Defining Scan Groups.....                           | 375 |
| Determining Scan Order.....                         | 376 |
| Selecting a Group Failure Action .....              | 377 |
| Sample Database Relations .....                     | 378 |
| Sample Database Relations .....                     | 379 |
| Table Linking Field .....                           | 380 |
| Calculated Linking Field .....                      | 381 |
| Record Number Link.....                             | 382 |
| Flexlink Indexes.....                               | 383 |
| Partial Link.....                                   | 384 |
| Specifying Database Scope .....                     | 385 |
| Specifying Database Scope.....                      | 386 |
| Combining Scope, Master Index, Sorting, Query ..... | 387 |
| Changing the Master Table.....                      | 388 |
| Changing the Master Table .....                     | 389 |
| Selecting or Changing a Master Index.....           | 391 |
| Selecting or Changing a Master Index .....          | 392 |
| Selecting a Master Index.....                       | 393 |
| Changing a Master Index Selection .....             | 394 |
| Working with DBC Container Files .....              | 395 |
| Working with DBC Container Files.....               | 396 |
| Chapter 7 Working with Calculated Fields .....      | 399 |
| <b>Introduction (Calculated Fields)</b> .....       | 400 |
| Creating a Calculated Field.....                    | 401 |

|  |     |
|--|-----|
| Creating a Calculated Field .....                          | 402 |
| Entering a Field Name.....                                 | 404 |
| Entering a Field Expression .....                          | 405 |
| <b>Entering a Field Expression</b> .....                   | 406 |
| <b>Typing the Expression</b> .....                         | 407 |
| <b>Using the List Menus and Buttons</b> .....              | 408 |
| Selecting Fields .....                                     | 408 |
| Selecting Functions .....                                  | 408 |
| Paste Function Arguments.....                              | 408 |
| Selecting Operators.....                                   | 409 |
| Copying Other Calculated Expressions .....                 | 409 |
| Selecting Key Expressions .....                            | 409 |
| Selecting a UDF Expression .....                           | 409 |
| Replacing text within a Calculated Expression.....         | 410 |
| <b>Replacing text within a Calculated Expression</b> ..... | 411 |
| Verifying Expression Syntax.....                           | 412 |
| <b>Verifying Expression Syntax</b> .....                   | 413 |
| Calculated Field Expression Syntax.....                    | 414 |
| Calculated Field Expression Syntax .....                   | 415 |
| Types of Expressions .....                                 | 416 |
| <b>Types of Expressions</b> .....                          | 417 |
| <b>Character Expressions</b> .....                         | 418 |
| <b>Numeric Expressions</b> .....                           | 419 |
| <b>Date Expressions</b> .....                              | 420 |
| <b>Logical Expressions</b> .....                           | 421 |
| <b>DateTime Expressions</b> .....                          | 422 |
| <b>Memo Expressions</b> .....                              | 423 |
| Parts of an Expression.....                                | 424 |
| <b>Parts of an Expression</b> .....                        | 425 |
| <b>Fields</b> .....  | 426 |
| Field Names with Table Aliases.....                        | 426 |
| Field Names with Special Characters .....                  | 426 |
| <b>Constants</b> .....                                     | 427 |
| Numeric Constants .....                                    | 427 |
| Character Constants .....                                  | 427 |
| Logical Constants .....                                    | 427 |
| Date Constants.....  | 427 |
| DateTime Constants .....                                   | 428 |
| <b>Operators</b> .....                                     | 429 |
| Arithmetic Operators .....                                 | 429 |
| Date/DateTime Operators.....                               | 430 |

|   |     |
|---|-----|
| Character Operators .....                               | 430 |
| Relational Operators .....                              | 430 |
| Logical Operators .....                                 | 431 |
| Mixed Operator Types .....                              | 431 |
| <b>Functions</b> .....                                  | 432 |
| <b>Wildcard Characters</b> .....                        | 433 |
| Error Conditions in Evaluating Expressions .....        | 434 |
| <b>Error Conditions in Evaluating Expressions</b> ..... | 435 |
| <b>Customizing Error Values</b> .....                   | 436 |
| <b>Field Width Errors</b> .....                         | 437 |
| Calculation Field Comments and Dictionary Entries ..... | 438 |
| <b>Adding a Calculated Field Comment</b> .....          | 439 |
| <b>Adding Calculations to the Data Dictionary</b> ..... | 440 |
| Modifying a Calculated Field .....                      | 441 |
| Modifying a Calculated Field .....                      | 442 |
| Modifying the Calculated Field Expression .....         | 443 |
| Copying a Calculated field .....                        | 444 |
| Copying a Calculated Field .....                        | 445 |
| Deleting a calculated field .....                       | 446 |
| Deleting a Calculated Field .....                       | 447 |
| Purging Unused Calculated Fields .....                  | 448 |
| Purging Unused Calculated Fields .....                  | 449 |
| Chapter 8 Working with Total Fields.....                | 450 |
| <b>Introduction (Working with Total Fields)</b> .....   | 451 |
| Creating and Editing Totals .....                       | 452 |
| Creating and Editing Totals.....                        | 453 |
| Procedures for Creating Totals.....                     | 454 |
| <b>Procedures for Creating Totals</b> .....             | 455 |
| <b>Entering a Field Name</b> .....                      | 457 |
| <b>Selecting a Total Type</b> .....                     | 458 |
| <b>Selecting a Field to Total</b> .....                 | 459 |
| <b>Selecting a Total Reset Level</b> .....              | 460 |
| Creating Auto Totals for Multiple Fields .....          | 461 |
| <b>Creating Auto Totals for Multiple Fields</b> .....   | 462 |
| Editing a Total Field .....                             | 463 |
| <b>Editing a Total Field</b> .....                      | 464 |
| Editing Multiple Totals .....                           | 465 |
| <b>Multi Editing Totals</b> .....                       | 466 |
| <b>Using the Edit Reset Button</b> .....                | 468 |
| Copying a Total Field .....                             | 469 |

|  |     |
|--|-----|
| <b>Copying a Total Field</b> .....                         | 470 |
| Deleting a Total Field .....                               | 471 |
| <b>Deleting a Total Field</b> .....                        | 472 |
| Purging Unused Total Field .....                           | 473 |
| <b>Purging Unused Total Fields</b> .....                   | 474 |
| Optional Total Selections .....                            | 475 |
| Customizing Totals .....                                   | 476 |
| Specifying Accumulation Frequency .....                    | 477 |
| <b>Specifying a Total Accumulation Frequency</b> .....     | 478 |
| <b>Changing the Total Accumulation Frequency</b> .....     | 479 |
| <b>Default Accumulation Frequency Rules</b> .....          | 480 |
| Selecting a Processing Option .....                        | 481 |
| <b>Selecting a Processing Option</b> .....                 | 482 |
| <b>When to Use Pre-Processed Totals</b> .....              | 483 |
| <b>Pre-Processing Restrictions</b> .....                   | 484 |
| Entering a Condition Expression .....                      | 485 |
| <b>Entering a Condition Expression</b> .....               | 486 |
| Adding a Total Field Comment .....                         | 487 |
| <b>Adding a Total Field Comment</b> .....                  | 488 |
| Using Total Fields in Reports .....                        | 489 |
| Using Total Fields in Reports .....                        | 490 |
| Inserting Group Totals .....                               | 491 |
| Inserting Page Totals .....                                | 492 |
| Inserting Grand Totals .....                               | 493 |
| Displaying Progressive Accumulation .....                  | 494 |
| Using Totals in Calculations .....                         | 495 |
| Using Totals in Calculations .....                         | 496 |
| Sorting and Querying on Totals .....                       | 497 |
| Sorting and Querying on Totals .....                       | 498 |
| Sorting on Totals .....                                    | 499 |
| Querying on Totals .....                                   | 500 |
| Chapter 9 Working with ParameteRR Fields .....             | 501 |
| <b>Introduction (Working with ParameteRR Fields)</b> ..... | 502 |
| <b>Using the ParameteRR Field Dialog</b> .....             | 504 |
| Creating a ParameteRR field .....                          | 506 |
| Creating a ParameteRR field .....                          | 507 |
| ParameteRR Name Tab Settings .....                         | 508 |
| ParameteRR Value Tab Settings .....                        | 509 |
| <b>Default Value</b> .....                                 | 509 |

|  |     |
|--|-----|
| Based on the data type selection, you then enter a default value for the field. The default value will be used as the value of the field within the report unless it is updated via the ParameteRR value entry screen when the report is executed..... | 509 |
| <b>Character Default</b> .....   | 509 |
| <b>Numeric Default</b> .....   | 509 |
| <i><b>Date Default</b></i> .....   | 509 |
| <b>Logical Default</b> .....   | 510 |
| <i><b>Replace Default with Runtime Input Value</b></i> .....   | 510 |
| <i><b>Prompt at Runtime</b></i> .....  | 510 |
| <i><b>Define Validation List</b></i> .....   | 510 |
| <i><b>Static</b></i> .....   | 510 |
| <i><b>Dynamic</b></i> .....  | 510 |
| ParameteRR Presentation Tab Settings .....   | 511 |
| <b>Character Field Format</b> .....  | 511 |
| <b>Numeric Field Format</b> .....  | 511 |
| <b>Date and Date/Time Field Format</b> .....   | 512 |
| <b>Logical Field Format</b> .....  | 513 |
| ParameteRR Validation Tab Options .....  | 514 |
| Static ParameteRR List Validation Tab .....  | 517 |
| Dynamic ParameteRR List Validation Tab.....  | 519 |
| Using the ParameteRR value entry screen .....  | 522 |
| Using the ParameteRR Value Entry Screen.....   | 523 |
| <u><i>Modifying a character value</i></u> .....  | 525 |
| <u><i>Modifying a numeric value</i></u> .....  | 525 |
| <u><i>Modifying a date or datetime value</i></u> .....   | 525 |
| <b>Date entry</b> .....  | 525 |
| <u><i>Selecting a logical value</i></u> .....  | 526 |
| <u><i>Selecting a static list value</i></u> .....  | 527 |
| <u><i>Selecting a dynamic list value</i></u> .....   | 527 |
| ParameteRR Time Out.....   | 530 |
| Copying ParameteRR fields .....  | 531 |
| Copying a ParameteRR field .....   | 532 |
| Modifying a ParameteRR field .....   | 533 |
| Modifying a ParameteRR Field.....  | 534 |
| Purging Unused ParameteRR fields .....   | 535 |
| Purging Unused ParameteRR Fields.....  | 536 |
| Chapter 10 Using Functions .....   | 537 |
| <b>Introduction (Using Functions)</b> .....  | 538 |
| Alphabetical List of Functions .....   | 539 |
| Alphabetical List of Functions.....  | 540 |

|                       |     |
|-----------------------|-----|
| ABS .....             | 545 |
| <b>Syntax:</b> .....  | 545 |
| <b>Example:</b> ..... | 545 |
| ADDDAYS .....         | 546 |
| <b>Syntax:</b> .....  | 546 |
| <b>Example:</b> ..... | 546 |
| ADDMONS .....         | 547 |
| <b>Syntax:</b> .....  | 547 |
| <b>Example:</b> ..... | 547 |
| ADDWKS .....          | 548 |
| <b>Syntax:</b> .....  | 548 |
| <b>Example:</b> ..... | 548 |
| ADDYRS .....          | 549 |
| <b>Syntax:</b> .....  | 549 |
| <b>Example:</b> ..... | 549 |
| AGED .....            | 550 |
| <b>Syntax:</b> .....  | 550 |
| <b>Example:</b> ..... | 550 |
| ASC .....             | 551 |
| <b>Syntax:</b> .....  | 551 |
| <b>Example:</b> ..... | 551 |
| AT .....              | 552 |
| <b>Syntax:</b> .....  | 552 |
| <b>Example:</b> ..... | 552 |
| BLANKNUM .....        | 553 |
| <b>Syntax</b> .....   | 553 |
| <b>Example:</b> ..... | 553 |
| CAPFIRST .....        | 554 |
| <b>Syntax:</b> .....  | 554 |
| <b>Example:</b> ..... | 554 |
| CASE .....            | 555 |
| <b>Syntax:</b> .....  | 555 |
| <b>Example:</b> ..... | 555 |
| CDLL .....            | 556 |
| <b>Syntax:</b> .....  | 556 |
| <b>Example:</b> ..... | 556 |
| CDOW .....            | 557 |
| <b>Syntax:</b> .....  | 557 |
| <b>Example:</b> ..... | 557 |
| CHR .....             | 558 |
| <b>Syntax:</b> .....  | 558 |

|                       |     |
|-----------------------|-----|
| <b>Example:</b> ..... | 558 |
| CLOOKUP .....         | 559 |
| <b>Syntax:</b> .....  | 559 |
| <b>Example:</b> ..... | 559 |
| CMONTH .....          | 560 |
| <b>Syntax:</b> .....  | 560 |
| <b>Example:</b> ..... | 560 |
| COPY .....            | 561 |
| <b>Syntax:</b> .....  | 561 |
| <b>Example:</b> ..... | 561 |
| CTDT .....            | 562 |
| <b>Syntax:</b> .....  | 562 |
| <b>Example:</b> ..... | 562 |
| CTOD .....            | 563 |
| <b>Syntax:</b> .....  | 563 |
| <b>Example:</b> ..... | 563 |
| <b>Example:</b> ..... | 563 |
| CTOS .....            | 564 |
| <b>Syntax:</b> .....  | 564 |
| Example: .....        | 564 |
| CTOT .....            | 565 |
| <b>Syntax:</b> .....  | 565 |
| <b>Example:</b> ..... | 565 |
| DATE .....            | 566 |
| <b>Syntax:</b> .....  | 566 |
| <b>Example:</b> ..... | 566 |
| DAY .....             | 567 |
| <b>Syntax:</b> .....  | 567 |
| <b>Example:</b> ..... | 567 |
| DAYSBTWN .....        | 568 |
| <b>Syntax:</b> .....  | 568 |
| <b>Example:</b> ..... | 568 |
| DBF .....             | 569 |
| <b>Syntax:</b> .....  | 569 |
| <b>Example:</b> ..... | 569 |
| DELETED .....         | 570 |
| <b>Syntax:</b> .....  | 570 |
| <b>Example:</b> ..... | 570 |
| DLOOKUP .....         | 571 |
| <b>Syntax:</b> .....  | 571 |
| <b>Example:</b> ..... | 571 |

|                       |     |
|-----------------------|-----|
| DOW .....             | 572 |
| <b>Syntax:</b> .....  | 572 |
| <b>Example:</b> ..... | 572 |
| DQTR .....            | 573 |
| <b>Syntax:</b> .....  | 573 |
| <b>Example:</b> ..... | 573 |
| DTEADD .....          | 574 |
| <b>Syntax:</b> .....  | 574 |
| <b>Example:</b> ..... | 574 |
| DTEDIFF .....         | 575 |
| <b>Syntax:</b> .....  | 575 |
| <b>Example:</b> ..... | 575 |
| DTEPART .....         | 576 |
| <b>Syntax:</b> .....  | 576 |
| <b>Example:</b> ..... | 576 |
| DTLOOKUP .....        | 577 |
| <b>Syntax:</b> .....  | 577 |
| <b>Example:</b> ..... | 577 |
| DTOC .....            | 578 |
| <b>Syntax:</b> .....  | 578 |
| <b>Example:</b> ..... | 578 |
| DTTOC .....           | 579 |
| <b>Syntax:</b> .....  | 579 |
| <b>Example:</b> ..... | 579 |
| ERROR .....           | 580 |
| <b>Syntax:</b> .....  | 580 |
| <b>Example:</b> ..... | 580 |
| EXP .....             | 581 |
| <b>Syntax:</b> .....  | 581 |
| <b>Example:</b> ..... | 581 |
| FLIP .....            | 582 |
| <b>Syntax:</b> .....  | 582 |
| <b>Example:</b> ..... | 582 |
| <b>Example:</b> ..... | 582 |
| <b>Example:</b> ..... | 582 |
| FUTURE .....          | 583 |
| <b>Syntax:</b> .....  | 583 |
| <b>Example:</b> ..... | 583 |
| HALF .....            | 584 |
| <b>Syntax:</b> .....  | 584 |
| HISCOPE .....         | 585 |
| <b>Syntax:</b> .....  | 585 |

|                |                       |     |
|----------------|-----------------------|-----|
|                | <i>Example:</i> ..... | 585 |
| IIF .....      |                       | 586 |
|                | <i>Syntax:</i> .....  | 586 |
|                | <i>Note:</i> .....    | 586 |
|                | <i>Example:</i> ..... | 586 |
|                | <i>Note:</i> .....    | 586 |
|                | <i>Example:</i> ..... | 586 |
|                | <i>Note:</i> .....    | 586 |
|                | <i>Example:</i> ..... | 586 |
|                | <i>Note:</i> .....    | 586 |
|                | <i>Example:</i> ..... | 586 |
|                | <i>Note:</i> .....    | 587 |
|                | <i>Example:</i> ..... | 587 |
| INLIST .....   |                       | 588 |
|                | <i>Syntax:</i> .....  | 588 |
|                | <i>Example:</i> ..... | 588 |
| INRANGE .....  |                       | 589 |
|                | <i>Syntax:</i> .....  | 589 |
|                | <i>Example:</i> ..... | 589 |
| INT .....      |                       | 590 |
|                | <i>Syntax:</i> .....  | 590 |
|                | <i>Example:</i> ..... | 590 |
| ISALPHA .....  |                       | 591 |
|                | <i>Syntax:</i> .....  | 591 |
|                | <i>Example:</i> ..... | 591 |
| ISBLANK .....  |                       | 592 |
|                | <i>Syntax:</i> .....  | 592 |
|                | <i>Example:</i> ..... | 592 |
| ISLOWER .....  |                       | 593 |
|                | <i>Syntax:</i> .....  | 593 |
|                | <i>Example:</i> ..... | 593 |
| ISUPPER .....  |                       | 594 |
|                | <i>Syntax:</i> .....  | 594 |
|                | <i>Example:</i> ..... | 594 |
| LASTPAGE ..... |                       | 595 |
|                | <i>Syntax:</i> .....  | 595 |
|                | <i>Example:</i> ..... | 595 |
| LEFT .....     |                       | 596 |
|                | <i>Syntax:</i> .....  | 596 |
|                | <i>Example:</i> ..... | 596 |
| LEN .....      |                       | 597 |

|                       |     |
|-----------------------|-----|
| <b>Syntax:</b> .....  | 597 |
| <b>Example:</b> ..... | 597 |
| LIBNAME .....         | 598 |
| <b>Syntax:</b> .....  | 598 |
| <b>Example:</b> ..... | 598 |
| LLOOKUP .....         | 599 |
| <b>Syntax:</b> .....  | 599 |
| <b>Example:</b> ..... | 599 |
| LOG .....             | 600 |
| <b>Syntax:</b> .....  | 600 |
| <b>Example:</b> ..... | 600 |
| LOSCOPE .....         | 601 |
| <b>Syntax:</b> .....  | 601 |
| <b>Example:</b> ..... | 601 |
| LOWER .....           | 602 |
| <b>Syntax:</b> .....  | 602 |
| <b>Example:</b> ..... | 602 |
| LTRIM.....            | 603 |
| <b>Syntax:</b> .....  | 603 |
| <b>Example:</b> ..... | 603 |
| LUPDATE.....          | 604 |
| <b>Syntax:</b> .....  | 604 |
| <b>Example:</b> ..... | 604 |
| MAX .....             | 605 |
| <b>Syntax:</b> .....  | 605 |
| <b>Example:</b> ..... | 605 |
| MIN .....             | 606 |
| <b>Syntax:</b> .....  | 606 |
| <b>Example:</b> ..... | 606 |
| MOD .....             | 607 |
| <b>Syntax:</b> .....  | 607 |
| <b>Example:</b> ..... | 607 |
| MONLEN.....           | 608 |
| <b>Syntax:</b> .....  | 608 |
| <b>Example:</b> ..... | 608 |
| MONSBTWN.....         | 609 |
| <b>Syntax:</b> .....  | 609 |
| <b>Example:</b> ..... | 609 |
| MONTH .....           | 610 |
| <b>Syntax:</b> .....  | 610 |
| <b>Example:</b> ..... | 610 |

|                       |     |
|-----------------------|-----|
| NDOW .....            | 611 |
| <b>Syntax:</b> .....  | 611 |
| <b>Example:</b> ..... | 611 |
| NLOOKUP .....         | 612 |
| <b>Syntax:</b> .....  | 612 |
| <b>Example:</b> ..... | 612 |
| NOW .....             | 613 |
| <b>Syntax:</b> .....  | 613 |
| OVER .....            | 614 |
| <b>Syntax:</b> .....  | 614 |
| <b>Example:</b> ..... | 614 |
| PAGENO.....           | 615 |
| <b>Syntax:</b> .....  | 615 |
| <b>Example:</b> ..... | 615 |
| PAST.....             | 616 |
| <b>Syntax:</b> .....  | 616 |
| <b>Example:</b> ..... | 616 |
| PDOW.....             | 617 |
| <b>Syntax:</b> .....  | 617 |
| <b>Example:</b> ..... | 617 |
| PERCOMP .....         | 618 |
| <b>Syntax:</b> .....  | 618 |
| <b>Example:</b> ..... | 618 |
| PREVIOUS.....         | 619 |
| <b>Syntax:</b> .....  | 619 |
| <b>Example:</b> ..... | 619 |
| QTR .....             | 620 |
| <b>Syntax:</b> .....  | 620 |
| <b>Example:</b> ..... | 620 |
| QUERY .....           | 621 |
| <b>Syntax:</b> .....  | 621 |
| <b>Example:</b> ..... | 621 |
| RECCOUNT .....        | 622 |
| <b>Syntax:</b> .....  | 622 |
| <b>Example:</b> ..... | 622 |
| RECNO .....           | 623 |
| <b>Syntax:</b> .....  | 623 |
| <b>Example:</b> ..... | 623 |
| REPLICATE .....       | 624 |
| <b>Syntax:</b> .....  | 624 |
| <b>Example:</b> ..... | 624 |

|                       |     |
|-----------------------|-----|
| REPNAME .....         | 625 |
| <b>Syntax:</b> .....  | 625 |
| <b>Example:</b> ..... | 625 |
| REPORTPAGE .....      | 626 |
| <b>Syntax:</b> .....  | 626 |
| <b>Example:</b> ..... | 626 |
| RIGHT .....           | 627 |
| <b>Syntax:</b> .....  | 627 |
| <b>Example:</b> ..... | 627 |
| RIPARAM .....         | 628 |
| <b>Syntax:</b> .....  | 628 |
| <b>Example:</b> ..... | 628 |
| ROUND .....           | 629 |
| <b>Syntax:</b> .....  | 629 |
| <b>Example:</b> ..... | 629 |
| RRUNIN .....          | 630 |
| <b>Syntax:</b> .....  | 630 |
| <b>Example:</b> ..... | 630 |
| RTRIM .....           | 631 |
| <b>Syntax:</b> .....  | 631 |
| <b>Example:</b> ..... | 631 |
| SCANNING .....        | 632 |
| <b>Syntax:</b> .....  | 632 |
| <b>Example:</b> ..... | 632 |
| SOUNDEX .....         | 633 |
| <b>Syntax:</b> .....  | 633 |
| <b>Example:</b> ..... | 633 |
| SPACE .....           | 634 |
| <b>Syntax:</b> .....  | 634 |
| <b>Example:</b> ..... | 634 |
| SPELLNUM .....        | 635 |
| <b>Syntax:</b> .....  | 635 |
| <b>Example:</b> ..... | 635 |
| SQRT .....            | 636 |
| <b>Syntax:</b> .....  | 636 |
| <b>Example:</b> ..... | 636 |
| STOC .....            | 637 |
| <b>Syntax:</b> .....  | 637 |
| <b>Example:</b> ..... | 637 |
| STR .....             | 638 |
| <b>Syntax:</b> .....  | 638 |
| <b>Example:</b> ..... | 638 |

|                 |     |
|-----------------|-----|
| STRCOUNT        | 639 |
| <i>Syntax:</i>  | 639 |
| <i>Example:</i> | 639 |
| STRREP          | 640 |
| <i>Syntax:</i>  | 640 |
| <i>Example:</i> | 640 |
| STRSEARCH       | 641 |
| <i>Syntax:</i>  | 641 |
| <i>Example:</i> | 641 |
| STUFF           | 642 |
| <i>Syntax:</i>  | 642 |
| <i>Example:</i> | 642 |
| SUBDAYS         | 643 |
| <i>Syntax:</i>  | 643 |
| <i>Example:</i> | 643 |
| SUBMONS         | 644 |
| <i>Syntax:</i>  | 644 |
| <i>Example:</i> | 644 |
| SUBSTR          | 645 |
| <i>Syntax:</i>  | 645 |
| <i>Example:</i> | 645 |
| SUBWKS          | 646 |
| <i>Syntax:</i>  | 646 |
| <i>Example:</i> | 646 |
| SUBYRS          | 647 |
| <i>Syntax:</i>  | 647 |
| <i>Example:</i> | 647 |
| TIME            | 648 |
| <i>Syntax:</i>  | 648 |
| <i>Example:</i> | 648 |
| TODATE          | 649 |
| <i>Syntax:</i>  | 649 |
| <i>Example:</i> | 649 |
| TOTIME          | 650 |
| <i>Syntax:</i>  | 650 |
| <i>Example:</i> | 650 |
| TRANSFORM       | 651 |
| <i>Syntax:</i>  | 651 |
| Notes:          | 651 |
| Notes:          | 652 |
| TRIM            | 654 |
| <i>Syntax:</i>  | 654 |

|   |     |
|---|-----|
| <b>Example:</b> .....                         | 654 |
| TTOC .....                                    | 655 |
| <b>Syntax:</b> .....                          | 655 |
| <b>Example:</b> .....                         | 655 |
| TTOS.....                                     | 656 |
| <b>Syntax:</b> .....                          | 656 |
| <b>Example:</b> .....                         | 656 |
| UDFNAME .....                                 | 657 |
| <b>Syntax:</b> .....                          | 657 |
| <b>Example:</b> .....                         | 657 |
| UPPER.....                                    | 658 |
| <b>Syntax:</b> .....                          | 658 |
| <b>Example:</b> .....                         | 658 |
| VAL .....                                     | 659 |
| <b>Syntax:</b> .....                          | 659 |
| <b>Example:</b> .....                         | 659 |
| WDCOUNT .....                                 | 660 |
| <b>Syntax:</b> .....                          | 660 |
| <b>Examples:</b> .....                        | 660 |
| WEEK .....                                    | 661 |
| <b>Syntax:</b> .....                          | 661 |
| <b>Example:</b> .....                         | 661 |
| WKSBTWN .....                                 | 662 |
| <b>Syntax:</b> .....                          | 662 |
| <b>Example:</b> .....                         | 662 |
| WORD .....                                    | 663 |
| <b>Syntax:</b> .....                          | 663 |
| <b>Examples:</b> .....                        | 663 |
| YEAR .....                                    | 664 |
| <b>Syntax:</b> .....                          | 664 |
| <b>Example:</b> .....                         | 664 |
| YRSBTWN .....                                 | 665 |
| <b>Syntax:</b> .....                          | 665 |
| <b>Example:</b> .....                         | 665 |
| Using User-Defined Functions .....            | 666 |
| Using User-Defined Functions .....            | 667 |
| Creating a User-Defined Function .....        | 668 |
| <b>Creating a User-Defined Function</b> ..... | 669 |
| <b>Procedure</b> .....                        | 670 |
| <b>Declarations</b> .....                     | 671 |
| UDF Names .....                               | 671 |

|   |     |
|---|-----|
| <b>UDF Arguments</b> .....                            | 671 |
| <b>UDF Expression</b> .....                           | 673 |
| <b>Inserting Predefined Functions</b> .....           | 673 |
| Modifying a User-Defined Function .....               | 674 |
| <b>Modifying a User-Defined Function</b> .....        | 675 |
| Deleting a User-Defined Function .....                | 676 |
| <b>Deleting a User-Defined Function</b> .....         | 677 |
| Sample User-Defined Functions .....                   | 678 |
| <b>Sample User-Defined Functions</b> .....            | 679 |
| <b>Creating a Salutation</b> .....                    | 680 |
| <b>Calculating Appreciated Value</b> .....            | 681 |
| Creating and Using a System UDF file .....            | 682 |
| <b>Creating and Using a System UDF file</b> .....     | 683 |
| Chapter 11 Sorting and Grouping Data .....            | 684 |
| <b>Introduction (Sorting and Grouping Data)</b> ..... | 685 |
| Sorting Data .....                                    | 686 |
| Sorting Data .....                                    | 687 |
| Selecting Sort Fields .....                           | 688 |
| Removing or Resetting Sort Field Selections .....     | 690 |
| Grouping Data .....                                   | 691 |
| Grouping Data .....                                   | 692 |
| Combining Sorting and Grouping .....                  | 693 |
| Selecting Group Fields .....                          | 694 |
| Removing or Resetting Group Field Selections .....    | 695 |
| Changing Group Options .....                          | 696 |
| <b>Changing Group Options</b> .....                   | 697 |
| <b>Print Once</b> .....                               | 698 |
| <b>Reset Page</b> .....                               | 699 |
| <b>Swap Header</b> .....                              | 700 |
| <b>Swap Footer</b> .....                              | 701 |
| <b>Repeat Header</b> .....                            | 702 |
| Using Group Headers and Footers .....                 | 703 |
| <b>Using Group Headers and Footers</b> .....          | 704 |
| Techniques for Sorting and Grouping .....             | 705 |
| Techniques for Sorting and Grouping .....             | 706 |
| Sorting with Master Indexes .....                     | 707 |
| Sorting and Grouping with Total Fields .....          | 708 |
| Sorting and Grouping with Calculated Fields .....     | 709 |
| Sorting in Multiple-Scan Reports .....                | 710 |

|   |     |
|---|-----|
| Chapter 12 Creating Queries .....                         | 711 |
| <b>Introduction (Creating Queries)</b> .....              | 712 |
| Query Structure .....                                     | 713 |
| Query Structure.....                                      | 714 |
| Fields.....   | 715 |
| Comparison Operators .....                                | 716 |
| Comparison Values.....                                    | 717 |
| <b>Comparison Values</b> .....                            | 718 |
| Comparison formats by data type .....                     | 719 |
| <b>Entering String Values</b> .....                       | 720 |
| <b>Entering Numeric Values</b> .....                      | 722 |
| <b>Selecting Logical values</b> .....                     | 723 |
| <b>Selecting Date and Datetime Values</b> .....           | 724 |
| <b>Date Entry</b> .....                                   | 724 |
| Comparison formats by operator type .....                 | 728 |
| <b>Single Value Comparisons</b> .....                     | 729 |
| <b>Entering Values in a List</b> .....                    | 730 |
| <b>Defining a Range of Values</b> .....                   | 731 |
| Connectors.....   | 732 |
| <b>Connectors</b> .....                                   | 733 |
| Parentheses .....   | 734 |
| <b>Parentheses</b> .....                                  | 735 |
| Developing and Modifying a Query .....                    | 737 |
| Developing and Modifying a Query .....                    | 738 |
| Defining Selection Rules.....                             | 739 |
| Editing a Query .....                                     | 741 |
| <b>Editing a Query</b> .....                              | 742 |
| <b>Editing an Existing Selection Rule</b> .....           | 743 |
| <b>Inserting a Selection Rule</b> .....                   | 744 |
| <b>Appending a Selection Rule</b> .....                   | 745 |
| <b>Deleting a Selection Rule</b> .....                    | 746 |
| Query Techniques.....                                     | 747 |
| Query Techniques .....                                    | 748 |
| Pattern-Matching with Wildcard Characters .....           | 749 |
| <b>Pattern-Matching with Wildcard Characters</b> .....    | 750 |
| <b>Wildcards in Character/Memo Field Queries</b> .....    | 751 |
| <b>Wildcards in Date Queries</b> .....                    | 752 |
| <b>Wildcards in Memo Field Queries</b> .....              | 754 |
| <b>Querying for Wildcard Characters as Literals</b> ..... | 755 |

|   |     |
|---|-----|
| Querying on Total Values.....                       | 756 |
| <b>Querying on Total Values</b> .....               | 757 |
| <b>Running v. Pre-Processed Totals</b> .....        | 758 |
| <b>Queries Involving Pre-Processed Totals</b> ..... | 759 |
| <b>Queries Involving Running Totals</b> .....       | 760 |
| Querying on Calculated Fields.....                  | 761 |
| <b>Querying on Calculated Fields</b> .....          | 762 |
| <b>Comparing a Field to an Expression</b> .....     | 763 |
| Querying on Parameter Fields.....                   | 764 |
| <b>Querying on Parameter Fields</b> .....           | 765 |
| Chapter 13  Creating Charts.....                    | 766 |
| <b>Introduction (Creating Charts)</b> .....         | 767 |
| Creating an Embedded Chart.....                     | 768 |
| Creating an Embedded Chart.....                     | 769 |
| Inserting the Chart.....                            | 770 |
| Selecting a Chart Type and Style.....               | 771 |
| Specifying the Data To Be Charted.....              | 772 |
| Adding Titles and Labels.....                       | 773 |
| Specifying Size, Font, and Other Options.....       | 774 |
| Previewing the Completed Report.....                | 775 |
| Modifying an Existing Embedded Chart.....           | 776 |
| Understanding the Charting Tabbed Dialogs.....      | 777 |
| Understanding the Charting Tabbed Dialogs.....      | 778 |
| Using the Type Tab.....                             | 779 |
| Using the Style Tab.....                            | 781 |
| <b>Using the Style Tab</b> .....                    | 782 |
| <b>Style Options for Bar Charts</b> .....           | 783 |
| <b>Style Options for Area Charts</b> .....          | 784 |
| Using the Data Tab.....                             | 785 |
| <b>Using the Data Tab</b> .....                     | 786 |
| Using the Text, Options, and Font Tabs.....         | 788 |
| <b>Using the Text, Options, and Font Tabs</b> ..... | 789 |
| <b>Text Property Page</b> .....                     | 790 |
| <b>Options Property Page</b> .....                  | 792 |
| <b>Font Property Page</b> .....                     | 794 |
| Sample Charting Scenarios.....                      | 795 |
| Sample Charting Scenarios.....                      | 796 |
| Chart of Customer Totals in Summary Band.....       | 797 |

|  |     |
|--|-----|
| Chart of Sales Attributable to Product Line.....         | 798 |
| Special Considerations for Charting .....                | 799 |
| Special Considerations for Charting.....                 | 800 |
| Sort Field & Label Field.....                            | 801 |
| Combine Dups.....  | 802 |
| Chart Anchoring.....                                     | 803 |
| Significance of the Order of Selected Fields .....       | 804 |
| Group Levels and Charting .....                          | 805 |
| Chapter 14 Adding Lines, Boxes, and Shading.....         | 806 |
| <b>Introduction (Adding Lines, Boxes, Shading)</b> ..... | 807 |
| Drawing and Manipulating Lines.....                      | 808 |
| Drawing and Manipulating Lines.....                      | 809 |
| Drawing and Positioning a Line.....                      | 810 |
| Changing Line Thickness, Style and Color .....           | 811 |
| Drawing and Manipulating Boxes .....                     | 812 |
| Drawing and Manipulating Boxes .....                     | 813 |
| Drawing and Positioning a Box .....                      | 814 |
| Specifying Alignment.....                                | 815 |
| Sizing a Box.....  | 816 |
| Changing Border Thickness, Style and Color.....          | 817 |
| Excluding One or More Box Sides.....                     | 818 |
| Adding Shading .....                                     | 819 |
| Adding Shading .....                                     | 820 |
| Extending Lines and Boxes Across Bands .....             | 822 |
| Extending Lines and Boxes Across Bands .....             | 823 |
| Reports with New-Page Lines.....                         | 824 |
| Reports with Multiple Records Across.....                | 825 |
| Boxes and Lines that Extend Across Pages.....            | 826 |
| Special Considerations .....                             | 827 |
| Special Considerations .....                             | 828 |
| Increasing Line or Box Thickness.....                    | 829 |
| Lines and Boxes on Automatic Band Lines.....             | 830 |
| Band Lines with Logical or Scan Conditions.....          | 831 |
| Chapter 15 Inserting Bitmapped Images .....              | 832 |
| <b>Introduction (Inserting Bitmapped Images)</b> .....   | 833 |
| <b>Supported Image File Formats</b> .....                | 834 |
| <b>Inserting a Picture from a File</b> .....             | 835 |
| <b>Pasting an Image from the Clipboard</b> .....         | 836 |

|  |     |
|--|-----|
| <b>Inserting a Picture from Field</b> .....            | 837 |
| <b>Placing and Sizing an Image on the Layout</b> ..... | 840 |
| Using the Picture Properties Dialog.....               | 841 |
| Using the Picture Properties Dialog.....               | 842 |
| Sizing an Image Using Picture Properties.....          | 843 |
| Selecting a Scaling Setting .....                      | 844 |
| <b>Selecting a Scaling Setting</b> .....               | 845 |
| <b>Selecting the Zoom Scaling Option</b> .....         | 846 |
| <b>Selecting the Crop Scaling Option</b> .....         | 847 |
| <b>Selecting the Stretch Scaling Option</b> .....      | 848 |
| Specifying Alignment .....                             | 849 |
| <b>Specifying Alignment</b> .....                      | 850 |
| Selecting a Different Image File.....                  | 851 |
| <b>Selecting a Different Image File</b> .....          | 852 |
| Chapter 16 Printing Reports .....                      | 853 |
| <b>Introduction (Printing Reports)</b> .....           | 854 |
| <b>Overview of Print-Related Commands</b> .....        | 855 |
| Defining Page Setup and Record Layout .....            | 856 |
| Defining Page Setup and Record Layout .....            | 857 |
| Specifying Page Setup Settings .....                   | 858 |
| <b>Specifying Page Setup Settings</b> .....            | 859 |
| <b>Changing Paper Size</b> .....                       | 860 |
| <b>Changing Paper Source</b> .....                     | 861 |
| <b>Changing Page Orientation</b> .....                 | 862 |
| <b>Setting Margins</b> .....                           | 863 |
| Defining Record Layout .....                           | 864 |
| <b>Defining Record Layout</b> .....                    | 865 |
| <b>Multiple Columns Settings</b> .....                 | 866 |
| Columns.....   | 866 |
| Snaked-Column Reports .....                            | 866 |
| Label Type.....  | 868 |
| Dimensions .....                                       | 869 |
| Copies.....  | 869 |
| <b>Record Formatting Settings</b> .....                | 870 |
| Compress Record/Group Lines .....                      | 870 |
| Suppress Record Lines .....                            | 870 |
| Begin New Line on Semicolon.....                       | 870 |
| Headers/Footers in Summary.....                        | 870 |
| Break Record Area Across Pages .....                   | 870 |
| <b>Print Records Setting</b> .....                     | 872 |
| Previewing and Printing a Report .....                 | 873 |

|   |     |
|---|-----|
| Previewing and Printing a Report .....              | 874 |
| Print Dialog Settings.....                          | 875 |
| Windows Printer Properties Dialog Settings.....     | 876 |
| Previewing a Report.....                            | 877 |
| <b>Previewing a Report</b> .....                    | 878 |
| <b>Dealing with Low Memory During Preview</b> ..... | 881 |
| Pause Print Process.....                            | 881 |
| Free Earlier Pages .....                            | 881 |
| Terminate Preview Process .....                     | 881 |
| Changing the Print Settings .....                   | 882 |
| <b>Changing the Print Settings</b> .....            | 883 |
| <b>"Print What" List Box</b> .....                  | 884 |
| <b>Printing Multiple Report Copies</b> .....        | 885 |
| <b>Changing the Print Range Setting</b> .....       | 886 |
| Printing to a File.....                             | 887 |
| <b>Printing to a File</b> .....                     | 888 |
| Printing to a PDF File .....                        | 889 |
| <b>Printing to a PDF file</b> .....                 | 890 |
| Printing a Report Specification.....                | 891 |
| <b>Printing a Report Specification</b> .....        | 892 |
| Printing a Test Pattern .....                       | 893 |
| <b>Printing a Test Pattern</b> .....                | 894 |
| Controlling Pagination .....                        | 895 |
| Controlling Pagination.....                         | 896 |
| Page Setup Settings .....                           | 897 |
| Record Layout Settings.....                         | 898 |
| Inserting a Page Break .....                        | 899 |
| Word-Wrapped Fields.....                            | 900 |
| Line Heights.....                                   | 901 |
| Widow/Orphan Control .....                          | 902 |
| Chapter 17 Exporting Data .....                     | 903 |
| <b>Introduction (Exporting Data)</b> .....          | 904 |
| <b>Multiple Band Export Formats</b> .....           | 904 |
| HTML.....   | 904 |
| <b>Single Band Export Formats</b> .....             | 904 |
| <b>Email Options and Bursting</b> .....             | 905 |
| <b>OLE Export Formats</b> .....                     | 905 |
| Multiple Band Export Formats.....                   | 907 |
| Exporting to a Text File .....                      | 908 |
| <b>Exporting to a Text File</b> .....               | 909 |

|  |     |
|--|-----|
| Exporting to a Rich Text Format (RTF) File .....               | 910 |
| <b>Exporting to a Rich Text Format (RTF) File</b> .....        | 911 |
| Exporting to HTML .....  | 912 |
| <b>Procedures for Exporting to HTML</b> .....                  | 913 |
| <b>Image</b> .....   | 914 |
| <b>Background</b> .....  | 914 |
| Exporting to an ActiveX Viewer Control File .....              | 915 |
| <b>Exporting to an ActiveX Viewer Control File</b> .....       | 916 |
| <b>Procedures for Exporting to a Viewer Control File</b> ..... | 919 |
| Embedding the Viewer Control in an HTML File .....             | 920 |
| <b>Embedding the Viewer Control in an HTML File</b> .....      | 921 |
| <b>Using the HTML Export Options Tab</b> .....                 | 922 |
| <b>Syntax for the HTML Container File</b> .....                | 923 |
| Single Band Export Formats .....                               | 925 |
| Exporting to an Xbase File .....                               | 926 |
| <b>Exporting to an Xbase File</b> .....                        | 927 |
| <b>Export Band</b> .....                                       | 927 |
| Exporting to a Result Set .....                                | 928 |
| <b>Exporting to Result Set (.dbf)</b> .....                    | 929 |
| <b>Export Band</b> .....                                       | 929 |
| <b>Using the Result Set Viewer</b> .....                       | 930 |
| <b>The Result Set Database</b> .....                           | 931 |
| Exporting to a Worksheet File .....                            | 932 |
| <b>Exporting to a Worksheet File</b> .....                     | 933 |
| <b>Export Band</b> .....                                       | 933 |
| Exporting to a Text Data File .....                            | 934 |
| <b>Exporting to a Text Data File</b> .....                     | 935 |
| Export Band .....  | 935 |
| Text Options .....   | 935 |
| Setting Mail Options .....                                     | 936 |
| Setting Mail Options .....                                     | 937 |
| Exporting to OLE .....   | 942 |
| Exporting to an Excel 5.0 Chart .....                          | 943 |
| <b>Exporting to an Excel 5.0 Chart</b> .....                   | 944 |
| <b>General Procedures</b> .....                                | 945 |
| <b>Specifying Data Elements for a Chart</b> .....              | 947 |
| Exporting to an Excel 5.0 PivotTable .....                     | 948 |
| <b>Exporting to an Excel 5.0 PivotTable</b> .....              | 949 |
| <b>General Procedures</b> .....                                | 950 |
| <b>Specifying Labels and Cell Data for the Crosstab</b> .....  | 952 |

|            |  |     |
|------------|--|-----|
| Chapter 18 | Creating Multiple-Scan Reports.....                      | 954 |
|            | <b>Introduction (Multiple-Scan Reports)</b> .....        | 955 |
|            | <b>Conventional v. Multiple-Scan Reports</b> .....       | 956 |
|            | <b>Multiple Scanning and Composite Records</b> .....     | 957 |
|            | Multiple Scanning and Report Layout.....                 | 959 |
|            | Multiple Scanning and Report Layout.....                 | 960 |
|            | Using Scan Tables to Print Conditionally.....            | 961 |
|            | Using Calculated Fields to Conditionally Print.....      | 964 |
|            | Tools for Creating Multiple-Scan Reports.....            | 967 |
|            | Tools for Creating Multiple-Scan Reports .....           | 968 |
|            | Scan Table Setting.....                                  | 969 |
|            | Band Line Properties Dialog Box.....                     | 970 |
|            | Scan Group Dialog.....                                   | 971 |
|            | The SCANNING Function and Group Fields.....              | 973 |
|            | The SCANNING Function and Sort Fields.....               | 974 |
|            | Using SCANNING to "Swap" Data .....                      | 975 |
| Chapter 19 | Creating Form Letter Reports .....                       | 976 |
|            | <b>Introduction (Creating Form Letter Reports)</b> ..... | 977 |
|            | <b>Introduction to Merging</b> .....                     | 978 |
|            | Preparing Text for Merging.....                          | 979 |
|            | Preparing Text for Merging.....                          | 980 |
|            | Text Files.....  | 981 |
|            | Table Memo Files.....                                    | 982 |
|            | Including Field Data in Text.....                        | 983 |
|            | Formatting Text: Line Endings.....                       | 985 |
|            | Formatting Text: Horizontal Spacing.....                 | 986 |
|            | Formatting Text: Fonts and Styles .....                  | 987 |
|            | <b>Formatting Text: Fonts and Styles</b> .....           | 988 |
|            | <b>Fonts Codes in Text</b> .....                         | 989 |
|            | <b>Style Codes in Text</b> .....                         | 990 |
|            | <b>Formatting Text: ASCII Characters</b> .....           | 991 |
|            | Attaching Files for Merging.....                         | 992 |
|            | Attaching Files for Merging.....                         | 993 |
|            | Using a Text Memo File .....                             | 994 |
|            | <b>Using a Text Memo File</b> .....                      | 995 |
|            | <b>Attaching a Text Memo File</b> .....                  | 996 |
|            | <b>Detaching a Text Memo File</b> .....                  | 997 |
|            | Using a Table.....                                       | 998 |
|            | <b>Using a Table</b> .....                               | 999 |

|   |             |
|---|-------------|
| <b>Memo Fields</b> .....                                    | 1000        |
| Creating Merge Report Layouts.....                          | 1001        |
| Creating Merge Report Layouts .....                         | 1002        |
| Memo Field Symbol .....                                     | 1003        |
| Generating Merge Reports .....                              | 1004        |
| Features Affecting Merge Reports.....                       | 1005        |
| Features Affecting Merge Reports .....                      | 1006        |
| Word-Wrap Format of Memo Fields .....                       | 1007        |
| Field Width of Memo Fields .....                            | 1008        |
| <b>Field Width of Memo Fields</b> .....                     | 1009        |
| <b>Field Width and Format of Embedded Data Fields</b> ..... | 1010        |
| Conditionally Including Memo Fields .....                   | 1011        |
| <b>Conditionally Including Memo Fields</b> .....            | 1012        |
| <b>Blank Lines</b> .....                                    | 1013        |
| <b>Page Breaks</b> .....                                    | 1014        |
| Chapter 20 Embedding or Linking Objects .....               | 1015        |
| <b>Introduction (Embedding/Linking Objects)</b> .....       | 1016        |
| Embedding Objects .....                                     | 1017        |
| Embedding Objects.....                                      | 1018        |
| Embedding an Object Using Insert Object .....               | 1019        |
| Embedding an Object Using Paste Special .....               | 1020        |
| Modifying an Embedded Object .....                          | 1021        |
| <b>Modifying an Embedded Object</b> .....                   | 1022        |
| <b>Modifying the Content of an Embedded Object</b> .....    | 1023        |
| <b>Changing the Size of an Embedded Object</b> .....        | 1024        |
| Linking Objects .....                                       | 1025        |
| Linking Objects .....                                       | 1026        |
| Creating a Link Using Insert Object.....                    | 1027        |
| Creating a Link Using Paste Special.....                    | 1028        |
| Updating Links .....  | 1029        |
| <b>INI FILE SETTINGS</b> .....                              | <b>1030</b> |
| Introduction .....  | 1031        |
| RRW.INI .....   | 1032        |
| RRW.SRT .....   | 1040        |
| RRWFIF.INI .....  | 1041        |
| RRWLINK.INI .....   | 1042        |
| RL.INI .....  | 1043        |

|   |             |
|---|-------------|
| <b>REFERENCE INFORMATION.....</b>                       | <b>1044</b> |
| R&R REPORTWORKS LICENSE AGREEMENT .....                 | 1045        |
| Data Types Supported by R&R .....                       | 1048        |
| Glossary of Terms.....                                  | 1049        |
| <b>R&amp;R REPORTWORKS UTILITY PROGRAMS .....</b>       | <b>1051</b> |
| License Management.....                                 | 1052        |
| <b>R&amp;R Xbase User Management</b> .....              | 1053        |
| Report Librarian .....                                  | 1055        |
| <b>Introduction to Report Librarian</b> .....           | 1056        |
| Data Dictionary Editor .....                            | 1057        |
| <b>Introduction to Data Dictionary</b> .....            | 1058        |
| Rapid Runner .....                                      | 1060        |
| Introduction to Rapid Runner .....                      | 1061        |
| Runtime Shortcuts.....                                  | 1062        |
| <b>R&amp;R ReportWorks Shortcut Maker Utility</b> ..... | 1063        |
| Report File Conversion.....                             | 1066        |
| <b>ReportWorks Report Conversion Utility</b> .....      | 1067        |
| Important note on Conversion.....                       | 1067        |
| <b>DEVELOPING APPLICATIONS .....</b>                    | <b>1070</b> |
| <b>ERROR MESSAGES .....</b>                             | <b>1071</b> |
| Alphabetical List of Error Messages.....                | 1072        |
| A.....  | 1072        |
| B.....  | 1072        |
| C.....  | 1072        |
| D.....  | 1074        |
| E.....  | 1074        |
| F.....  | 1074        |
| G.....  | 1075        |
| H.....  | 1075        |
| I.....  | 1075        |
| J.....  | 1078        |
| K.....  | 1078        |
| L.....  | 1078        |
| M.....  | 1078        |
| N.....  | 1078        |

|   |             |
|---|-------------|
| O.....  | 1079        |
| P.....  | 1079        |
| Q.....  | 1079        |
| R.....  | 1079        |
| S.....  | 1080        |
| T.....  | 1080        |
| U.....  | 1081        |
| V.....  | 1082        |
| W.....  | 1082        |
| X.....  | 1082        |
| Y.....  | 1082        |
| Z.....  | 1082        |
| <b>TECHNICAL SUPPORT .....</b>  | <b>1083</b> |
| Technical Support.....  | 1084        |
| <b>CONVERT TO VISUAL FOXPRO DBC .....</b>   | <b>1087</b> |
| <b>EXPLODE LIBRARY (REPORT LIBRARY TO INDIVIDUAL RRW/RSW<br/>REPORT FILES).....</b> | <b>1088</b> |
| <b>RP1 TO RP5 (DOS XBASE TO WINDOWS XBASE) CONVERSION .....</b>                     | <b>1089</b> |
| <b>RP1 TO RP6 (DOS XBASE TO WINDOWS SQL) CONVERSION .....</b>                       | <b>1090</b> |
| <b>RP2 TO RP6 (DOS WORKSHEETS TO WINDOWS SQL) CONVERSION</b>                        | <b>1091</b> |
| <b>RP3 TO RP6 (DOS SQL TO WINDOWS SQL) CONVERSION .....</b>                         | <b>1092</b> |
| <b>RP4 TO RP6 (DOS PARADOX TO WINDOWS SQL) .....</b>                                | <b>1093</b> |
| <b>RP5 TO RP1 (WINDOWS XBASE TO DOS XBASE) CONVERSION .....</b>                     | <b>1094</b> |
| <b>RP5 TO RP6 (WINDOWS XBASE TO WINDOWS SQL) CONVERSION ..</b>                      | <b>1095</b> |
| <b>RP6 TO RP5 (WINDOWS SQL TO WINDOWS XBASE) CONVERSION ..</b>                      | <b>1096</b> |
| <b>RRW TO RP5 (XBASE FILE TO XBASE LIBRARY) CONVERSION.....</b>                     | <b>1097</b> |
| <b>RRW TO RSW (XBASE TO SQL WINDOWS) CONVERSION.....</b>                            | <b>1098</b> |
| <b>RSW TO RP6 (SQL WINDOWS TO SQL LIBRARY) CONVERSION.....</b>                      | <b>1099</b> |
| <b>RSW TO RRW (SQL WINDOWS TO XBASE) CONVERSION.....</b>                            | <b>1100</b> |

|   |             |
|---|-------------|
| Select Report Source Dialog .....   | 1101        |
| Introduction (Using Menus and Dialogs) .....                                    | 1102        |
| Specifying Alignment.....   | 1103        |
| The Result Set Browser Window.....  | 1104        |
| Viewing the Result Set.....   | 1107        |
| Using R&R Report Wizards .....  | 1108        |
| Changing Color-Coding Settings.....   | 1110        |
| Horizontal and Vertical Rulers.....   | 1111        |
| <b>NAME .....</b>   | <b>1112</b> |
| ParameteRR Field Examples .....   | 1113        |
| Options: Display Caption, Prompt at Runtime .....                               | 1116        |
| Options: Display Caption, Prompt at Runtime un-checked .....                    | 1117        |
| Options: Display Caption, Prompt at Runtime, Format, Instructions .....         | 1118        |
| Options: Prompt at Runtime, Format, Validation, Instructions .....              | 1119        |
| Options: Display Caption, Prompt at Runtime, Validation List, Instructions..... | 1120        |
| Paste Special Dialog Box.....   | 1122        |
| Auto Total Name Tab.....  | 1123        |
| <b>AVAILABLE FIELD CLASS VALUES.....</b>  | <b>1124</b> |
| Band Line Properties Condition Tab .....  | 1125        |
| Band Line Properties Height Tab .....   | 1126        |
| <b>CLASS .....</b>  | <b>1127</b> |
| Conditional Expression .....  | 1128        |
| Procedures for Creating a Report Dictionary .....                               | 1129        |
| <b>DESCRIPTION.....</b>   | <b>1130</b> |
| Excel Chart Specification Dialog .....  | 1131        |
| Excel PivotTable Specification Dialog .....                                     | 1132        |
| Delete Calculation Dialog Box .....   | 1133        |
| Delete Total Dialog Box .....   | 1134        |
| Specifying Data Elements for a Chart.....                                       | 1135        |
| Specifying Labels and Cell Data .....   | 1136        |
| Master Table Dialog Box .....   | 1137        |
| Procedures for Exporting to a PivotTable .....                                  | 1138        |
| Procedures for Exporting to a Chart.....  | 1139        |

|   |             |
|---|-------------|
| Total Condition Dialog Box .....                | 1140        |
| User Function.....                              | 1142        |
| Duplicate Export Field Warning .....            | 1143        |
| Dynamic List Parameter Validation Tab.....      | 1144        |
| Edit Parameter Validation .....                 | 1145        |
| Total Accumulation Tab .....                    | 1146        |
| Edit Total Condition Tab.....                   | 1147        |
| Total Field Name Tab .....                      | 1148        |
| Edit Total Processing Tab .....                 | 1149        |
| Total Reset Tab .....                           | 1150        |
| Total Target/Type Tab .....                     | 1151        |
| Procedures for Editing a Report Dictionary..... | 1153        |
| <b>ENABLING SNAP TO GRID .....</b>              | <b>1154</b> |
| File Export ActiveX.....                        | 1155        |
| HTML Export Options.....                        | 1157        |
| File Export Mail Options .....                  | 1158        |
| File Export Options.....                        | 1160        |
| File Export Type and File Name.....             | 1165        |
| Comma delimited .....                           | 1166        |
| SDF Fixed Width .....                           | 1166        |
| File Security.....                              | 1168        |
| Flexlink Index Expression.....                  | 1169        |
| Insert Database Field .....                     | 1171        |
| Select Image Locator Field .....                | 1176        |
| Lookup Parameter value list.....                | 1179        |
| Multi-Edit Total Accumulation .....             | 1180        |
| Multi-Edit Total Condition.....                 | 1181        |
| Multi-Edit Total Processing .....               | 1182        |
| Multi-Edit Total Reset .....                    | 1183        |
| Multi-Edit Total Select Fields.....             | 1184        |
| Multi-Edit Total Target .....                   | 1185        |
| Multi-Edit Total Type .....                     | 1186        |
| New Parameter validation.....                   | 1188        |

|  |             |
|--|-------------|
| <b>NUMBERED DISPLAY ORDER .....</b>        | <b>1189</b> |
| Options Preferences Auto Save .....        | 1190        |
| File New.....                              | 1190        |
| Memo Editor .....                          | 1190        |
| Options Preferences Display .....          | 1191        |
| File New.....                              | 1191        |
| Memo Editor .....                          | 1191        |
| Options Preferences Field Lists.....       | 1192        |
| File New.....                              | 1192        |
| Memo Editor .....                          | 1192        |
| Options Preferences File New.....          | 1193        |
| Memo Editor .....                          | 1193        |
| Options Preferences Memo Editor .....      | 1194        |
| File New.....                              | 1194        |
| Static ParameteRR List Validation Tab..... | 1195        |
| ParameteRR Name Tab.....                   | 1197        |
| ParameteRR Presentation Tab.....           | 1198        |
| ParameteRR Validation Tab .....            | 1199        |
| ParameteRR Value Tab .....                 | 1200        |
| Replace Calculated Expression .....        | 1212        |
| Select Field Name .....                    | 1213        |
| Select Group Field Dialog .....            | 1214        |
| Select Link Field .....                    | 1215        |
| Select Logical Field .....                 | 1216        |
| Select Message Field .....                 | 1217        |
| Select ParameteRR Scope field .....        | 1218        |
| Select Record Copies Field .....           | 1219        |
| Select Send To Field.....                  | 1220        |
| Select Sort Field Dialog.....              | 1221        |
| Select Subject Field.....                  | 1222        |
| Select Target Field Dialog .....           | 1223        |
| Select Value Field .....                   | 1224        |
| <b>TABLE ALIAS NAME .....</b>              | <b>1225</b> |
| <b>TYPE .....</b>                          | <b>1226</b> |
| View Ruler .....                           | 1228        |

|   |      |
|---|------|
| Alignment Dialog (Lines, Boxes, Images, and OLE Objects)..... | 1229 |
| Format Character ParameteRR.....                              | 1230 |
| Chart Data Tab.....   | 1231 |
| Chart Font Tab .....  | 1233 |
| Chart Options Tab.....  | 1234 |
| Chart Style Tab .....   | 1235 |
| Chart Text Tab .....  | 1236 |
| Chart Type Tab .....  | 1237 |
| Export to Text Data/Word Merge Dialog .....                   | 1238 |
| Alignment Tab.....  | 1240 |
| Master Table Dialog Box .....                                 | 1241 |
| Format Date ParameteRR.....                                   | 1243 |
| Format Date/Time ParameteRR.....                              | 1244 |
| Auto Total Dialog Box.....                                    | 1245 |
| Box Properties Dialog Box .....                               | 1246 |
| Field Comment Tab .....                                       | 1247 |
| Edit Calculation Dialog Box.....                              | 1248 |
| Calculated Expression Dialog Box .....                        | 1250 |
| New Calculation Dialog Box .....                              | 1251 |
| Width Tab (Character or Memo Field) .....                     | 1253 |
| Save Report Dialog Box .....                                  | 1254 |
| Field Comment Dialog .....                                    | 1255 |
| Copy Report Dialog Box .....                                  | 1256 |
| Format DateTime Field Tab .....                               | 1257 |
| Format Date Field Tab .....                                   | 1258 |
| Default File Settings Dialog .....                            | 1259 |
| Confirm Deletion Dialog Box.....                              | 1260 |
| Calculated Fields Dialog Box.....                             | 1261 |
| Edit Reset Dialog Box .....                                   | 1275 |
| Insert Field Dialog Box .....                                 | 1276 |
| Total Fields Dialog .....                                     | 1277 |
| User Functions Dialog Box.....                                | 1278 |
| Text Export Options Dialog.....                               | 1279 |

|   |             |
|---|-------------|
| Xbase/Worksheet Export Options Dialog ..... | 1280        |
| Export Dialog Box .....                     | 1281        |
| File New Dialog Box .....                   | 1282        |
| Save As Dialog .....                        | 1283        |
| File Properties Dialog.....                 | 1284        |
| Open File Dialog Box .....                  | 1285        |
| Key Expression Dialog Box .....             | 1286        |
| Default Settings Dialog Box.....            | 1287        |
| Group Order Dialog Box.....                 | 1289        |
| Picture Properties Dialog.....              | 1290        |
| Insert Field Dialog Box .....               | 1291        |
| Band Line Justify Dialog Box.....           | 1292        |
| Index Key Expression Dialog Box .....       | 1293        |
| Create Band Line Dialog Box .....           | 1294        |
| Band Line Properties Type Tab.....          | 1295        |
| Line Properties Dialog Box .....            | 1296        |
| Mail Options.....                           | 1297        |
| Master Table Dialog Box .....               | 1298        |
| Master Index Dialog Box.....                | 1300        |
| Format Numeric Field Tab .....              | 1301        |
| Object Properties Dialog .....              | 1302        |
| Picture File Selection Dialog .....         | 1303        |
| Open Report/Template Dialog.....            | 1304        |
| Copy Report To Dialog Box.....              | 1306        |
| Paste Dialog Box.....                       | 1307        |
| Print Dialog Box.....                       | 1308        |
| <b>PROMPT TEXT DIALOG .....</b>             | <b>1310</b> |
| Page Setup Dialog .....                     | 1311        |
| Purge Calculations Dialog Box.....          | 1312        |
| Query Dialog Box.....                       | 1313        |
| Selection Rule Dialog.....                  | 1314        |
| Record Layout Dialog Box .....              | 1315        |
| Relations Dialog Box .....                  | 1317        |

|   |             |
|---|-------------|
| Edit Relation Dialog Box.....                   | 1318        |
| New Relation Dialog Box .....                   | 1320        |
| Open Report/Template from Library Dialog.....   | 1322        |
| Related Index Dialog Box.....                   | 1323        |
| Preferences Dialog Box.....                     | 1324        |
| Related Table Dialog Box .....                  | 1326        |
| Ruler Spacing Dialog .....                      | 1327        |
| Scan Group Dialog Box.....                      | 1328        |
| Sort Order Dialog Box .....                     | 1329        |
| Font Dialog Box .....                           | 1330        |
| Format Time Field Tab.....                      | 1331        |
| Edit Total Dialog Box.....                      | 1332        |
| New Total Dialog Box .....                      | 1333        |
| Text File Dialog .....                          | 1334        |
| Text File Selection Dialog.....                 | 1335        |
| Text Field Edit Tab.....                        | 1336        |
| Edit User Function Dialog Box.....              | 1337        |
| User Functions .....                            | 1339        |
| New User Function Dialog Box .....              | 1340        |
| <b>VALUE LISTS DIALOG .....</b>                 | <b>1342</b> |
| Toolbars Dialog .....                           | 1343        |
| Index Tag Selection Dialog.....                 | 1344        |
| ParameteRR Value Entry.....                     | 1345        |
| <b>Modifying a character value</b> .....        | 1346        |
| <b>Modifying a numeric value</b> .....          | 1346        |
| <b>Modifying a date or datetime value</b> ..... | 1346        |
| Date entry.....                                 | 1346        |
| <b>Selecting a logical value</b> .....          | 1348        |
| <b>Selecting a Static list value</b> .....      | 1348        |
| <b>Selecting a Dynamic list value</b> .....     | 1348        |
| HTML Export Tabbed Dialog.....                  | 1351        |
| Link Directory .....                            | 1352        |
| Export Tab (Text/Memo Properties Dialog) .....  | 1353        |
| Format Numeric ParameteRR.....                  | 1354        |
| ParameteRR Fields Dialog .....                  | 1355        |

|  |             |
|--|-------------|
| Preview Window .....   | 1356        |
| Selecting a character match length .....   | 1357        |
| Step 5 - Select how a character linking field will match the related table index key.                          | 1357        |
| Selecting a Failure Action.....  | 1358        |
| Step 6 – Select behavior when a matching record is not found in the related table.                             | 1358        |
| Selecting a Linking Field .....  | 1360        |
| Step 1 –Select Linking Field from ‘Controlling’ left side Table: .....   | 1360        |
| Selecting a related index .....  | 1362        |
| Step 3 – Method to locate matching record(s) in the related table: .....                                       | 1362        |
| Selecting a related table .....  | 1364        |
| Step 2 – Link to ‘Related (right side table): .....  | 1364        |
| Selecting a relation type .....  | 1365        |
| Step 4 – Select type of record match .....   | 1365        |
| Report Dictionary Builder Utility .....  | 1366        |
| Export to Rich Text Format Dialog.....   | 1368        |
| Saving a Report with OLE Objects to a Library .....  | 1369        |
| Input File Tab (ActiveX Control Export) .....  | 1370        |
| Object Tag Tab (ActiveX Control Export) .....  | 1371        |
| <b>(FILENAME) CANNOT FIND THIS FILE. PLEASE VERIFY THAT THE<br/>CORRECT PATH AND FILE NAME ARE GIVEN. ....</b> | <b>1372</b> |
| <b>(FILENAME) UNABLE TO REGISTER DOCUMENT. THE DOCUMENT MAY<br/>ALREADY BE OPEN. ....</b>                      | <b>1373</b> |
| <b>&lt;REPORT NAME&gt; IS BEING USED. DO YOU WANT TO MAKE A COPY?1374</b>                                      |             |
| <b>ABNORMAL VIEWER TERMINATION.....</b>  | <b>1375</b> |
| <b>ABSOLUTE OR RELATIVE URL ADDRESS MUST CONTAIN<br/>RRPRVIEW.CAB .....</b>                                    | <b>1376</b> |
| <b>ABSOLUTE OR RELATIVE URL ADDRESS REQUIRED.....</b>  | <b>1377</b> |
| <b>AN UNEXPECTED ERROR OCCURRED WHILE READING (FILENAME)</b>   | <b>1378</b> |
| <b>ARGUMENT NAME IN USE.....</b>   | <b>1379</b> |
| <b>AUTO RECOVERY .....</b>   | <b>1380</b> |
| <b>BAD INPUT LINE, OR INVALID TEXT CONTROL FILE: (FILENAME)....</b>  | <b>1381</b> |
| <b>CALCULATED FIELD (FIELD NAME) MUST BE EDITED .....</b>  | <b>1382</b> |

|   |      |
|---|------|
| CALCULATION BUFFER OVERFLOW .....                         | 1383 |
| CALCULATION CODE OVERFLOW AT OFFSET (N) OF RI_FILTER..... | 1384 |
| CAN QUERY ONLY ON HIGHEST LEVEL PRE-PROCESSED TOTALS .    | 1385 |
| CANNOT ACCESS USER FUNCTION LIBRARY .....                 | 1386 |
| CANNOT ACTIVATE A STATIC OLE OBJECT .....                 | 1387 |
| CANNOT APPLY RECORD NUMBER SCOPE TO EMPTY MASTER TABLE    | 1388 |
| CANNOT COMPARE A MEMO FIELD TO ANOTHER FIELD .....        | 1389 |
| CANNOT CREATE BAND LINE .....                             | 1390 |
| CANNOT CREATE/FIND/OPEN/READ/WRITE ... .....              | 1391 |
| CANNOT DELETE LINKING FIELD (FIELD NAME) .....            | 1392 |
| CANNOT EXECUTE R&R WIZARDS. ERROR CODE: (N) .....         | 1393 |
| CANNOT EXECUTE VIEWER EXE: ERROR CODE <CODE> .....        | 1394 |
| CANNOT EXPORT TO MASTER OR RELATED FILE .....             | 1395 |
| CANNOT FIND PRINTER LIBRARY FILE (FILENAME) .....         | 1396 |
| CANNOT FIND SERIAL NUMBER IN USER FILE .....              | 1397 |
| CANNOT LINK USING NULLABLE KEY .....                      | 1398 |
| CANNOT LINK WITH COMPOSITE RECORD NUMBER FIELD.....       | 1399 |
| CANNOT LOAD PRINTER LIBRARY FILE RRPD.DLL .....           | 1400 |
| CANNOT MATCH PRINTER OR PORT IN CONTROL FILE.....         | 1401 |
| CANNOT OPEN CONTROL FILE: (FILE NAME) .....               | 1402 |
| CANNOT OPEN DATABASE TABLE (FILE MAY BE IN USE).....      | 1403 |
| CANNOT OPEN INDEX FILE (FILE MAY BE IN USE).....          | 1404 |
| CANNOT OPEN LIBRARY FILE (FILE NAME).....                 | 1405 |
| CANNOT OPEN MEMO FILE (FILE MAY BE IN USE).....           | 1406 |

|   |      |
|---|------|
| CANNOT OPEN SCRIPT FILE (FILENAME).....                                 | 1407 |
| CANNOT OPEN STATUS FILE (FILENAME).....                                 | 1408 |
| CANNOT OPEN TEXT FILE (FILE MAY BE IN USE) .....                        | 1409 |
| CANNOT QUERY ON COMPOSITE RECORD NUMBER FIELD .....                     | 1410 |
| CANNOT QUERY ON PAGE NUMBER FIELD.....                                  | 1411 |
| CANNOT QUERY ON RUNNING TOTAL IF ANY TOTALS ARE PRE-<br>PROCESSED ..... | 1412 |
| CANNOT READ MEMO FILE .....   | 1413 |
| CANNOT READ USER FILE (FILE NAME) .....                                 | 1414 |
| CANNOT SCAN USING TOTAL-RELATED LINKING FIELD.....                      | 1415 |
| CANNOT SKIP IF LINKING FIELD IS TOTAL-RELATED .....                     | 1416 |
| CANNOT SORT ON COMPOSITE RECORD NUMBER FIELD .....                      | 1417 |
| CANNOT SORT ON SELF-REFERENCING FIELD.....                              | 1418 |
| CANNOT SORT OR GROUP ON MEMO FIELD .....                                | 1419 |
| CANNOT SORT OR GROUP ON PAGE NUMBER FIELD .....                         | 1420 |
| CANNOT SORT OR GROUP ON PREVIOUS( )-RELATED FIELD .....                 | 1421 |
| CANNOT SORT OR GROUP ON RUNNING-TOTAL-RELATED FIELD...                  | 1422 |
| CANNOT USE A FIELD IN A LIST.....                                       | 1423 |
| CANNOT USE A FIELD IN A RANGE.....                                      | 1424 |
| CANNOT USE AN EMPTY VALUE IN A RANGE.....                               | 1425 |
| CANNOT USE INDEX OR TAG ON NULLABLE KEY .....                           | 1426 |
| CANNOT USE PAGE TOTAL FIELD TO CONTROL LINE PRINTING.....               | 1427 |
| CANNOT USE QUERY( ) IN A USER-DEFINED FUNCTION .....                    | 1428 |
| CANNOT WRITE USER FILE .....  | 1429 |
| CHANGE WOULD CAUSE INVALID RUNNING TOTAL QUERY.....                     | 1430 |

|  |      |
|--|------|
| CHARACTER FIELD (FIELD NAME) IS NO LONGER IN TABLE (TABLE NAME).....                       | 1431 |
| CHARACTER STRING REQUIRED .....  | 1432 |
| CHART MUST BE EDITED: "CANNOT SPECIFY A SUB-CATEGORY FOR A CHART IN THE RECORD BAND" ..... | 1433 |
| CHART MUST BE EDITED: "MISSING "SELECTED FIELDS' OR 'LABEL" OR 'SORT FIELD" .....          | 1434 |
| CIRCULAR CALCULATIONS. CANNOT EVALUATE (FIELD NAME).....                                   | 1435 |
| COMMAND FAILED .....   | 1436 |
| CONDITION CANNOT BE MEMO FIELD.....  | 1437 |
| CONDITION CANNOT DEPEND ON A TOTAL .....   | 1438 |
| COULD NOT START PRINT JOB.....   | 1439 |
| DATA DIRECTORY DOES NOT EXIST .....  | 1440 |
| DATABASE ENCRYPTED .....   | 1441 |
| DATE FIELD (FIELD NAME) IS NO LONGER IN FILE (FILE NAME).....                              | 1442 |
| DATE REQUIRED.....   | 1443 |
| DATE REQUIRED. ENTER IN FORMAT MM/DD/YYYY .....  | 1444 |
| DEFAULT VALUE MUST BE A CONSTANT .....   | 1445 |
| DESTINATION DISK DRIVE IS FULL .....   | 1446 |
| DICTIONARY INDEX DOES NOT EXIST .....  | 1447 |
| DISK ERROR .....   | 1448 |
| DUPLICATE ALIAS.....   | 1449 |
| DUPLICATE FIELD NAME MUST HAVE TABLE ALIAS QUALIFIER .....                                 | 1450 |
| DUPLICATE NAME MUST BE QUALIFIED AT OFFSET (N) OF RI_FILTER                                | 1451 |
| DUPLICATE NAMES FOUND: (RUN-IN PARAMETER).....   | 1452 |
| DUPLICATE OR INVALID (RUNTIME COMMAND LINE SWITCH) SWITCH                                  | 1453 |

|   |      |
|---|------|
| DUPLICATE SORT FIELDS.....                                | 1454 |
| DUPLICATE SWITCH .....                                    | 1455 |
| EMPTY CONTROL FILE .....                                  | 1456 |
| ERROR CREATING OR WRITING TO (FILENAME) .....             | 1457 |
| ERROR CREATING PRINT PREVIEW WINDOW.....                  | 1458 |
| ERROR LOADING DRIVER LIBRARY .....                        | 1459 |
| ERROR OPENING REPORT DICTIONARY FILE .....                | 1460 |
| ERROR READING FILE <FILENAME> .....                       | 1461 |
| ERROR READING REPORT .....                                | 1462 |
| ERROR READING REPORT DICTIONARY FILE .....                | 1463 |
| ERROR WRITING TO R&R INITIALIZATION FILE .....            | 1464 |
| EVALUATE STACK OVERFLOW ON FIELD (FIELD NAME) .....       | 1465 |
| EXPRESSION REQUIRED .....                                 | 1466 |
| FAILED TO CONNECT. LINK MAY BE BROKEN .....               | 1467 |
| FAILED TO CONVERT OLE OBJECT .....                        | 1468 |
| FAILED TO CREATE EMPTY DOCUMENT.....                      | 1469 |
| FAILED TO LAUNCH HELP .....                               | 1470 |
| FAILED TO LAUNCH SERVER APPLICATION.....                  | 1471 |
| FAILED TO OPEN DOCUMENT.....                              | 1472 |
| FAILED TO SAVE DOCUMENT .....                             | 1473 |
| FATAL ERROR. SAVE YOUR REPORT; EXIT AND RESTART R&R ..... | 1474 |
| FAX/MODEM DEVICE NOT DETECTED ON MACHINE.....             | 1475 |
| FIELD DATATYPE NOT FOUND.....                             | 1476 |
| FIELD IS MISSING.....                                     | 1477 |

|  |      |
|--|------|
| FIELD IS NO LONGER IN DATABASE .....                                     | 1478 |
| FIELD NAME ALREADY USED .....  | 1479 |
| FIELD NAME IS NOT ALLOWED IN A RANGE OR LIST .....                       | 1480 |
| FIELD NAME MUST BE QUALIFIED .....                                       | 1481 |
| FIELD NAME REQUIRED .....  | 1482 |
| FIELD NOT FOUND .....  | 1483 |
| FIELD TYPES DO NOT MATCH .....   | 1484 |
| FIELDS WON'T FIT WITHIN CURRENT MARGIN SETTING .....                     | 1485 |
| FILE ALREADY EXISTS (FILE NAME) .....                                    | 1486 |
| FILE CONTAINS UNKNOWN FIELD TYPE .....                                   | 1487 |
| FILE ERROR (DESCRIPTION) (FILE ACTIVITY) .....                           | 1488 |
| FILE ERROR (NUMBER) .....  | 1489 |
| FIRST FOUR CHARACTERS OF NAME NOT UNIQUE .....                           | 1490 |
| FUNCTION (FUNCTION) REQUIRES FIELD NAME ARGUMENT .....                   | 1491 |
| FUNCTION REQUIRES FIELD NAME ARGUMENT AT OFFSET (N) OF<br>RI_FILTER..... | 1492 |
| FUNCTION USED IN ANOTHER FUNCTION CANNOT CONTAIN QUERY( )                | 1493 |
| FUNCTION USED IN THE QUERY CANNOT CONTAIN QUERY( ).....                  | 1494 |
| FUNCTIONS ARE NOT CURRENT .....  | 1495 |
| GENERAL PRINT SPOOLER ERROR .....  | 1496 |
| GROUP SCAN FAILURE .....   | 1497 |
| ILLEGAL USE OF QUERY .....   | 1498 |
| INCORRECT NUMERIC VALUE .....  | 1499 |
| INCORRECT PASSWORD FILE NOT SAVED. ....                                  | 1500 |
| INDEX BLOCK SIZE NOT SUPPORTED .....                                     | 1501 |

|   |      |
|---|------|
| INDEX FILE REQUIRED .....                               | 1502 |
| INSUFFICIENT FILE HANDLES.....                          | 1503 |
| INSUFFICIENT MEMORY ... .....                           | 1504 |
| INSUFFICIENT MEMORY TO COPY OR PASTE ADDITIONAL OBJECTS | 1505 |
| INSUFFICIENT MEMORY TO CREATE SCREEN FONT .....         | 1506 |
| INTERNAL APPLICATION ERROR .....                        | 1507 |
| INTERNAL FILE SETUP ERROR .....                         | 1508 |
| INVALID ALIAS .....                                     | 1509 |
| INVALID ARGUMENT .....                                  | 1510 |
| INVALID ARGUMENT AT OFFSET (N) OF RI_FILTER .....       | 1511 |
| INVALID ARGUMENT NAME .....                             | 1512 |
| INVALID CHECKPOINT VALUE: (VALUE) .....                 | 1513 |
| INVALID COMMAND LINE ARGUMENT .....                     | 1514 |
| INVALID CONTROL FILE RECORD NUMBER: (N) .....           | 1515 |
| INVALID CONTROL FILE STRUCTURE .....                    | 1516 |
| INVALID DATE .....                                      | 1517 |
| INVALID DATE VALUE .....                                | 1518 |
| INVALID DEFAULT DATA DIRECTORY .....                    | 1519 |
| INVALID DEFAULT IMAGE DIRECTORY .....                   | 1520 |
| INVALID DEFAULT REPORT DIRECTORY .....                  | 1521 |
| INVALID 'EQUIVALENCE' ON LINE (NUMBER) OF RRW.SRT ..... | 1522 |
| INVALID 'EXPANSION' ON LINE (NUMBER) OF RRW.SRT .....   | 1523 |
| INVALID FIELD WIDTH VALUE .....                         | 1524 |
| INVALID FILENAME.....                                   | 1525 |

|  |      |
|--|------|
| INVALID FILENAME IN RI_OUTFILE .....                       | 1526 |
| INVALID FILTER IN CONTROL FILE .....                       | 1527 |
| INVALID FREQUENCY FOR THIS TOTAL.....                      | 1528 |
| INVALID FUNCTION NAME .....                                | 1529 |
| INVALID HIGH SCOPE .....                                   | 1530 |
| INVALID INDEX FILE.....                                    | 1531 |
| INVALID INDEX FILE PATHNAME .....                          | 1532 |
| INVALID 'INEQUALITY' ON LINE (NUMBER) OF RRW.SRT .....     | 1533 |
| INVALID INTEGER/DECIMAL VALUE .....                        | 1534 |
| INVALID LINE HEIGHT .....                                  | 1535 |
| INVALID LINK FILE (FILENAME).....                          | 1536 |
| INVALID LOW SCOPE.....                                     | 1537 |
| INVALID MASTER TABLE PATHNAME.....                         | 1538 |
| INVALID NUMBER OF ARGUMENTS .....                          | 1539 |
| INVALID NUMBER OF ARGUMENTS AT OFFSET (N) OF RI_FILTER ... | 1540 |
| INVALID NUMBER OF COPIES: XXXX.....                        | 1541 |
| INVALID NUMBER OF LINES .....                              | 1542 |
| INVALID NUMERIC VALUE OR VALUE OUT OF RANGE .....          | 1543 |
| INVALID OPERATION .....                                    | 1544 |
| INVALID OPERATION AT OFFSET (N) OF RI_FILTER .....         | 1545 |
| INVALID OR DUPLICATE COMMAND LINE ARGUMENT .....           | 1546 |
| INVALID PAGE RANGE: XXXXXXXXXX TO XXXXXXXXXX.....          | 1547 |
| INVALID PARAMETER: (PARAMETER) SCRIPT LINE: (N) .....      | 1548 |
| INVALID PARTIAL LENGTH VALUE .....                         | 1549 |

|   |      |
|---|------|
| INVALID PATHNAME: (PATHNAME).....                                       | 1550 |
| INVALID PICTURE FILE FORMAT .....                                       | 1551 |
| INVALID POINT SIZE: RANGE IS 4.0 TO 500.0 POINTS .....                  | 1552 |
| INVALID PRINTER INDICATOR: (INDICATOR) .....                            | 1553 |
| INVALID QUERY TYPE: (CHARACTER).....                                    | 1554 |
| INVALID RELATED TABLE PATHNAME .....                                    | 1555 |
| INVALID REPORT DICTIONARY INDEX FILE (NAME) .....                       | 1556 |
| INVALID REPORT LIBRARY .....  | 1557 |
| INVALID REPORT NAME .....   | 1558 |
| INVALID REPORT REVISION .....   | 1559 |
| INVALID REPORT TYPE .....   | 1560 |
| INVALID RI_WCONTROL VALUE .....   | 1561 |
| INVALID RI_WHEIGHT VALUE .....  | 1562 |
| INVALID RI_WPARENT WINDOW HANDLE .....                                  | 1563 |
| INVALID RI_WTOP/RI_WLEFT VALUE .....                                    | 1564 |
| INVALID RI_WWIDTH VALUE.....  | 1565 |
| INVALID RUNNING TOTAL QUERY .....                                       | 1566 |
| INVALID RUNTIME OUTPUT FILE ARGUMENT .....                              | 1567 |
| INVALID SCOPE TYPE: (C) .....   | 1568 |
| INVALID SCOPE VALUE: (CHARACTER, NUMERIC, OR DATE SCOPE<br>VALUE) ..... | 1569 |
| INVALID SETTING FOR (NAME) ((VALUE)) IN RRW.SRT .....                   | 1570 |
| INVALID SETTING (NAME) ON LINE (NUMBER) OF RRW.SRT .....                | 1571 |
| INVALID STARTING/ENDING PAGE VALUE(S) .....                             | 1572 |
| INVALID USE OF QUERY FUNCTION.....                                      | 1573 |

|  |      |
|--|------|
| INVALID USER FUNCTION LIBRARY .....  | 1574 |
| INVALID USER MANAGEMENT FILE .....   | 1575 |
| INVALID VALUE .....  | 1576 |
| INVALID VALUE IN ALIAS FIELD (N) .....                                     | 1577 |
| INVALID VALUE IN COPIES FIELD .....  | 1578 |
| INVALID VALUE IN (RUNTIME INPUT FIELD).....                                | 1579 |
| INVALID WILDCARD FOR MEMO FIELD QUERY .....                                | 1580 |
| LIBRARY DIRECTORY DOES NOT EXIST .....                                     | 1581 |
| LINKING AND INDEX KEY FIELDS ARE DIFFERENT TYPES .....                     | 1582 |
| LINKING FIELD (FIELD NAME) IS NO LONGER IN TABLE (TABLE NAME)              | 1583 |
| LINKING FIELD 'NAME' IS NO LONGER IN FILE 'NAME'.....                      | 1584 |
| LIST MUST CONTAIN AT LEAST TWO ITEMS.....                                  | 1585 |
| LOGICAL FIELD (FIELD NAME) IS NO LONGER IN FILE (FILE NAME).               | 1586 |
| LOGICAL VALUE REQUIRED.....  | 1587 |
| MAIL SYSTEM DLL IS INVALID/UNABLE TO LOAD MAIL SYSTEM<br>SUPPORT .....     | 1588 |
| MASTER INDEX DISCREPANCY .....   | 1589 |
| MASTER TABLE (TABLE NAME) NOT FOUND .....                                  | 1590 |
| MATCH LENGTH MUST BE BETWEEN 1 AND N.....                                  | 1591 |
| MAXIMUM DECIMAL PLACES IS 15 .....   | 1592 |
| MAXIMUM PICTURE WIDTH AND HEIGHT IS 25.4 INCHES (64.5<br>CENTIMETERS)..... | 1593 |
| MAXIMUM RECORD HEIGHT IS 99.99 INCHES/CENTIMETERS .....                    | 1594 |
| MAXIMUM RECORD WIDTH IS 99.99 INCHES/CENTIMETERS .....                     | 1595 |
| MEMO FIELD (FIELD NAME) IS NO LONGER IN FILE (FILE NAME).....              | 1596 |

|   |      |
|---|------|
| MISSING ARGUMENT .....  | 1597 |
| MISSING USER MANAGEMENT FILE .....                            | 1598 |
| MULTIPLE (NAME) SETTINGS IN RRW.SRT .....                     | 1599 |
| NAME IN USE .....   | 1600 |
| NO AVAILABLE NETWORK USER ID .....                            | 1602 |
| NO CLOSING PARENTHESIS .....                                  | 1603 |
| NO FIELDS TO EXPORT ON SELECTED LINE .....                    | 1604 |
| NO INDEX EXPRESSION DEFINED .....                             | 1605 |
| NO LIBRARY SPECIFIED .....                                    | 1606 |
| NO MASTER TABLE SPECIFIED .....                               | 1607 |
| NO OPENING PARENTHESIS .....                                  | 1608 |
| NO PARAMETERR FIELDS AVAILABLE .....                          | 1609 |
| NO PRINTER FONTS AVAILABLE .....                              | 1610 |
| NO PRINTER SPECIFIED .....                                    | 1611 |
| NO PRINTERS INSTALLED OR NO DEFAULT PRINTER .....             | 1612 |
| NO RECORDS FOUND .....  | 1613 |
| NO RECORDS IN FILE .....                                      | 1614 |
| NO REPORTS DEFINED .....                                      | 1615 |
| NOT A DATABASE TABLE .....                                    | 1616 |
| NOT A VALID REPORT FIELD NAME .....                           | 1617 |
| NUMERIC FIELD (FIELD NAME) IS NO LONGER IN TABLE (TABLE NAME) | 1618 |
| NUMERIC REQUIRED .....  | 1619 |
| NUMERIC VALUE REQUIRED .....                                  | 1620 |
| OBJECT IS POSITIONED ON NEW PAGE LINE .....                   | 1621 |

|   |             |
|---|-------------|
| <b>ONLY LEFT PARENTHESES MAY BE ENTERED .....</b>                                 | <b>1622</b> |
| <b>ONLY RIGHT PARENTHESES MAY BE ENTERED .....</b>                                | <b>1623</b> |
| <b>OUTPUT FILE APPEND IS NOT SUPPORTED IN THIS VERSION .....</b>                  | <b>1624</b> |
| <b>PAGE HEADER/FOOTER MAY NOT CONTAIN NEW-PAGE LINES .....</b>                    | <b>1625</b> |
| <b>PARAMETERR DOES NOT PASS VALIDATION.....</b>                                   | <b>1626</b> |
| <b>PARTIAL MATCH NOT ALLOWED ON NUMERIC FIELD .....</b>                           | <b>1627</b> |
| <b>PICTURE DIRECTORY DOES NOT EXIST .....</b>                                     | <b>1628</b> |
| <b>PLEASE SELECT A BURST FIELD FROM THE BURST DROP-DOWN LIST</b>                  | <b>1629</b> |
| <b>POINT SIZE NOT SUPPORTED IN CURRENT PRINTER.....</b>                           | <b>1630</b> |
| <b>PRE-PROCESSED TOTAL AT TOTAL-RELATED GROUP LEVEL .....</b>                     | <b>1631</b> |
| <b>PRE-PROCESSED TOTAL AT UNASSIGNED GROUP LEVEL .....</b>                        | <b>1632</b> |
| <b>PRINT SPOOLER OUT OF DISK SPACE .....</b>                                      | <b>1633</b> |
| <b>PRINT SPOOLER OUT OF MEMORY .....</b>  | <b>1634</b> |
| <b>PRINTER DOES NOT SUPPORT LANDSCAPE ORIENTATION .....</b>                       | <b>1635</b> |
| <b>PRINTER INITIALIZATION ERROR (CHECK AVAILABLE MEMORY)....</b>                  | <b>1636</b> |
| <b>QUERY IS TOO COMPLEX. SIMPLIFY AND TRY AGAIN. ....</b>                         | <b>1637</b> |
| <b>QUERY MUST BE EDITED: FIELD(S) DELETED .....</b>                               | <b>1638</b> |
| <b>QUERY( ) USED INDIRECTLY .....</b>   | <b>1639</b> |
| <b>R&amp;R NO LONGER SUPPORTS REWRITING A REPORT INTO A LIBRARY<br/>FILE.....</b> | <b>1640</b> |
| <b>RANGE MUST CONTAIN TWO ITEMS .....</b>   | <b>1641</b> |
| <b>RANGE OR LIST VALUE IS TOO LONG.....</b>                                       | <b>1642</b> |
| <b>RANGE OUT OF ORDER.....</b>  | <b>1643</b> |
| <b>RECORD CACHING ERROR .....</b>   | <b>1644</b> |
| <b>RECORD COPIES: INVALID FIELD NAME OR NUMERIC VALUE .....</b>                   | <b>1645</b> |

|   |      |
|---|------|
| RECORD NUMBER SCOPE MUST BE BETWEEN 1 AND N .....   | 1646 |
| RELATION MUST BE EDITED .....   | 1647 |
| REPORT CANCELED .....   | 1648 |
| REPORT DICTIONARY DOES NOT EXIST .....  | 1649 |
| REPORT DICTIONARY ERROR IN INCORRECT FILE FORMAT .....                                      | 1650 |
| REPORT DICTIONARY REQUIRES A TABLE AND AN INDEX FILE .....                                  | 1651 |
| REPORT FILE DOES NOT EXIST, (REPORT NAME) .....   | 1652 |
| REQUIRED ARGUMENT .....   | 1653 |
| REQUIRED ARGUMENT AT OFFSET (N) OF RI_FILTER .....  | 1654 |
| RESET LEVEL INCONSISTENT WITH (FIELD NAME).....   | 1655 |
| RI_ID VALUE NOT FOUND OR CONTROL TABLE EMPTY .....  | 1656 |
| RULER SPACING MAY BE 4 TO 30 UNITS PER INCH .....   | 1657 |
| SAVED TAG NAME IS MISSING: (TAG) OF (FILE NAME) .....                                       | 1658 |
| SCAN FAILURE .....  | 1659 |
| SELECTED FIELDS MUST NOT BE FROM SHALLOWER LEVEL THAN<br>HEADER BAND CONTAINING CHART ..... | 1660 |
| SEND MAIL FAILED TO SEND MESSAGE.....   | 1661 |
| SINGLE VALUE REQUIRED.....  | 1662 |
| SORT AND GROUP FIELDS ARE OUT OF SYNCH .....  | 1663 |
| STARTING PAGE TOO LARGE.....  | 1664 |
| SYNTAX ERROR.....   | 1665 |
| SYNTAX ERROR AT OFFSET (N) OF RI_FILTER .....   | 1666 |
| SYNTAX STACK OVERFLOW .....   | 1667 |
| SYNTAX STACK OVERFLOW AT OFFSET (N) OF RI_FILTER .....                                      | 1668 |
| TABLE CONTAINS NO SUPPORTED FIELDS.....   | 1669 |

|   |      |
|---|------|
| TABLE CONTAINS UNKNOWN FIELD TYPE.....  | 1670 |
| TEMPLATE LIBRARY DOES NOT EXIST.....  | 1671 |
| THE /G SWITCH REQUIRES A VALID LIBRARY FILE AND REPORT NAME                   | 1672 |
| THE OPERATING SYSTEM RAN OUT OF MEMORY DURING THE<br>OPERATION .....          | 1673 |
| THERE IS NO BITMAP <FILE> IN <FILENAME>.....                                  | 1674 |
| THERE IS NO MASTER TABLE, SO NO DATA TO EXPORT.....                           | 1675 |
| THIS VALUE COULD NOT BE READ.....   | 1676 |
| TO OVERRIDE THE PRINTER SELECTION, YOU MUST SPECIFY A PRINTER<br>NAME .....   | 1677 |
| TOO MANY ARGUMENTS .....  | 1678 |
| TOO MANY ARGUMENTS AT OFFSET (N) OF RI_FILTER.....                            | 1679 |
| TOO MANY 'EQUIVALENCES' IN RRW.SRT .....                                      | 1680 |
| TOO MANY 'EXPANSIONS' IN RRW.SRT .....  | 1681 |
| TOO MANY 'INEQUALITIES' IN RRW.SRT .....                                      | 1682 |
| TOO MANY LINES. MAXIMUM IS 256.....   | 1683 |
| TOO MANY NESTED IIFS.....   | 1684 |
| TOO MANY NESTED IIFS AT OFFSET (N) OF RI_FILTER.....                          | 1685 |
| TOP PLUS BOTTOM MARGIN EXCEEDS PAGE LENGTH .....                              | 1686 |
| TOTAL CONDITION FOR '<TOTAL FIELD>' MUST BE EDITED.....                       | 1687 |
| TOTAL (FIELD NAME) CANNOT BE EVALUATED.....                                   | 1688 |
| PLEASE SELECT A SEND-TO FIELD FROM THE SEND TO FIELD DROP-<br>DOWN LIST ..... | 1689 |
| TYPE CANNOT BE CHANGED. FIELD IS LINKING FIELD .....                          | 1690 |
| TYPE CANNOT BE CHANGED. FIELD IS TOTALED .....                                | 1691 |
| UNABLE TO LOAD MAIL SYSTEM SUPPORT .....                                      | 1692 |

|   |      |
|---|------|
| UNABLE TO READ FROM (FILENAME), IT IS OPENED BY SOMEONE ELSE                      | 1693 |
| UNABLE TO READ RRLABELS.INI.....  | 1694 |
| UNABLE TO READ WRITE-ONLY PROPERTY .....  | 1695 |
| UNABLE TO START PRINT JOB .....   | 1696 |
| UNABLE TO WRITE READ-ONLY PROPERTY .....  | 1697 |
| UNABLE TO WRITE TO (FILENAME), IT IS READ-ONLY OR OPENED BY<br>SOMEONE ELSE ..... | 1698 |
| UNBALANCED PARENTHESES .....  | 1699 |
| UNBALANCED PARENTHESES AT OFFSET (N) OF RI_FILTER .....                           | 1700 |
| UNEXPECTED FILE FORMAT .....  | 1701 |
| UNKNOWN OR AMBIGUOUS GROUP FIELD (FIELD) .....                                    | 1702 |
| UNKNOWN OR AMBIGUOUS SORT FIELD (FIELD) .....                                     | 1703 |
| UNRECOGNIZED NAME OR OPERATOR.....  | 1704 |
| UNRECOGNIZED NAME OR OPERATOR AT OFFSET (N) OF RI_FILTER                          | 1705 |
| UNSUPPORTED COMBINATION OF PRE-PROCESSED TOTALS .....                             | 1706 |
| UNSUPPORTED TOTALS SORT .....   | 1707 |
| UNTERMINATED STRING .....   | 1708 |
| UNTERMINATED STRING AT OFFSET (N) OF RI_FILTER .....                              | 1709 |
| USE OF INVALID USER FUNCTION .....  | 1710 |
| USER FILE DOES NOT EXIST (FILE NAME) .....  | 1711 |
| USER FUNCTION ACCESS ERROR.....   | 1712 |
| USER FUNCTION DECLARATION REQUIRED .....  | 1713 |
| USER FUNCTION USED IN LINKING FIELD '<FIELD NAME>' .....                          | 1714 |
| USER FUNCTION (USER-FUNCTION) MUST BE EDITED .....                                | 1715 |
| VALIDATE EXPRESSION MUST BE LOGICAL TYPE .....                                    | 1716 |

|  |      |
|--|------|
| VALUE(S) NOT IN RANGE.....   | 1717 |
| YOU ARE ATTEMPTING TO REMOVE A VOLUME THAT IS BEING USED BY THE CURRENT REPORT. PLEASE CLOSE THE REPORT AND TRY AGAIN. | 1718 |
| YOU CANNOT COPY TO THE CURRENT LIBRARY .....   | 1719 |
| YOU HAVE REMOVED A VOLUME THAT IS BEING USED BY THE CURRENT REPORT. PLEASE REPLACE THE VOLUME OR CLOSE THE REPORT      | 1720 |
| YOU MUST SELECT A DBF .....  | 1721 |
| YOU MUST SELECT A FIELD NAME.....  | 1722 |
| YOU MUST SELECT A RELATED TABLE.....   | 1723 |
| YOU MUST SELECT A TABLE FROM THE DBC .....   | 1724 |
| YOU MUST SPECIFY EITHER .HTM OR .HTML EXTENSION .....  | 1725 |
| ACCUMULATION FREQUENCY .....   | 1726 |
| ALIAS .....  | 1727 |
| APPROXIMATE LOOKUP.....  | 1728 |
| BAND LINE.....   | 1729 |
| CALCULATED FIELD .....   | 1730 |
| COMPOSITE RECORD .....   | 1731 |
| COMPOSITE RECORD STRUCTURE .....   | 1732 |
| CONTROLLING TABLE .....  | 1733 |
| DATA DICTIONARY .....  | 1734 |
| DATA FILES .....   | 1735 |
| DATA TYPE .....  | 1736 |
| DATABASE .....   | 1737 |
| DATABASE FIELD .....   | 1738 |
| DATABASE RELATION .....  | 1739 |

|                             |             |
|-----------------------------|-------------|
| <b>EXACT LOOKUP.....</b>    | <b>1740</b> |
| <b>EXPORT .....</b>         | <b>1741</b> |
| <b>EXPRESSION.....</b>      | <b>1742</b> |
| <b>FAILURE ACTION .....</b> | <b>1743</b> |
| <b>FIELD.....</b>           | <b>1744</b> |
| <b>FLEXLINK INDEX .....</b> | <b>1745</b> |
| <b>FOOTER .....</b>         | <b>1746</b> |
| <b>FREEFORM LINE .....</b>  | <b>1747</b> |
| <b>FUNCTION .....</b>       | <b>1748</b> |
| <b>GROUP FIELD.....</b>     | <b>1749</b> |
| <b>GROUP FOOTER .....</b>   | <b>1750</b> |
| <b>GROUP HEADER .....</b>   | <b>1751</b> |
| <b>HEADER .....</b>         | <b>1752</b> |
| <b>INDEX FILES.....</b>     | <b>1753</b> |
| <b>INSTANT REPORT .....</b> | <b>1754</b> |
| <b>LIBRARY FILE.....</b>    | <b>1755</b> |
| <b>LINKING FIELD .....</b>  | <b>1756</b> |
| <b>LOOKUP .....</b>         | <b>1757</b> |
| <b>MASTER INDEX.....</b>    | <b>1758</b> |
| <b>MASTER TABLE .....</b>   | <b>1759</b> |
| <b>MEMO FILES .....</b>     | <b>1760</b> |
| <b>MULTIPLE SCAN .....</b>  | <b>1761</b> |
| <b>NEW PAGE LINE .....</b>  | <b>1762</b> |
| <b>OPEN SCRIPTING .....</b> | <b>1763</b> |

|                                    |             |
|------------------------------------|-------------|
| <b>OPERATOR .....</b>              | <b>1764</b> |
| <b>PAGE FOOTER .....</b>           | <b>1765</b> |
| <b>PAGE HEADER .....</b>           | <b>1766</b> |
| <b>PARAMETERR FIELD .....</b>      | <b>1767</b> |
| <b>PARTIAL RELATION.....</b>       | <b>1768</b> |
| <b>PRE-PROCESSED TOTAL.....</b>    | <b>1769</b> |
| <b>QUERY .....</b>                 | <b>1770</b> |
| <b>RAPID RUNNER .....</b>          | <b>1771</b> |
| <b>REFERENCE INFORMATION .....</b> | <b>1772</b> |
| <b>RECORD.....</b>                 | <b>1773</b> |
| <b>RECORD NUMBER.....</b>          | <b>1774</b> |
| <b>RELATED TABLE.....</b>          | <b>1775</b> |
| <b>REPORT LIBRARIAN .....</b>      | <b>1776</b> |
| <b>REPORT SPECIFICATIONS .....</b> | <b>1777</b> |
| <b>REPORT WIZARD .....</b>         | <b>1778</b> |
| <b>RESULT SET .....</b>            | <b>1779</b> |
| <b>RULER SPACING.....</b>          | <b>1780</b> |
| <b>RUNTIME .....</b>               | <b>1781</b> |
| <b>RUNTIME SHORTCUTS .....</b>     | <b>1782</b> |
| <b>SCAN RELATION.....</b>          | <b>1783</b> |
| <b>SCOPE .....</b>                 | <b>1784</b> |
| <b>SNAP TO GRID.....</b>           | <b>1785</b> |
| <b>SORT FIELD .....</b>            | <b>1786</b> |
| <b>SUMMARY .....</b>               | <b>1787</b> |

|   |             |
|---|-------------|
| <b>SWAP HEADER/FOOTER .....</b>           | <b>1788</b> |
| <b>TABLE .....</b>                        | <b>1789</b> |
| <b>TEMPLATE.....</b>                      | <b>1790</b> |
| <b>TEXT MEMO FILE .....</b>               | <b>1791</b> |
| <b>TITLE .....</b>                        | <b>1792</b> |
| <b>TOTAL FIELD.....</b>                   | <b>1793</b> |
| <b>TRIM.....</b>                          | <b>1794</b> |
| <b>USER-DEFINED FUNCTION.....</b>         | <b>1795</b> |
| Updated Charting Support.....             | 1796        |
| <i>Using R&amp;R Wizards .....</i>        | <i>1796</i> |
| Using the Label Wizard .....              | 1796        |
| Selecting and Arranging Label Data .....  | 1796        |
| Determining Printing Order .....          | 1796        |
| Specifying Label Type or Dimensions ..... | 1796        |
| Using the Basic Columnar Wizard.....      | 1796        |
| Selecting and Arranging Data.....         | 1796        |
| Defining Totals .....                     | 1796        |
| Determining Printing Order .....          | 1796        |
| Defining Band Areas .....                 | 1796        |
| Using the Grouped Columnar Wizard.....    | 1796        |
| Selecting and Arranging Data.....         | 1796        |
| Defining Totals .....                     | 1796        |
| Determining Printing Order .....          | 1796        |

**What's New in Version 12**

## **Introduction (What's New in Version 12)**

This chapter provides information for users upgrading from earlier versions of R&R to the latest Version 12 release. Features that are new or modified in the Version 12 Xbase edition are described in the following sections:

### **Installation**

Updated Installer

### **Security Enhancements**

Password Protection

Auto Recovery

### **Report Layout Enhancements**

Enhanced Ruler Display

Multiple Field Alignment

No Records Found Band Line

Expanded Undo/Redo

### **Field Enhancements**

Enhanced Field Lists

Longer Computed Field Names

Find and Replace in Expressions

Total field Enhancements

### **ParameteRR Enhancements**

Updated ParameteRR Dialog

Static List ParameteRRs

Dynamic ParameteRRs

### **Table Enhancements**

Updated Relation Dialog

Table Dictionary Support

Data Dictionary Table Pairs (New in 12.1.001)

Visual FoxPro 9 Support (New in 12.1.001)

Support for >2GB DBF files (New in 12.1.001)

On Demand Flexlink Indexing (New in 12.5)

### **Other Enhancements**

Updated Utility Programs and Help files

Runtime ASP Interface

Updated Export

Duplicate Field Export Warning

### **Compatibility with earlier releases**

Report File Compatibility with Earlier R&R Releases

## **Updated Installer (New in 12.5)**

The install program has been updated to support installation on machines having Windows 98, Windows XP and Windows Vista.

Due to licensing restrictions, the Amyuni PDF printer driver is no longer included as an install feature.

We have also changed our install options. In the past, we offered two installation options Workstation and network. Selecting workstation would copy all files locally for use on a local machine. Choosing network would copy files to a shared network location along with a copy of SETUP.EXE. Users would then run that copy of SETUP.EXE to install the appropriate files to the local machine and create program items that pointed to the shared local. The new installer places all executable files on the local machine and with a choice of 3 different licensing models, local, shared or viewer only.

Full details of the new install program are found in the Installation section of this help file.

## Password Protection

You can now optionally set a Designer and/or a Runtime password for a report using the menu selection File->Security.



This password may be up to 30 characters in length. Passwords are case-sensitive and may include spaces and special characters. When you enter a password, your input is masked on the display.

When a password(s) has been set in File Security, when the report is save (via Save or Save As) you will be asked to Verify the password(s) by re-entering it. The report will not be saved unless the password(s) correctly matches the password(s) that was set in File Security.

When you open a report in the report designer or at runtime that has a password, you will be given a screen to enter to the password. This password must match the password that is saved in the report or you will not be able to open or run the report.

### **CAUTION:**

Once a report is saved with a password, it can only be opened if that password is correctly entered.

There is no facility available to recover a lost password.

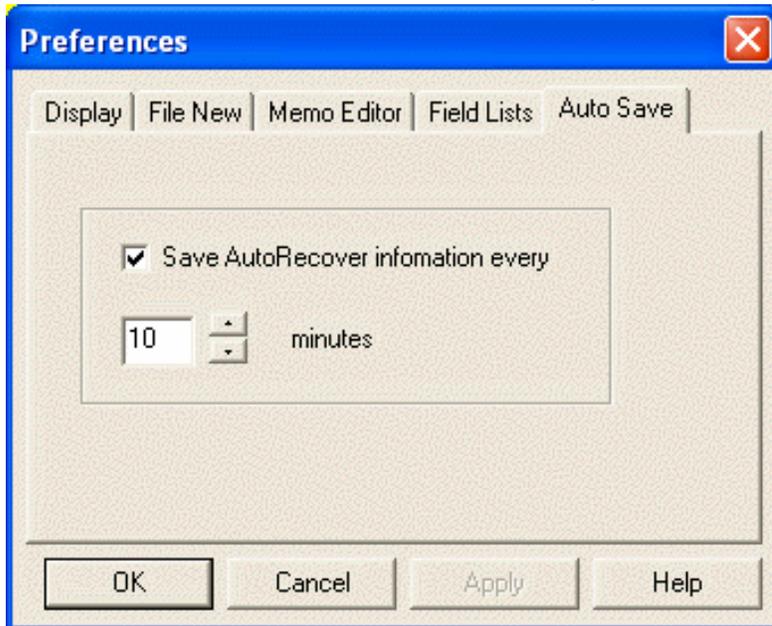
If you set a password for a report, it is strongly suggested that you print your Report Specifications before saving the report and keep this information in a secure place. Any Designer or Runtime password will be printing in the header area of the report specification. You will then have a record of the password(s) that has been set for the report.

Note that password information is NOT saved to the Report Librarian.

Reports with a saved password cannot be converted to any other format using the ReportWorks Report Converter.

## Auto Recovery

A new Auto Save item has been added to Options->Preferences.



You can now check a box to enable R&R to automatically save changes to a backup copy of the report are working on every 1-120 minutes. When auto recovery is enabled, R&R saves a copy of the current report in the same directory as the original at the designated interval. It also writes the name of the save file in the RRW.INI file. Should there be a problem causing R&R closes unexpectedly, the next time that you open the Report Designer, you will be asked if you want to open the auto saved file. This file will contain all of the changes to the file that was open in your last designer session up to the last recovery point.

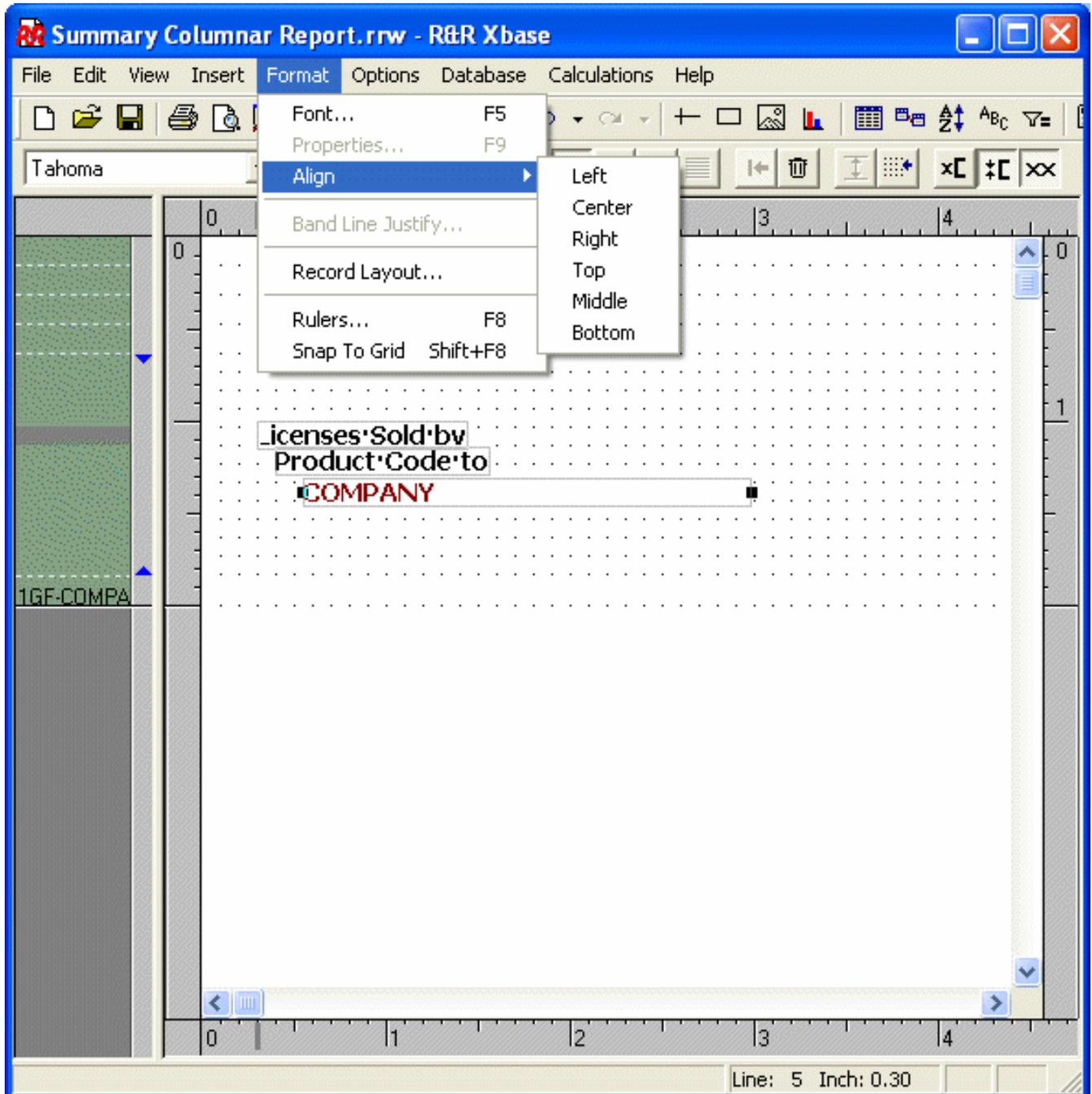
## Enhanced Ruler Display

We have added the ability to display the horizontal and vertical positioning rulers at the top and the right of the layout screen. Selecting View->Rulers now brings you to a tabbed ruler dialog where you can use a checkbox to optionally display of each of the four available rulers.

The screenshot shows the Ruler Display.RRW - R&R Xbase application window. The interface includes a menu bar (File, Edit, View, Insert, Format, Options, Database, Calculations, Help), a toolbar with various icons, and a text formatting toolbar (Times New Roman, font size 10, Bold, Italic, Underline, alignment, bullet points, indent, copy, paste). The main workspace displays a layout for a report titled "DBF rr". The layout is divided into sections: Title, Page Header, Record, Summary, and Page Footer. The Record section contains a table with columns: CUSTNO, ORDNO, ORDRDATE, and TERMS. The Summary section contains "Records printed: Rec" and the Page Footer contains "Page: Page". A horizontal ruler is visible at the top, and a vertical ruler is visible on the right. A "Rulers" dialog box is open on the right side, showing the "View" tab with four checked options: Top Horizontal, Bottom Horizontal, Left Vertical, and Right Vertical. The dialog also has "OK" and "Cancel" buttons. At the bottom of the window, the status bar displays "RRORDERS->ORDRDATE: (Date / 8)".

## Multiple Field Alignment

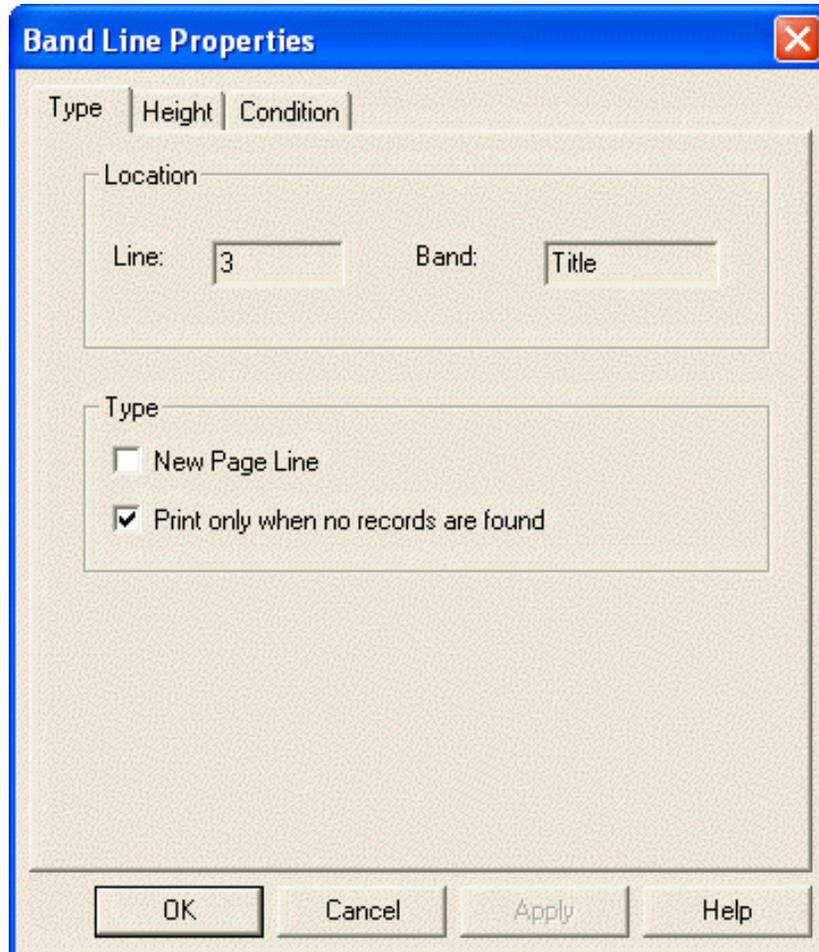
You can select multiple fields on the report layout and then use the menu command Format->Align to align all of the selected objects to have the same selected placement as last selected object.



For example you could select 3 fields on 3 separate band lines and then choose Format->Align Left to move the first two selected objects to have the same left edge as the last selected object.

## No Records Found Band Line

In previous versions of R&R, there was not a way in the report designer to produce output when no records were found for the report. We have added a new No records found checkbox that is available for Title band lines.



When this box is checked, the title band will print both in the designer and at runtime only when no records are found. This allows you place appropriate text on a no records found line that will allow you to produce a report even when no records are found.

In runtime, the older behavior of always printing the title and summary when no records are found, required the creation of conditional calculations to return specific output for a no records found condition. The new method is a much simpler approach.

To allow reports created in earlier versions to use the older behavior, a new setting is available in the [Defaults] section of RRW.INI.

If the INI contains the line:

NoRecHDR=0

Runtime will print all title and summary bands when no records are found (the old default) rather than only those title bands with a No records found checkbox.

The new behavior will be used if NoRecHDR is set to 1 or is absent from the INI.

The new version continues to honor the /H switch on the runtime command line.

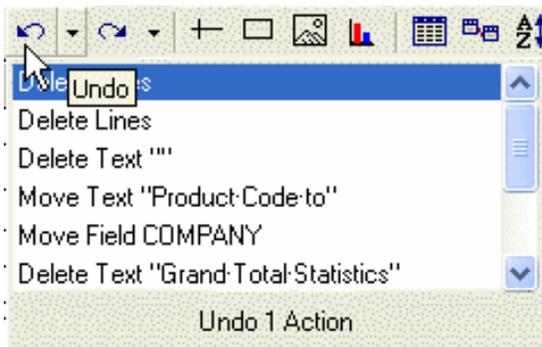
If a /H is used, there will be no report output at runtime when no records are found. Any title band having a no records enabled, will not print.

## Enhanced Undo and Redo

The range of report layout actions that can be reversed using Edit->Undo has been expanded from moving or removing an object or band line to include:

- Inserting any object on the layout
- Inserting any band line
- Any Font/Size/Attribute changes
- Resizing of objects on layout

We have also added an Edit->Redo to the menu as well as adding Undo and Redo buttons to the Standard toolbar. Clicking on these buttons will display a list of the most recent actions that can be changed. When you undo an action, you also undo all actions above it in the list.

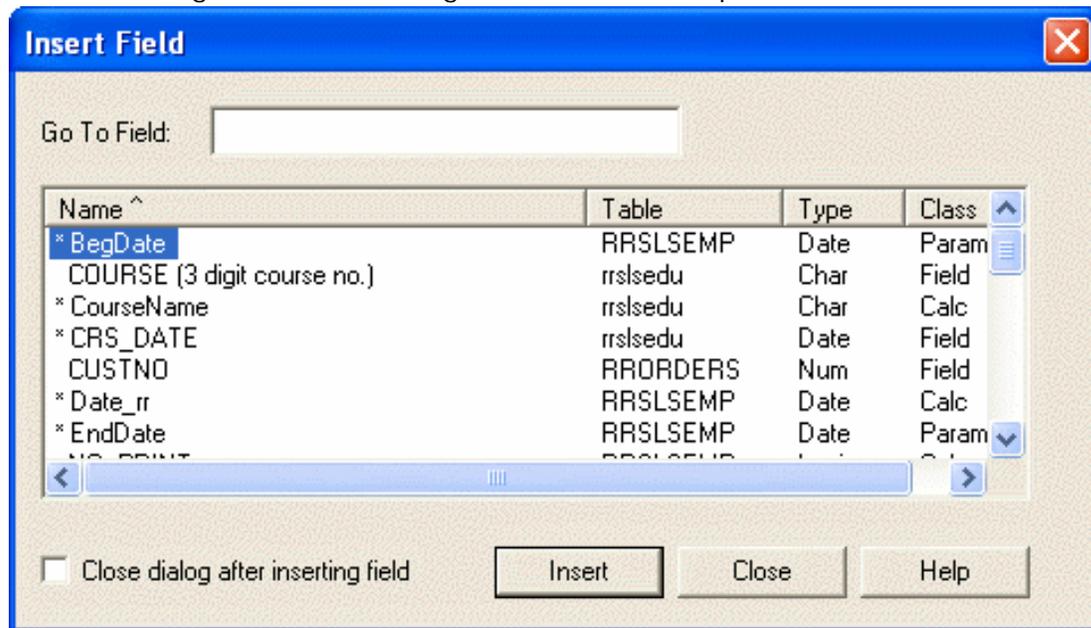


If you later decide you did not want to Undo an action you can use the Redo button to reverse it.



## Enhanced Field Lists

Field list dialogs have been changed to a more descriptive columnar format.



### *What is displayed*

The Name column includes both the field name and any optional comment or dictionary description.

The table column shows the field's table alias.

The type column shows the field's data type.

The class column shows the field's usage class.

An asterisk \* before a field name indicates that the field is currently used within the report.

Right clicking on a field displays any available dictionary information.

### *Customizing the list*

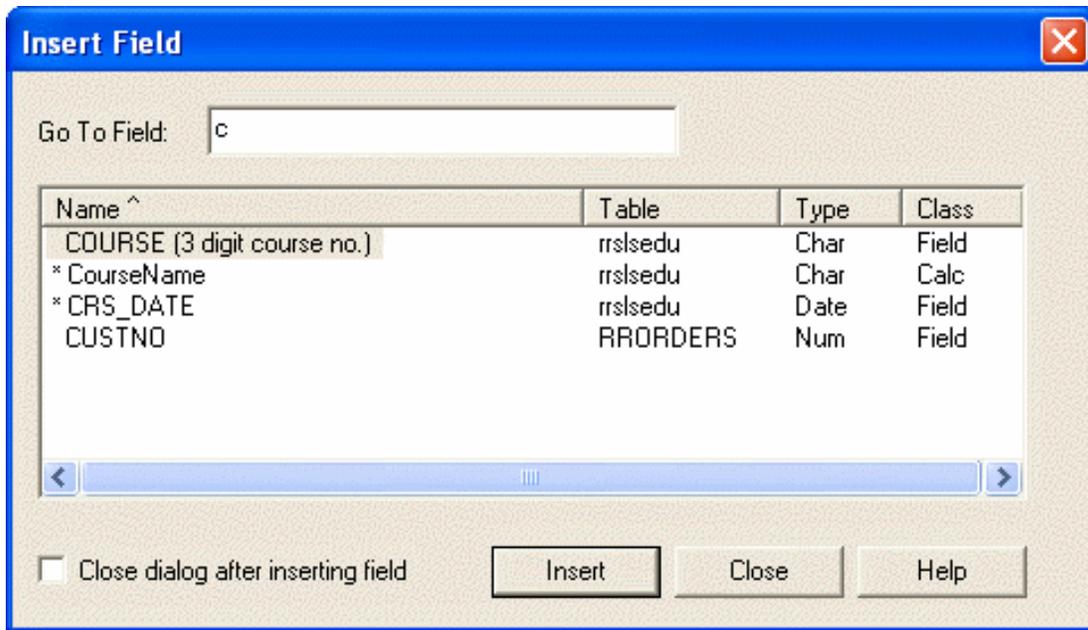
Clicking on a column heading **sorts** the list by that column and adds a sort direction indicator.

Clicking on a sorted column heading to **reverse** the sort order.

Clicking on a column header separator bar allows you to **resize** a column.

### *Filtering the list*

The Go to Field box allows you to enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered. Press backspace to clear the box and display all fields.



## **Longer Computed Field Names**

The maximum length for computed field names in R&R has been extended from 10 to 30 characters.

## Find and Replace in Expressions

A new Replace button is now available with calculated expression dialogs.



This new dialog allows you to quickly edit calculated expressions containing repeated values. For example a calculated expression:

$(Q1_{2004} + Q2_{2004} + Q3_{2004} + Q4_{2004}) * Disc2004$

could use a single replacement string (Replace 2004 with 2005) and become the 2005 calculation:

$(Q1_{2005} + Q2_{2005} + Q3_{2005} + Q4_{2005}) * Disc2005$

## Total field enhancements

### Dialog changes

The total field and auto total dialogs have been changed to use a tabbed format. Each tab now provides more instructive information and detailed help on each component of total creation.

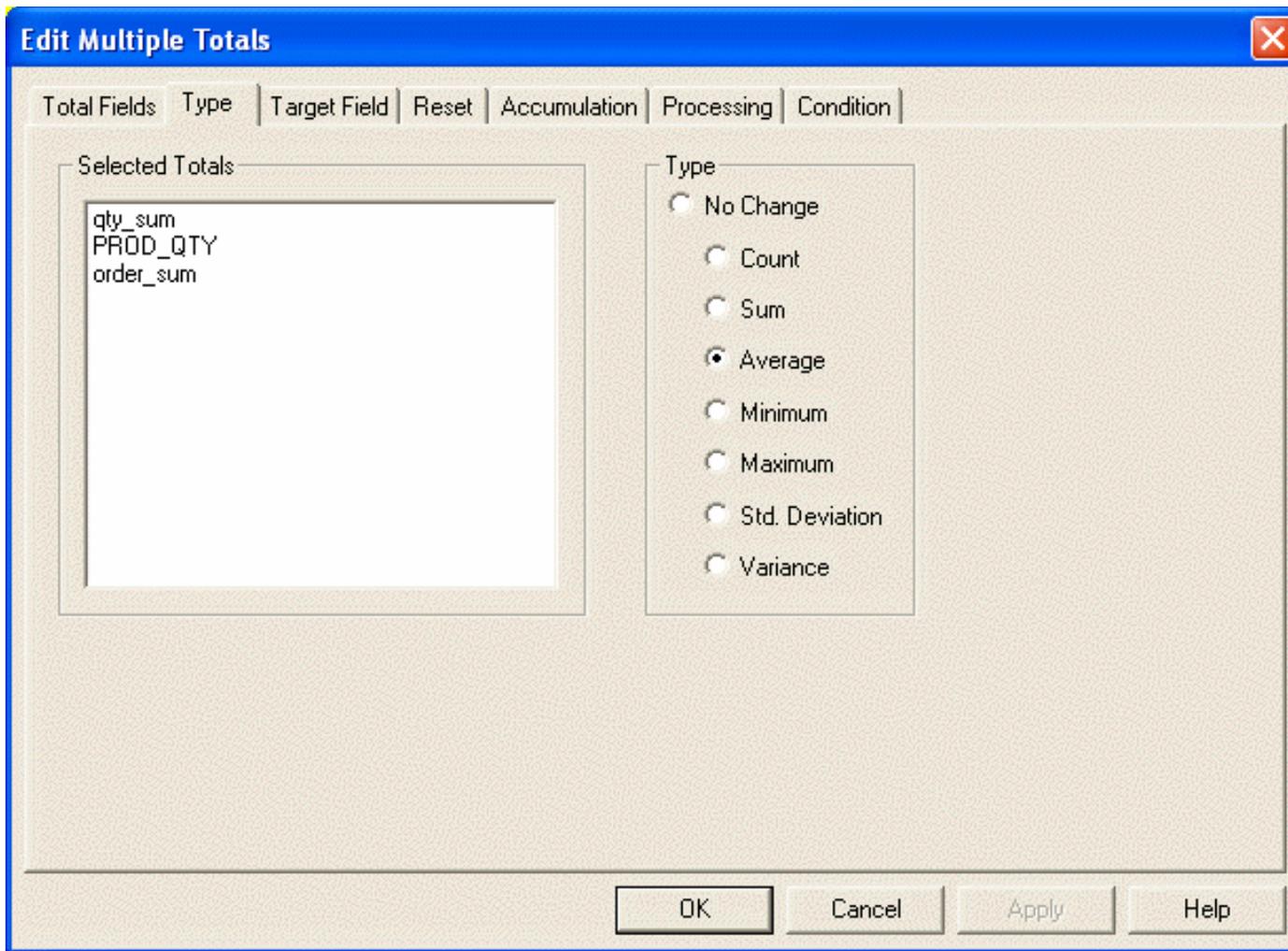
The screenshot shows a dialog box titled "New Total" with a blue title bar and a close button (X) in the top right corner. The dialog has six tabs: "Name", "Target/Type", "Reset", "Accumulation", "Processing", and "Condition". The "Name" tab is selected and active. Inside the "Name" tab, there are three main sections:

- Field Name:** A text input field with a vertical cursor. Below it, a text box contains the following instructions: "The maximum length for a total field name is 30 characters. Spaces and special symbols except for the underscore character ( \_ ) are not allowed. The first character of the name cannot be a digit (0-9). Choosing a naming convention for totals can be helpful. You may wish to include the reset level, the field being totaled, and the field type, such as GTAmtSoldSum for the grand sum of the field AmtSold."
- Comment:** A larger text area for entering a comment. Below it, a text box contains the instruction: "When a field has a comment attached to it, the comment is displayed in the Status Bar when the field is selected."
- Current Definition:** A text area for entering the current definition.

At the bottom of the dialog, there are four buttons: "OK", "Cancel", "Apply", and "Help".

### Multi Edit

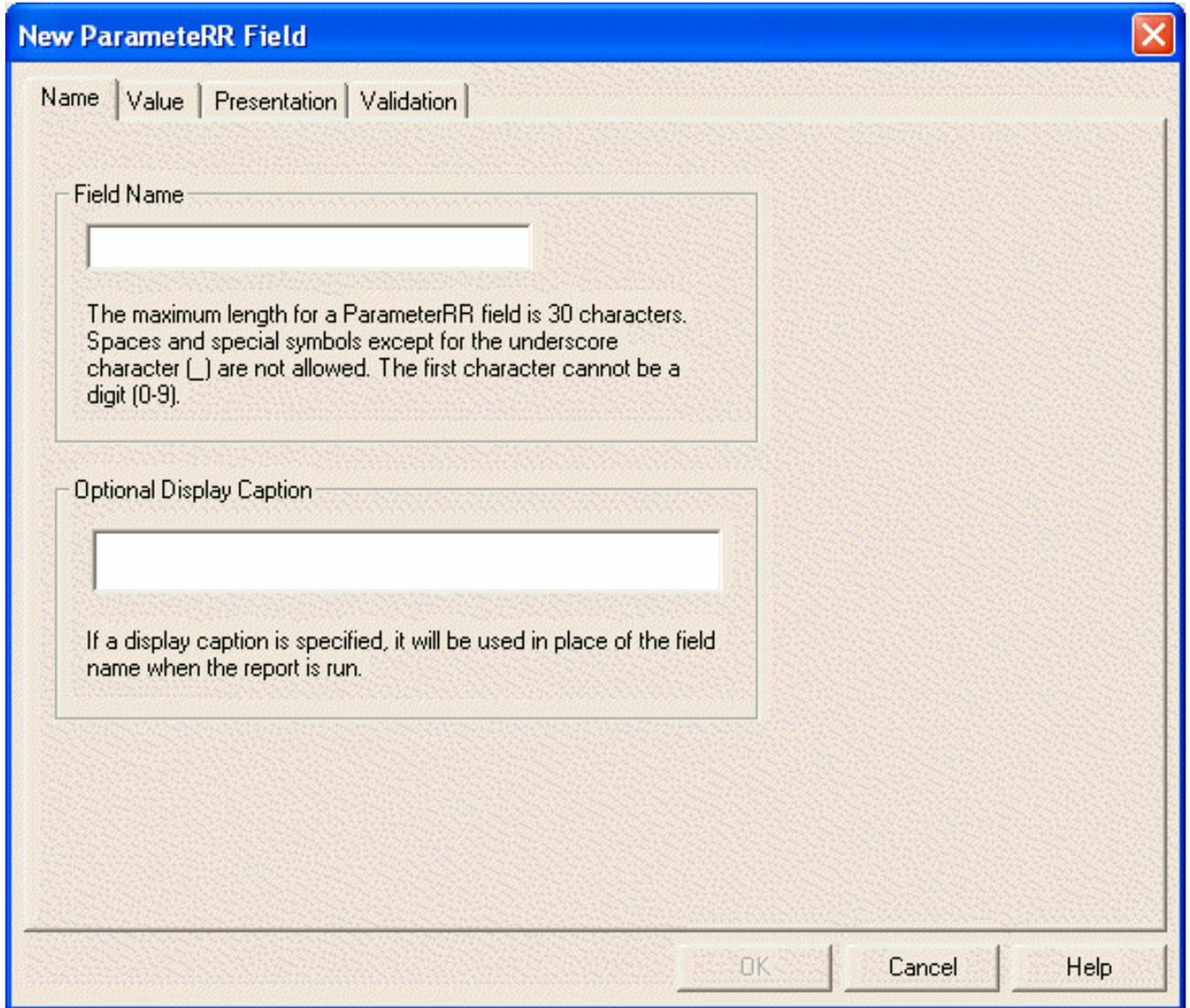
We have also added a new Multi Edit button to the Total Fields dialog. Multi Edit allows you to select several total fields and then make the same edit changes to each one. For example you could select a Group1, Group2 and Grand Total that sum the numeric field QTY SOLD and change the sum to be an average.



## Updated ParameterRR Dialog

The dialogs for creating parameters within the designer and for entering values at runtime have been updated.

The parameterRR creation dialog now uses a tabbed format.

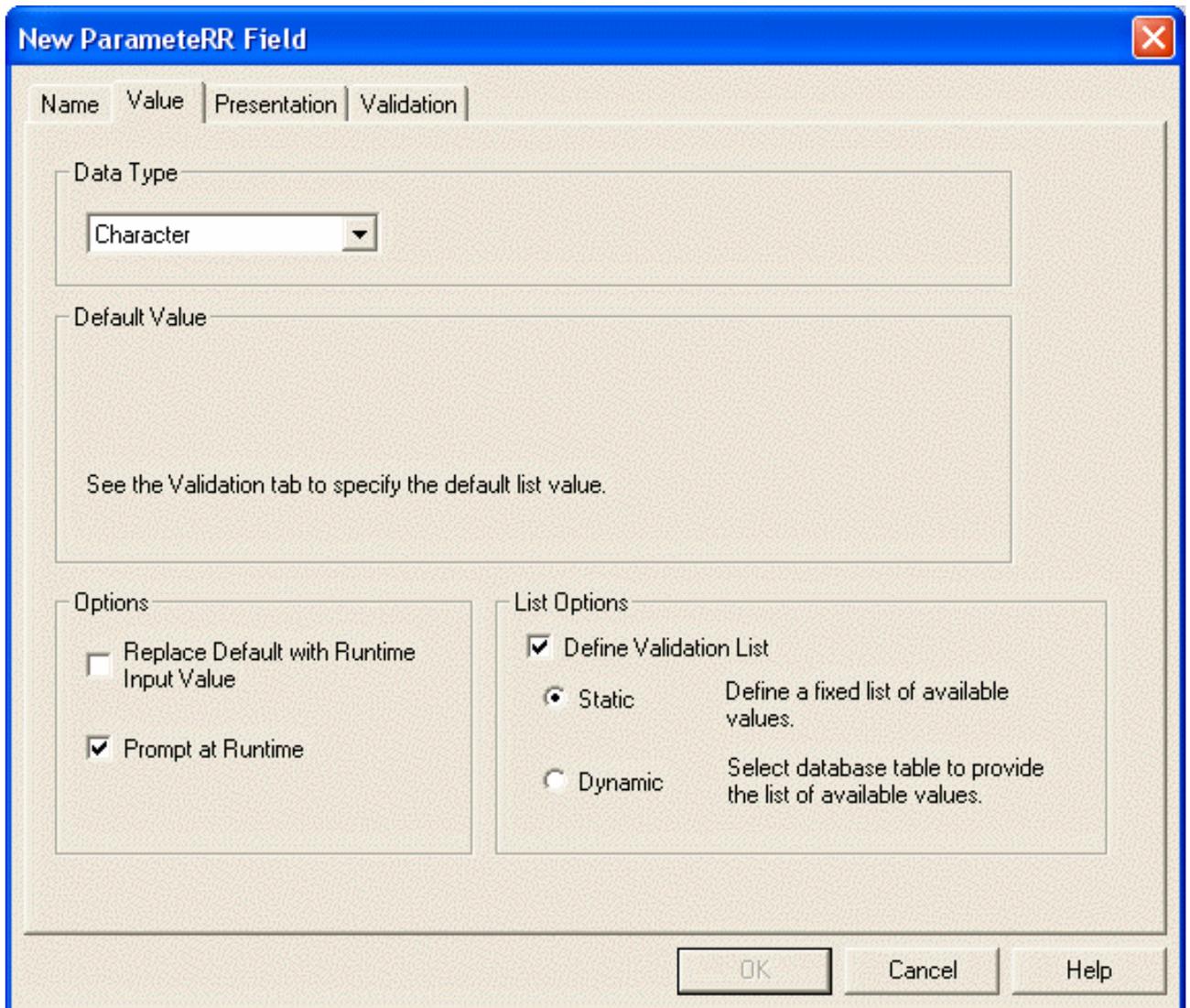


The image shows a dialog box titled "New ParameterRR Field" with a blue title bar and a close button (X) in the top right corner. The dialog has four tabs: "Name", "Value", "Presentation", and "Validation". The "Name" tab is currently selected. It contains two main sections:

- Field Name:** A text input field with a label "Field Name" above it. Below the field is a text box containing the following instructions: "The maximum length for a ParameterRR field is 30 characters. Spaces and special symbols except for the underscore character (\_) are not allowed. The first character cannot be a digit (0-9)."
- Optional Display Caption:** A text input field with a label "Optional Display Caption" above it. Below the field is a text box containing the following instruction: "If a display caption is specified, it will be used in place of the field name when the report is run."

At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

A new list parameterRR checkbox on the Value tab allows you to define a parameterRR using either a static list or by selecting a dynamic value from an existing database field.



The parameter value entry screen has also been redesigned.

**Parameter Value Entry Screen** ✖

Select the Parameter to modify

| Name                       | Current Value          |
|----------------------------|------------------------|
| CHAR_PARAMETER             |                        |
| Max price to display       | 123.00                 |
| Please select a start date | 01/01/2005             |
| DateTimeParam              | 03/17/2005 10:00:00 am |
| Select Department          | Sales                  |
| Select a quarter           | .....                  |

Comments/Instructions

Enter the first few characters of the name you wish to select

CHAR\_PARAMETER

\_\_\_\_\_

Enter up to 254 characters. You do not need to add quotes or delimiters.

## Static ParameteRR Lists

ParameteRR fields now support the definition of static list values. Static parameteRRs allow you to specify a pre-defined list of available values. When the report is run, the parameteRR value entry screen will then provide the report user with this pre-defined selection list rather than requiring the manual entry of a value.

When the static list button on the parameteRR value tab is selected, the validation tab allows you to define a list of available values along with an optional short description for each one. You can also set a default value that will be the initial selected value in the runtime parameteRR value entry screen.

The screenshot shows the 'Edit ParameteRR Field' dialog box with the 'Validation' tab selected. The dialog has a title bar with a close button (X) and four tabs: 'Name', 'Value', 'Presentation', and 'Validation'. The 'Validation' tab contains a 'ParameteRR Value List' section with a table and several buttons. Below the table are 'New', 'Edit', and 'Delete' buttons. At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

| Value | Description    |
|-------|----------------|
| D     | Daily totals   |
| ✓ M   | Monthly totals |
| Y     | Yearly totals  |

Buttons: Move Up, Move Down, Reset Default, New, Edit, Delete, OK, Cancel, Help

## Dynamic Parameter Lists

Parameter fields now support the definition of dynamic list values. Dynamic parameters allow you to specify a parameter value that is based on a table's contents.

At design time you select the table and the field whose value will control the parameter. At runtime R&R will read and present this table to the end user who can then select a value from the list.

The runtime user also has the option of manually entering a value for the parameter rather than requiring that the lookup list must be used.

**Lookup RRCUST.DBF**

Table C:\Program Files\RR Infinity\Sample\RRCUST.DBF 3/6/2006 8:16:34

Select a COMPANY look up value from the list

| COMPANY                      | CUST_NO | TITLE | LAST_NAME  | FIRST_NAME |
|------------------------------|---------|-------|------------|------------|
| Micro Supplies               | 10001   | Mr.   | Britten    | Roger      |
| Computer Consultants         | 10002   | Ms.   | Jefferson  | Elaine     |
| PC Products                  | 10003   | Mr.   | Adams      | David      |
| Software Systems             | 10004   | Mr.   | Gladdin    | John       |
| G & H Computer Supply        | 10005   | Ms.   | Pease      | Ellen      |
| Programmers, Inc.            | 10006   | Mr.   | Hickock    | William    |
| Software Gallery             | 10010   | Mr.   | Homer      | Jack       |
| Carson Associates            | 10011   | Mr.   | Carson     | Steven     |
| PC Express                   | 10012   | Mr.   | Keylour    | Joel       |
| Information Systems          | 10014   | Ms.   | Smith      | Mary       |
| Warwick Computers            | 10015   | Ms.   | Warwick    | Brenda     |
| Software House               | 10017   | Mr.   | Clayburn   | Carter     |
| Professional Data Management | 10019   | Ms.   | Stern      | Joan       |
| FCN Systems                  | 10022   | Ms.   | Fairchild  | Enid       |
| Micro Express, Inc.          | 10025   | Ms.   | Wainwright | Linda      |
| Business Productivity Center | 10026   | Mr.   | Cleary     | Frank      |
| Computerware                 | 10027   | Mr.   | Gaudet     | John       |
| Office Automation            | 10029   | Ms.   | Flavin     | Maureen    |
| Discount Software            | 10030   | Mr.   | Anderson   | Gregory    |
| Software Solutions           | 10044   | Ms.   | Reading    | Sandra     |
| Ets. Lumire et Freres        | 10045   | M.    | Empain     | Georges    |
| Fils Van Damme               | 10050   | Mme.  | Herlot     | Françoise  |
| Union des Programmeurs       | 10055   | M.    | Binet      | Patrick    |
| Microsystemes                | 10057   | Mme.  | Lebois     | Micheline  |
| Bartholdi et Fils            | 10060   | M.    | Bartholdi  | Ernest     |

< [ ] >

Insert Cancel Help

## Updated Relation Dialog

The table relation dialog has been changed to use a tabbed format. Each tab now provides more instructive information and detailed help on each component of linking related tables in a report.

The screenshot shows a dialog box titled "New Relation" with a blue header and a close button in the top right corner. The dialog has several tabs: "Linking Field", "Related Table", "Related Index", "Relation Type", "Character Match", and "Failure Action". The "Linking Field" tab is selected and displays the following content:

**Step 1 - Select Linking Field from 'Controlling' (left side) Table:**

Relate From

Field:  ...

Linking field contains the values that are common with the index values in the related (target) table. The field is typically a unique key or coded value. If you need to derive a new field click the 'Calc Field' button to launch that dialog.

Table Alias:  Table Name:

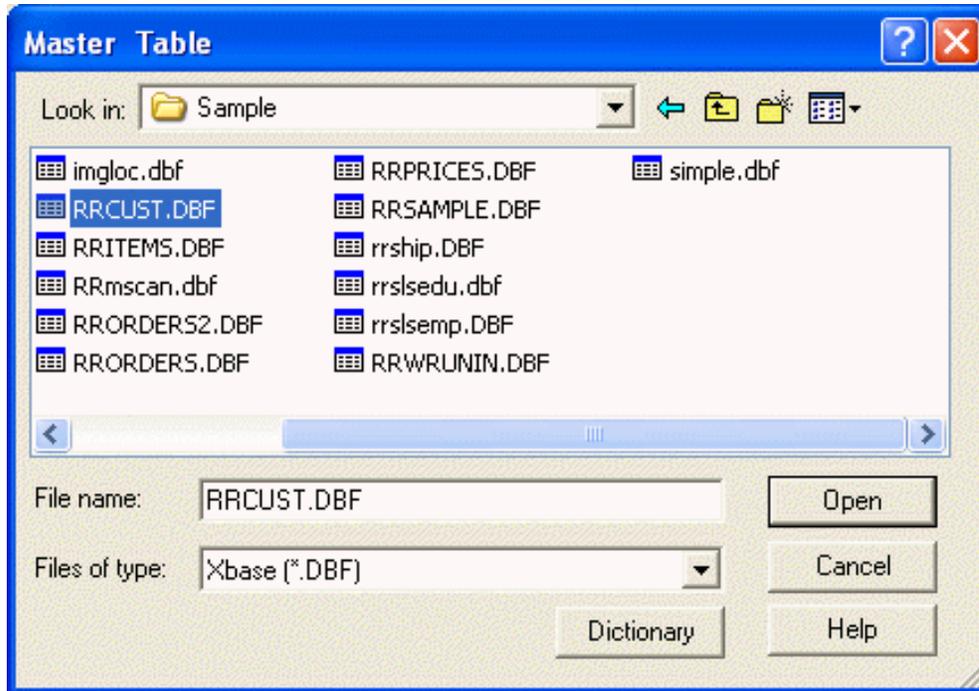
The linking field selected resides in the table specified above. A record from this table is represented on this dialog by the graphic below:

| Linking Field | Other Fields' Data |
|---------------|--------------------|
| ABCD          | 1234.00 01/01/2000 |

At the bottom of the dialog, there are three buttons: "Join Help", "OK", and "Cancel".

## Table Dictionary Support

A new Dictionary button is now available when selecting a master or related table.



When this button is selected, you can view or edit the Data Dictionary definition for the selected table.

**Table Detail**

Table Name:  User ID:

| General Info   | Application | Additional Info | Notes |
|--|-------------|-----------------|-------|
| Directory: <input type="text" value="\Sample folder"/>         |             |                 |       |
| Description: <input type="text" value="Master Customer List"/> |             |                 |       |

## **Data Dictionary Table Pairs**

One of the biggest report design challenges is linking information from multiple tables. To assist in this task, we have enhanced the Data Dictionary utility to include table pair information. On the Table Details screen in Data Dictionary, there is a new Joins button. Selecting this button will allow you to display a Join Summary screen that will allow you to view how this table has been previously used (as either a controlling or a related table) in saved reports that have been archived using the Report Librarian. You can read more about table pairs in the Data Dictionary Table Pairs Supplement.PDF. This file is installed in the \RL folder and can also be found in the \PDFDOCS folder on the install CD.

## **Support for >2GB DBF files**

**DBF tables that are greater than 2GB in size may be used in both the Xbase Report Designer and in runtime within error or truncation. For performance reasons, you should not attempt to use FlexLink indexing with these large tables.**

## **Visual FoxPro 9 Support**

**Support has been added for Visual FoxPro 9 table structures that include autoincrement and nullable fields. Index keys that include nullable fields are now also supported.**

**For reports using a DBC master table, related tables can now be selected from the DBC container so that any long field names are preserved.**

## On Demand Flexlink Indexing

When a report includes a FlexLink index on the fly that is built internally by R&R, the default behavior is to rebuild this index each time that you print, preview or export the report. There may be cases when this behavior may not be optimal. For example you may be building a new report and want to do frequent previews as you are designing. If you have a large data set, you would need to wait each time you preview for R&R to build the FlexLink index. If your data has not changed since the last preview, this automatic re-build is not really necessary. To address this issue, we have added a new dialog box that will now provide a dialog prompt asking if you want to re-build a FlexLink index.

To enable this prompt dialog, we have added three new RRW.INI file settings. If you want to enable FlexLink index prompting, you will need to manually edit your RRW.INI file and add the following lines to the [DEFAULTS] section of the file.

PromptForFlexLinkRebuild=Y

If this value is not present or is set to N, the prompt dialog will not appear in the Report Designer.

FLTimeOut=nSeconds

When the prompt for re-build dialog appears, it will by default wait 10 seconds for the user to respond. If there is no response, the default is to rebuild the indexes (as if the user had clicked the "Yes" button.) You can set a value in FLTimeOut to change the default wait period to a different number of seconds. To disable the timeout and force a response, you can change the nSeconds value to 0.

FLPromptThreshold=nMBytes

For small indexes, it is faster to simply rebuild the indexes without providing the prompting dialog. Setting a FLPromptThreshold value allows you to control the index size below which the prompt dialog will not appear. If not explicitly set, the default value is 10 MBytes.

These settings only control FlexLink behavior within the Report Designer (RRW.EXE). If you are running reports through Runtime or through RapidRunner, FlexLink indexes will be built any time the report is executed.

## **Recompiled Utility Programs and Updated Help files**

The Librarian, Dictionary, Result Set Browser Report Conversion and Rapid Runner conversion programs have been recompiled in Visual Foxpro 9 and Visual Basic so that they will run on all supported operating systems.

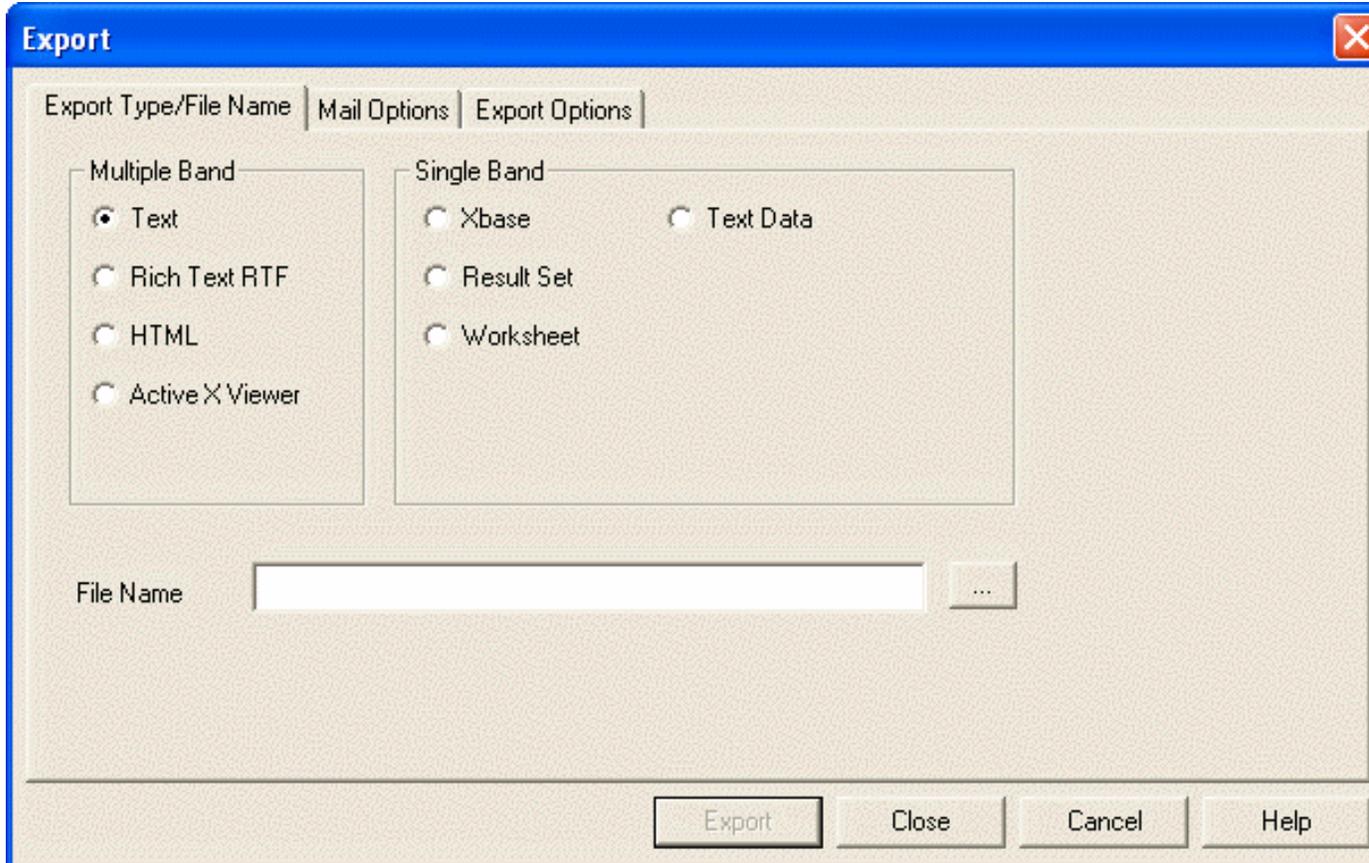
The Help system has been updated to replace Windows Help files (\*.HLP) with compiled HTML help files (\*.CHM).

## **Runtime ASP interface**

A DLL file is now included that allows runtime reports to be launched via a browser that is accessing an intranet web server via an ASP page. The report is then delivered to the browser via a downloaded ActiveX component. This features supports many but not all of the features that are available using the traditional runtime interface. See the Developing Applications section of the Help file for details on this new feature.

## Updated Export

The Export dialog has been changed to a tabbed format with separate tabs for Type, Mail Options and Export Options.



In Mail Options the Subject and Message fields now can be selected from a field list rather than manually entered. This is particularly useful for email bursting where each email message can now be completely customized for each recipient.

## Duplicate Field Export Warning

If the first 10 characters of two field names on a band line that is being exported to a DBF or viewed as a Result Set are the same, a new warning message is issued. In previous versions, the duplicate field was simply omitted without any warning.



## Report File Compatibility with Earlier R&R Releases

As in all Version 9 and above releases, Version 12 will not allow you to save a report into an existing RP5 report library either as a Save or a Save As. If you attempt to do so, you will get an error dialog that will say: "R&R no longer supports rewriting a report into a library file."

Reports saved in Version 12 can be opened with previous R&R versions; however, you will get a warning message that will say:

"Warning: Unrecognized report information encountered. Report might have been made with a newer R&R. Clicking OK will open the report, but some report features will not be available."

If you then save the report, any newer features will be removed from that report file.

The exception is for ParameteRR fields. Support for parameteRR fields was added in R&R Version 9.

When a report containing ParameteRR fields is opened in a pre-Version 9 release, the ParameteRR field will be treated as a calculated field whose value is the default that was set for the ParameteRR. If saved in Version 8.x and then re-opened in Version 9 or above, the former ParameteRR field will then remain as a calculated field.

If a report contains a computed field whose name is longer than 10 characters (the old limit), earlier versions will recognize the longer name without error since the restriction in earlier releases was on the creation of field names rather than the usage of field names.

If a password is set for a report using the new File Security option, that report cannot be opened or run in any earlier R&R release. If you do try to do so, you will get an "Invalid Report Revision" error.

## Installation

## Installing ReportWorks

The ReportWorks Infinity InstallShield Wizard works with the Microsoft Windows installer to install R&R ReportWorks Infinity for either local or shared access. When you use the installer, you are prompted to select the licensing model that is appropriate for your environment.

### Minimum Installation Requirements

You can install ReportWorks on machines that meet the following minimum requirements.

|                  |  |
|------------------|--|
| Operating System | Windows 98<br>Windows XP<br>Windows 2003 Server<br>Windows Vista |
| Memory           | At least 128 megabytes (MB) of RAM. 256 MB recommended.          |
| Disk Space       | 140 MB   |
| Drive            | Drive CD-ROM or DVD drive  |

To view the documentation files, you must have a utility that supports reading documents in PDF and RTF format.

If you are running in an environment that has defined user roles (such as Windows Vista with UAC enabled), you will need administrator privileges to install ReportWorks since the install does create registry entries as well as installing files to system locations. See the section **Vista Installation Considerations** at the conclusion of this document for a discussion on running ReportWorks under Vista.

It is also suggested that you create a system restore point prior to running the install. It is not anticipated that you will experience any problems as a result of the installation but it is a prudent practice to create a restore point prior to making any kind of system change.

### Upgrading from an earlier release

If you are installing Version 12 on a machine has an existing installation of R&R release, it is recommended that you back up any modified R&R files and then uninstall your earlier release prior to the installation of Version 12. Although the current release may be installed on a machine that contains a previous version, we do not officially support or recommend that multiple versions be present on a single machine.

What to back up prior to uninstall:

#### **Any user function library files**

RR.UDF/SYSRR.UDF for Xbase, RSW.UDF/SYSRSW.UDF for SQL

Found in R&R program folder

#### **SQL Initialization file**

RSWSQL.INI

Found in R&R program folder

**Sort rule files**

RRW.SRT for Xbase, RSW.SRT for SQL

Found in R&R program folder

**Report Librarian and Data Dictionary data files**

All files with extension DBF, CDX and FPT

Found in RL folder below the R&R program folder

**Program initialization files**

RRW.INI for Xbase, RSW.INI for SQL

Found in root of operating system folder

Once you have backed up your files, you can then safely uninstall your current version. Note that uninstall will not remove your RRW.INI and RSW.INI files. You can then install Version 12 using the install CD. Running the install will create a new R&R program folder and will modify any existing RRW.INI/RSW.INI files to point to the Version 12 folder.

When installation is complete, you should compare your backup RRW.INI/RSW.INI to the current version that was updated by the installer to make sure that the settings reflect your desired preferences.

You can then copy your backup versions of R?W.UDF, RSWSQL.INI and R?W.SRT to the new Version 12 folder. Note that this step is only required if you had modified these files in your earlier release.

Finally you should copy your backup Report Librarian and Data Dictionary data files to the RL subfolder in your Version 12 installation so you will have your existing Report Librarian and Data Dictionary files.

**Contents of the installation CD**

Autorun.INF

ReadMe.RTF

ReportWorksInfinity.msi

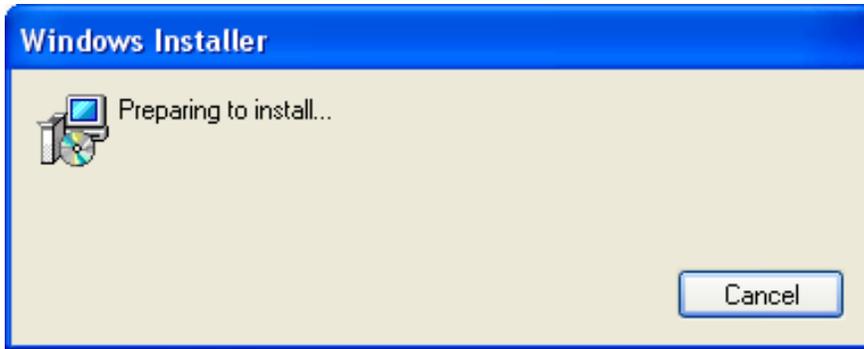
ReportWorks V12 Installation Guide.PDF

PDFDOCS folder (contains all documentation in PDF format)

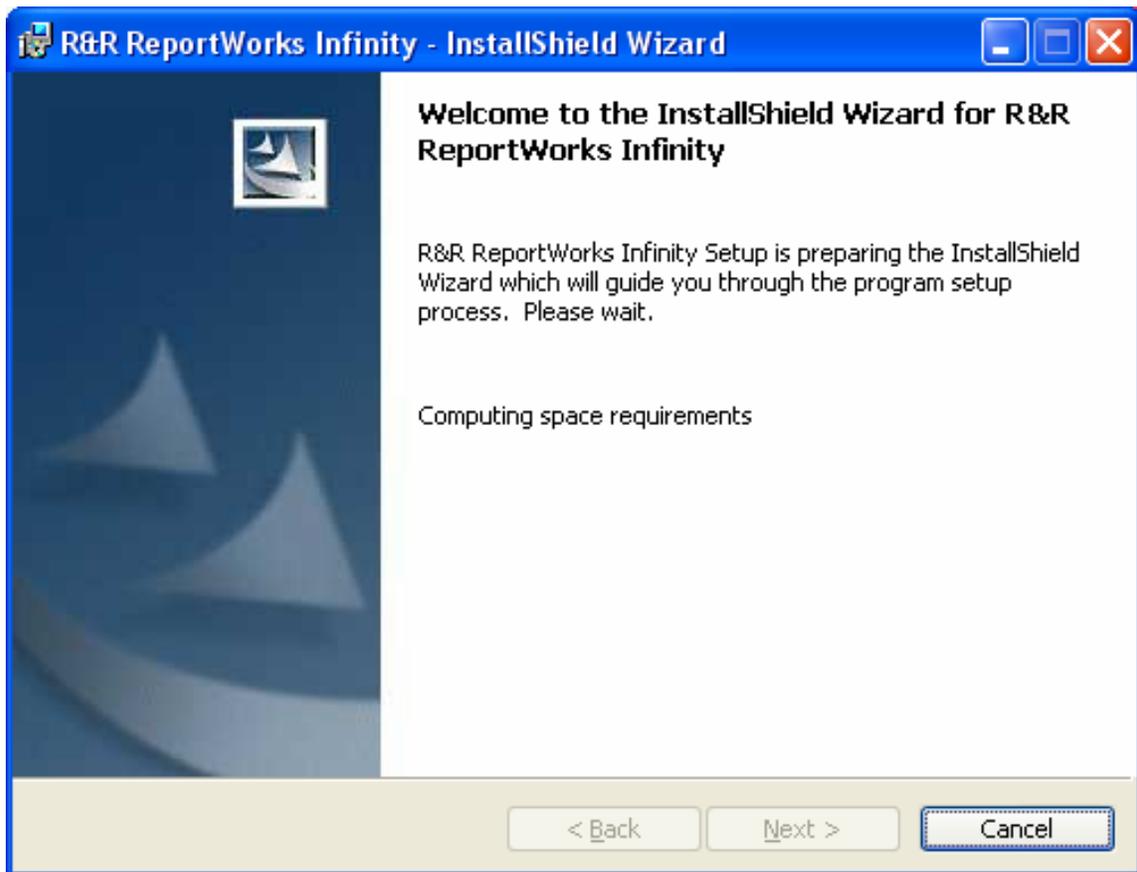
**Installation Procedure**

To begin the installation process, insert the ReportWorks CD into a CD drive. If the install program does not automatically execute, you should be able to use Windows Explorer to browse to the root folder of the CD where you should be able to double click execute the file ReportWorksInfinity.msi.

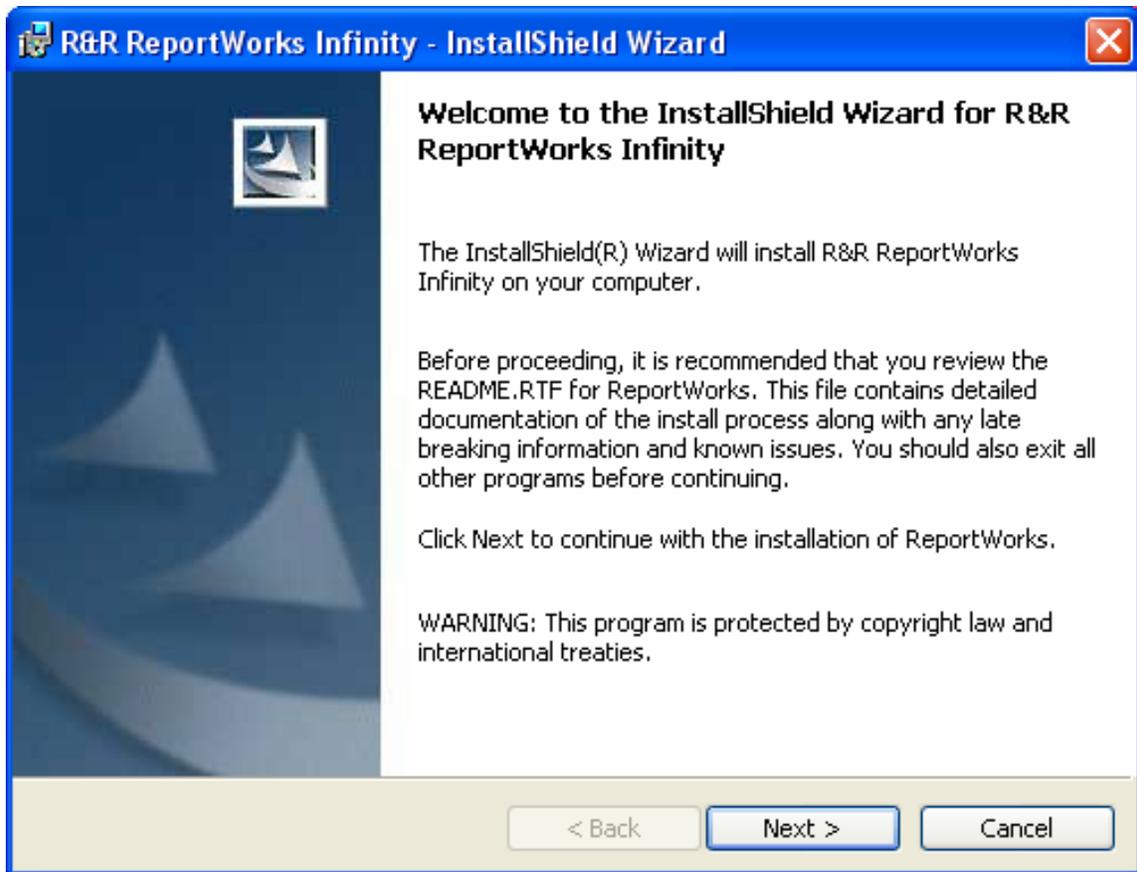
Once the install begins, the first window that displays is the initial Windows Installer.



The second window appears as the program checks for available disk space.



The next screen presents the initial InstallShield Wizard dialog.



When you click Next, the ReportWorks License Agreement appears.



You need to read and accept terms in the license agreement and proceed to the next screen.

The Licensing Information screen allows you to enter your User Name (mandatory) and Organization (optional) This information may already be filled in for you. If so, you can edit the default entries if you wish.

The three License Model choices are described below.

### **Local**

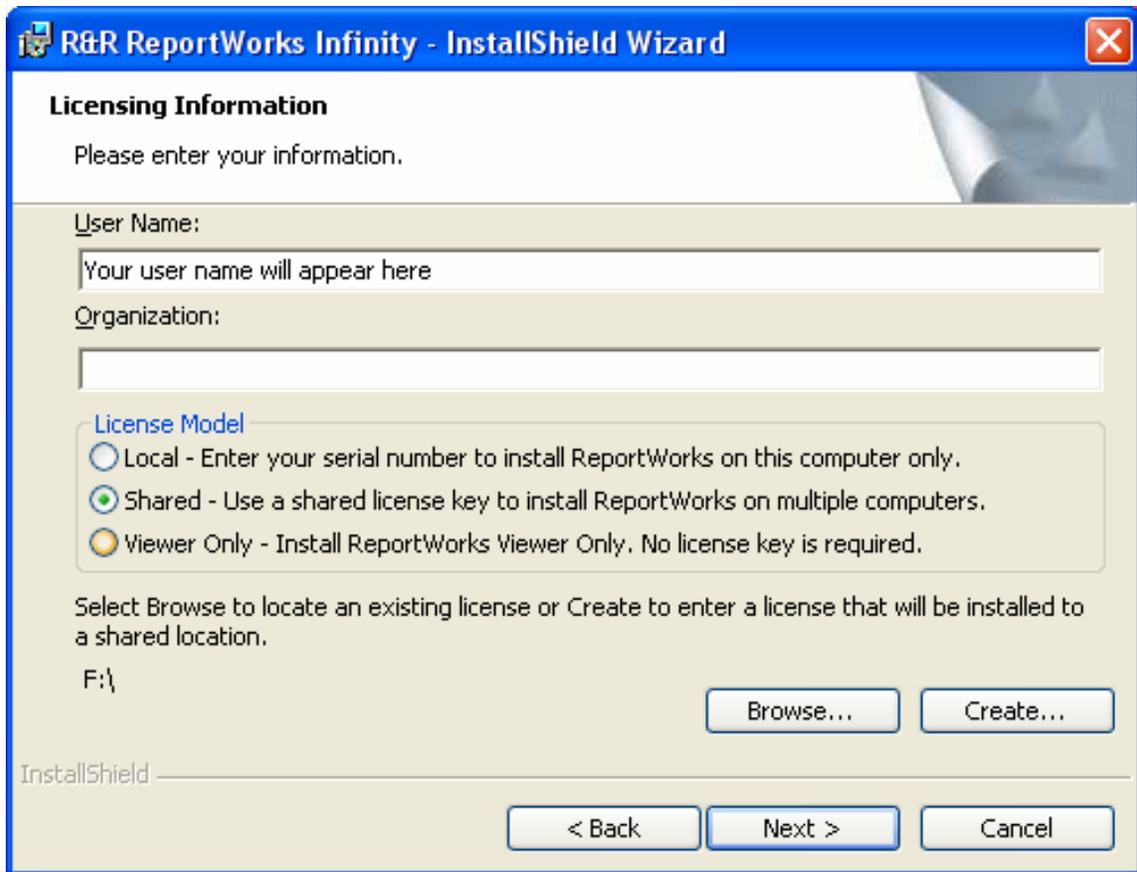
The default choice is to install a Local license. This model allows you to run all ReportWorks features from this machine only. When this radio button is selected, you are given 4 boxes in which to enter the 16 digit ReportWorks serial number that was provided to you.

The screenshot shows a Windows-style dialog box titled "R&R ReportWorks Infinity - InstallShield Wizard". The dialog has a blue title bar with a close button in the top right corner. The main content area is titled "Licensing Information" and contains the following elements:

- A prompt: "Please enter your information."
- A "User Name:" label followed by a text input field containing the placeholder text "Your user name will appear here".
- An "Organization:" label followed by an empty text input field.
- A "License Model" section with three radio button options:
  - Local - Enter your serial number to install ReportWorks on this computer only.
  - Shared - Use a shared license key to install ReportWorks on multiple computers.
  - Viewer Only - Install ReportWorks Viewer Only. No license key is required.
- A "Serial Number:" label followed by four empty input boxes separated by hyphens.
- The "InstallShield" logo in the bottom left corner.
- Three buttons at the bottom right: "< Back", "Next >", and "Cancel".

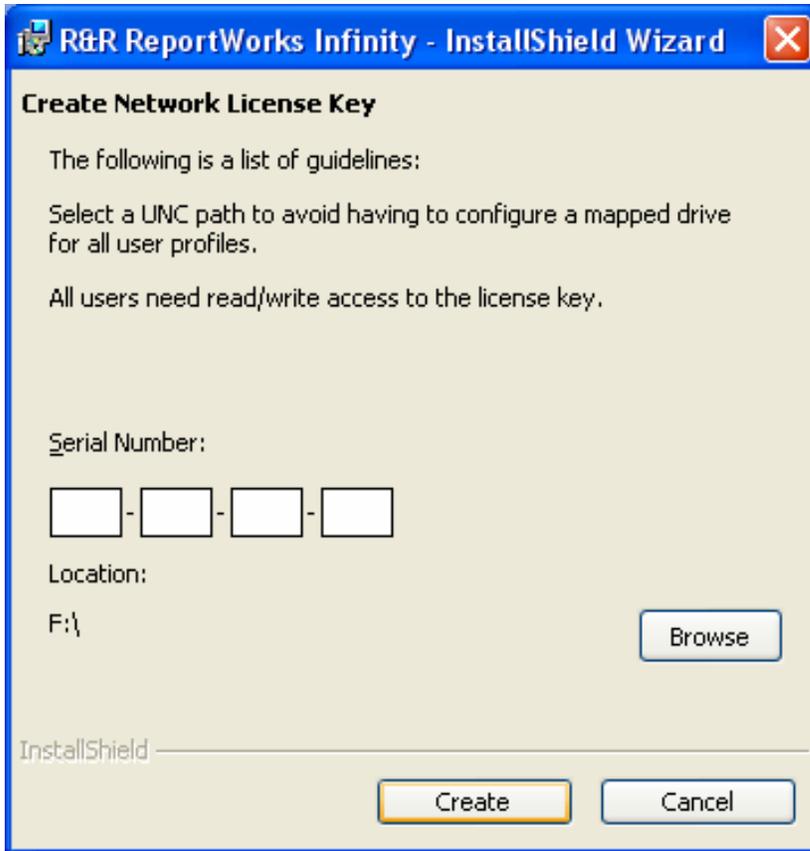
### Shared

Select the Shared radio button if your ReportWorks license key is going to be shared by multiple users or workstations rather than residing on a single workstation for local access only. When you select this choice, the serial number entry box is replaced by a Browse and a Create button.

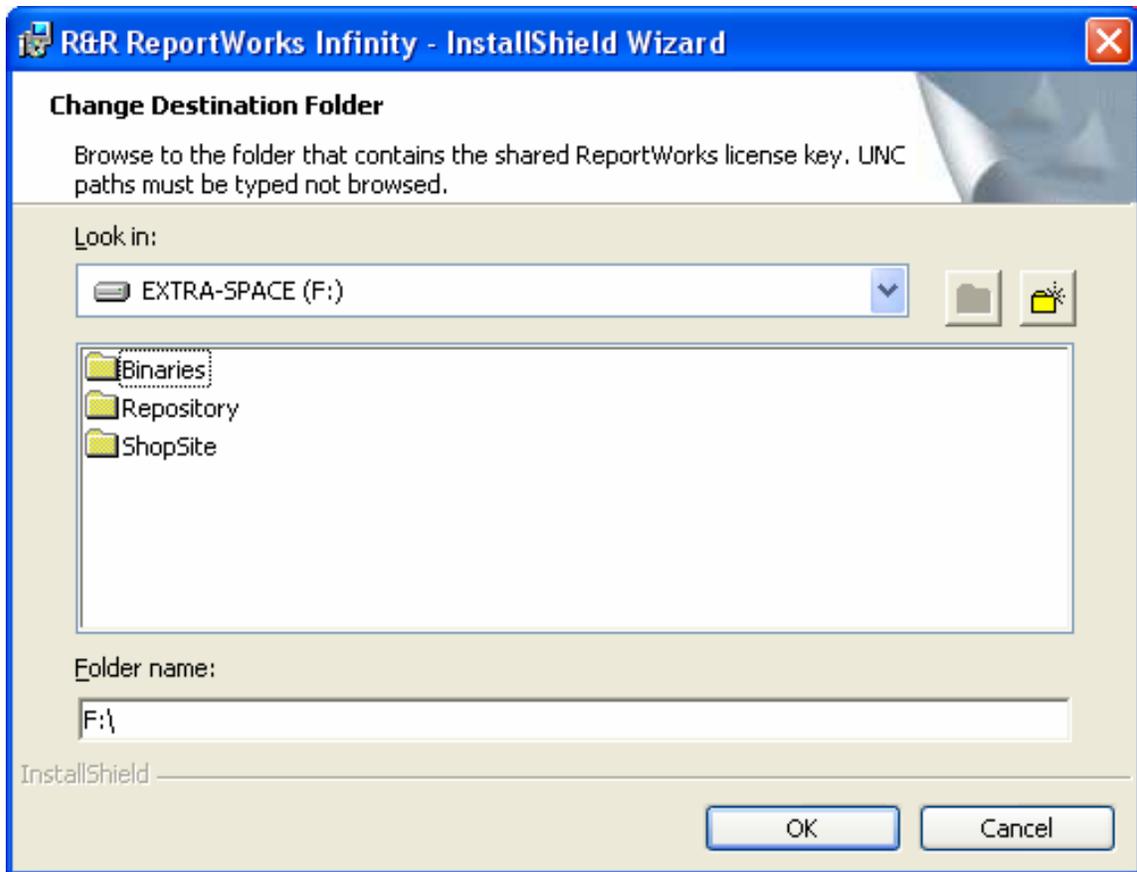


### First time creation of shared license key

If you are a system administrator who is installing ReportWorks for the first time and will be sharing a license(s) among users or workstations, you should use the Create button. This will bring you to the Create Network License Key dialog where you can enter your serial number and Browse to select the location where that license should be installed. If you have purchased a multiple user license, you will only enter the single 16 digit serial number that has been provided to you. The remaining license keys will be automatically created during the install process.

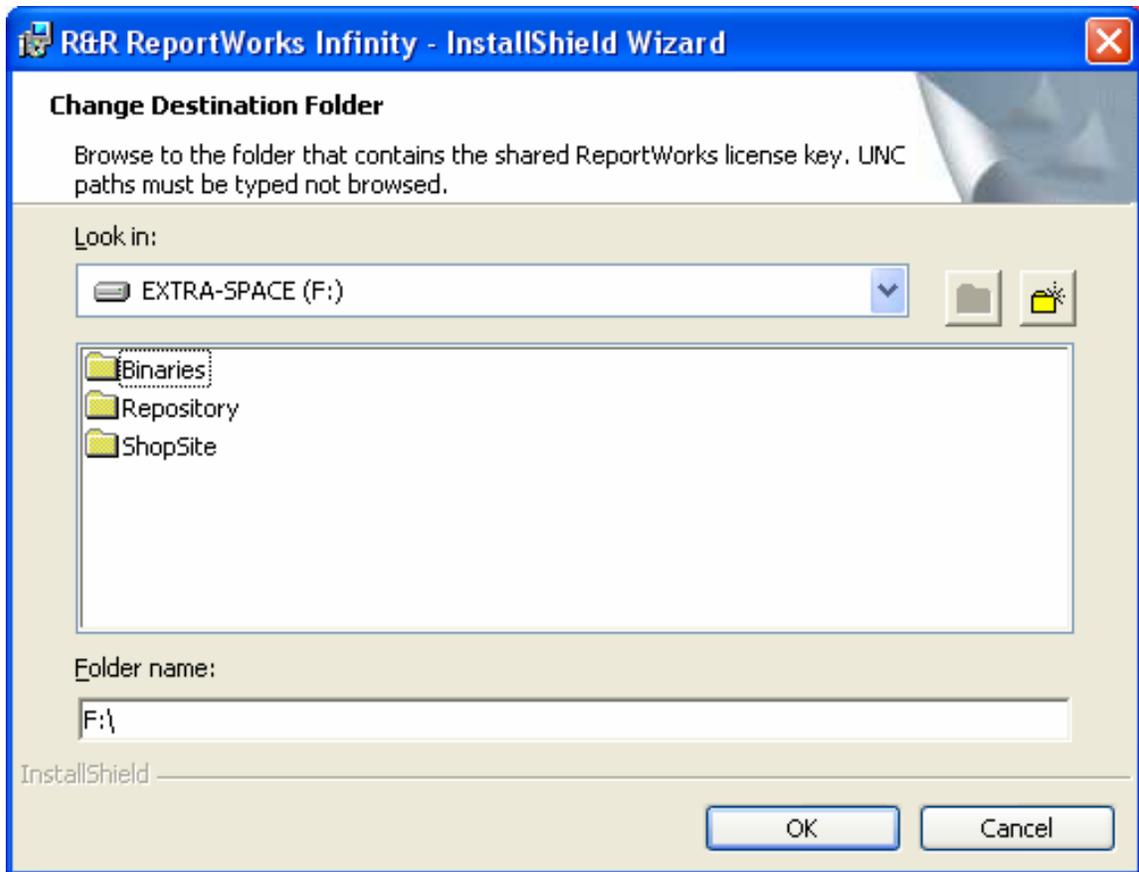


In addition to entering your serial number, you should use the Browse button to select the folder destination where the license key will be installed. Users need write privileges to the files in that are written the selected folder in order to use ReportWorks.

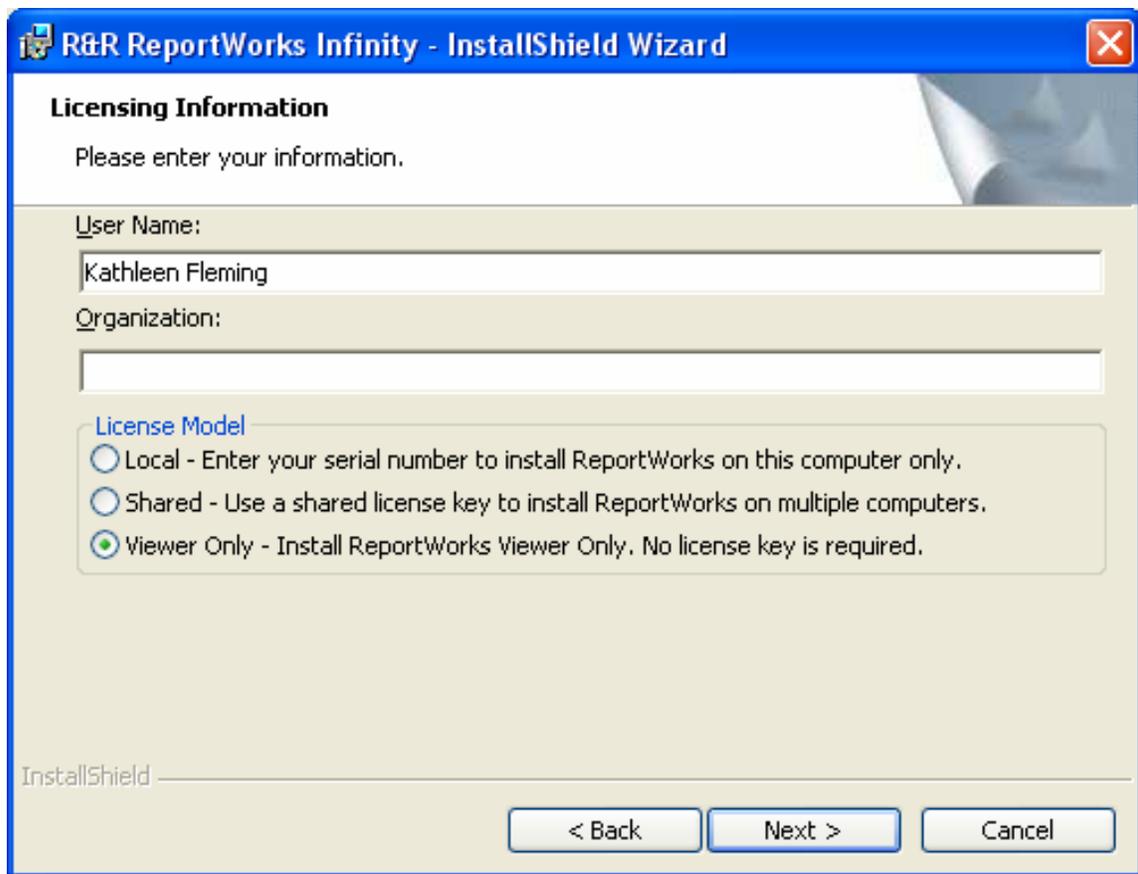


### Using a shared license key

If you are an end user who will be using a shared ReportWorks license that has been previously created in a shared location you should use the Browse button. This will bring you the Change Destination Folder dialog that will allow you to select the folder destination where the license key (RRW.LIC/RSW.LIC) has been installed.



**Viewer Only licensing**



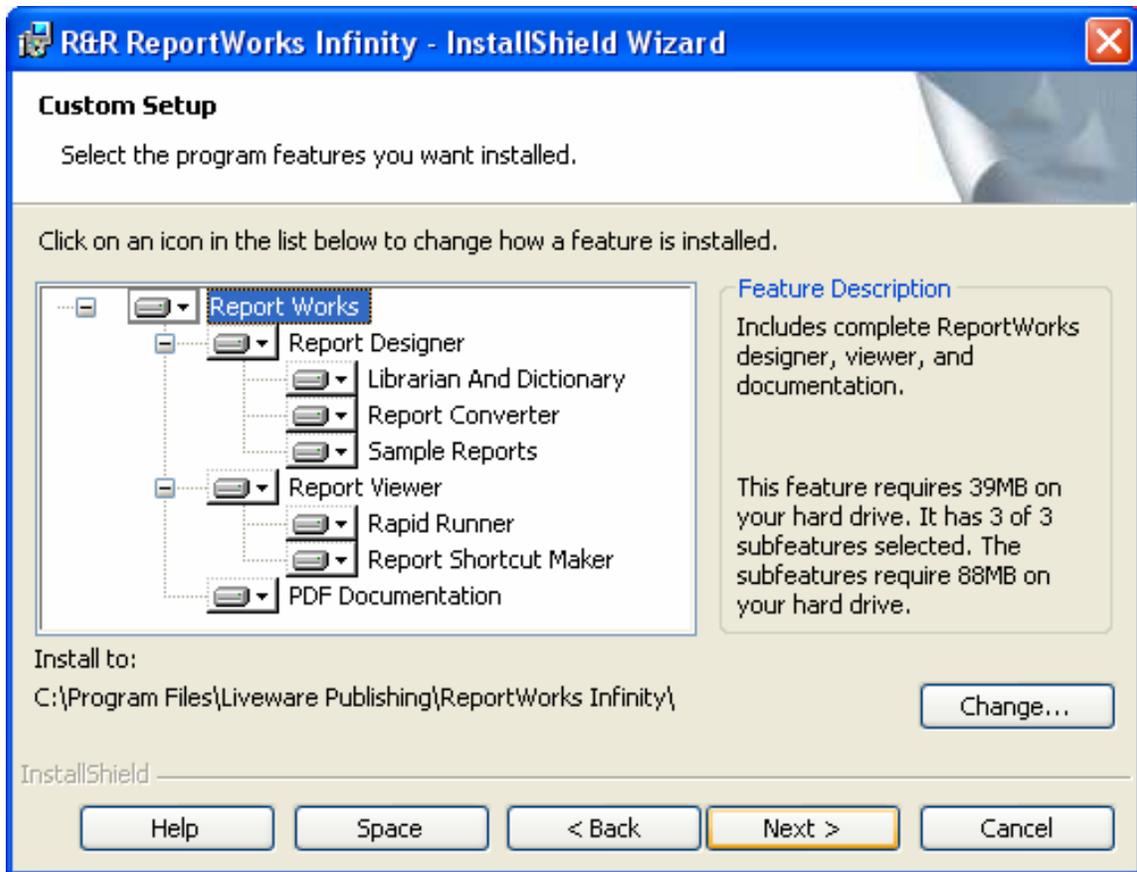
Selecting the Viewer Only license model allows you to run reports that have been created in ReportWorks. No license key is required to install or use this feature.

### Custom Setup

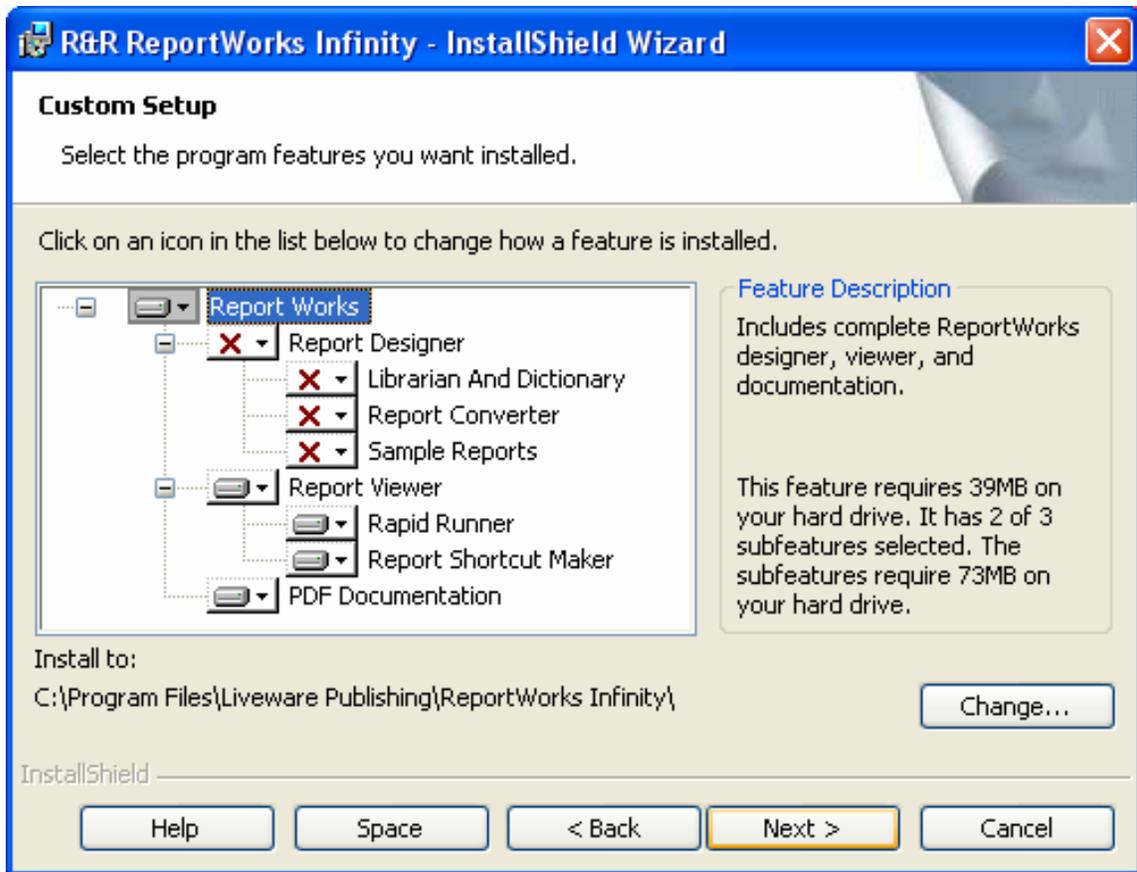
After you have selected your License Model, the Next > button brings you to Custom Setup. Here you will select the program features that you wish to install along with the Install to folder location.

### Feature Selection

If you have used a Local or Shared license, Custom Setup will set the install state of available report features as complete install to local drive. Each of these feature descriptions is briefly described in the panel to the right when you select it from the feature tree on the left. A more detailed description is provided in the Feature Description section below.



If you selected Viewer only as your license model, the Report Designer and its subfeatures are set to will not be installed.



### Custom Setup Features

| Feature                  | Description  |
|--------------------------|--|
| Report Designer          | Create and run ReportWorks reports using RRW.EXE and RSW.EXE report designer executables. Requires license.  |
| Librarian and Dictionary | Menu driven Visual FoxPro utility programs that allow you to seamlessly catalog report and database information while you work within the report designer. |
| Report Converter         | Allows you to convert saved reports that have been created in any current or previous R&R version.   |
| Sample Reports           | A set of sample data, report and image files that illustrate a variety of report features. The SQL reports require an ODBC data source.                    |
| Report Viewer            | Run saved reports using the Report viewer executables RRWRUN.EXE and RSWRUN.EXE. Also includes OCX and DLL interface files.                                |
| Rapid Runner             | Menu driven utility that works with the Report Viewer to allow you to create and run report sets. A report set can include both                            |

|                       |  |
|-----------------------|--|
|                       | SQL and Xbase reports.   |
| Report Shortcut Maker | Menu driven utility to create windows shortcuts to run ReportWorks reports using the ReportWorks viewer. |
| PDF Documentation     | The complete ReportWorks documentation set in PDF format   |

If you are installing ReportWorks Designer under Windows Vista with User Account Control enabled and you wish to use the Librarian and Dictionary feature, please see the section **Vista Installation Considerations**.

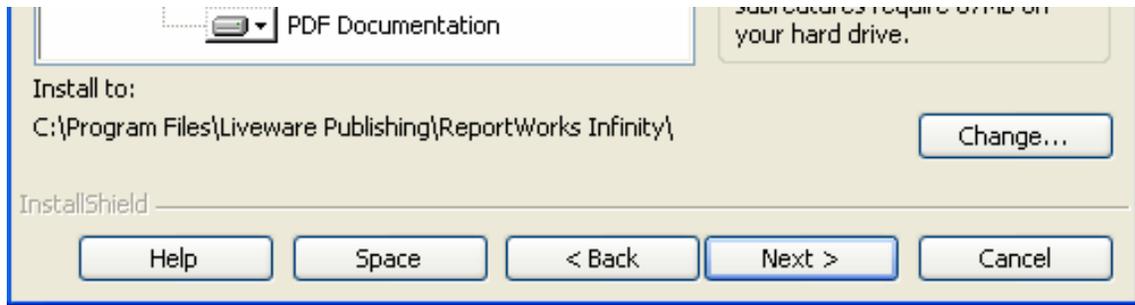
**Note that you can deselect the Librarian and Dictionary sub feature to minimize the impact of Vista's UAC and virtualization.**

### Install to Location

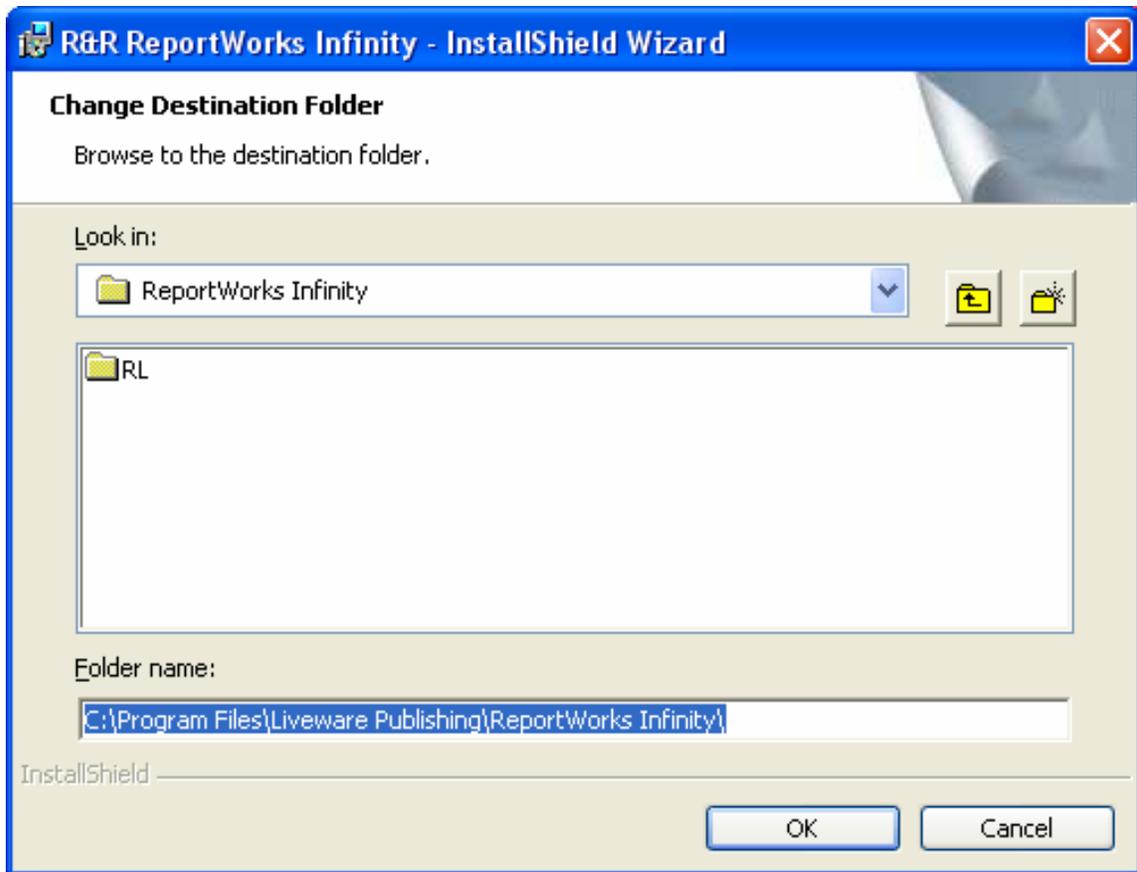
For all license models, the Install to location is the root folder where the program files will be installed. This folder automatically defaults to:

C:\Program Files\Liveware Publishing\ReportWorks Infinity\

Unless you are installing on a Vista 64 machine. In that case the default becomes C:\Program Files (x86)\Liveware Publishing\ReportWorks Infinity\



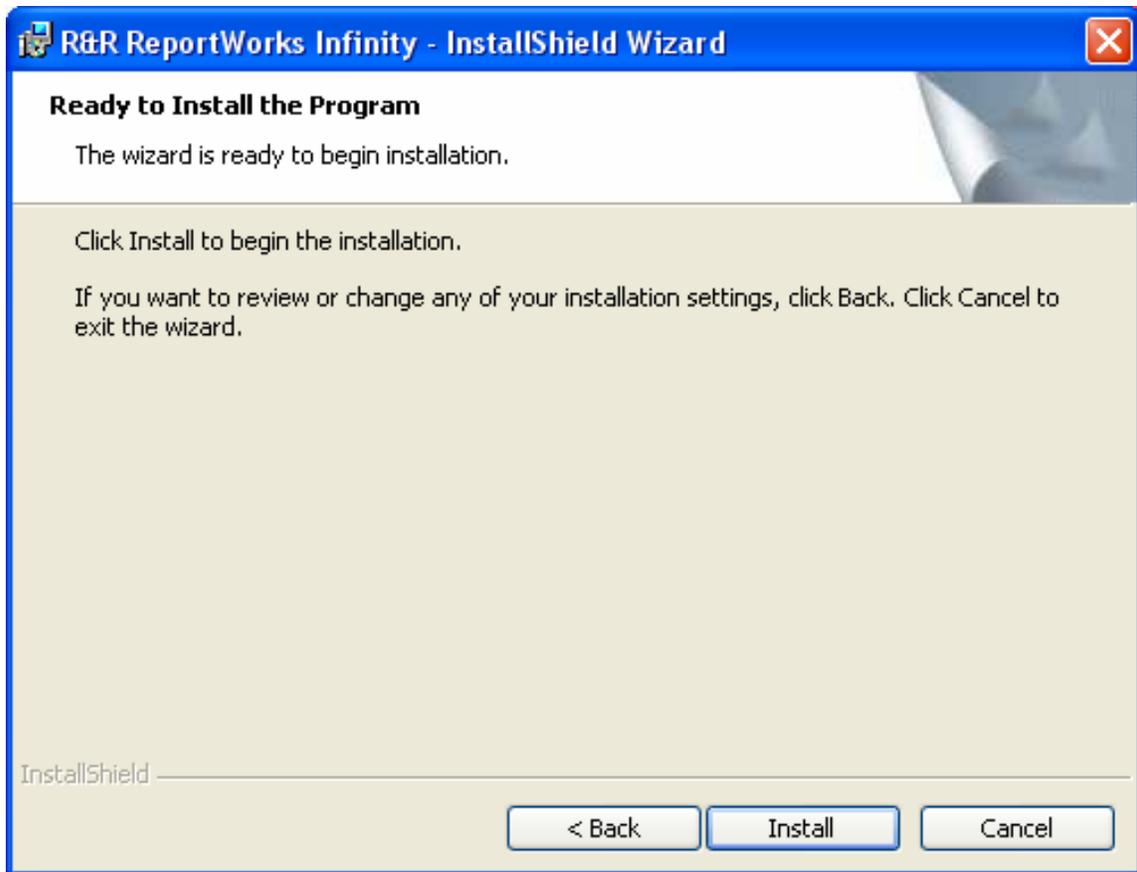
You can use the Change button to select a different destination folder for the program files. If the selected folder does not exist, it will be created by the installer.



If you are installing ReportWorks under Windows Vista with User Account Control enabled please see the section **Vista Installation Considerations** discussion how Vista implements the **VirtualStore** for legacy applications that are installed within the Program Files folder structure.

### **Ready to Install**

Once you have made your feature and install destination selections pressing Next takes you to the Ready to Install dialog.

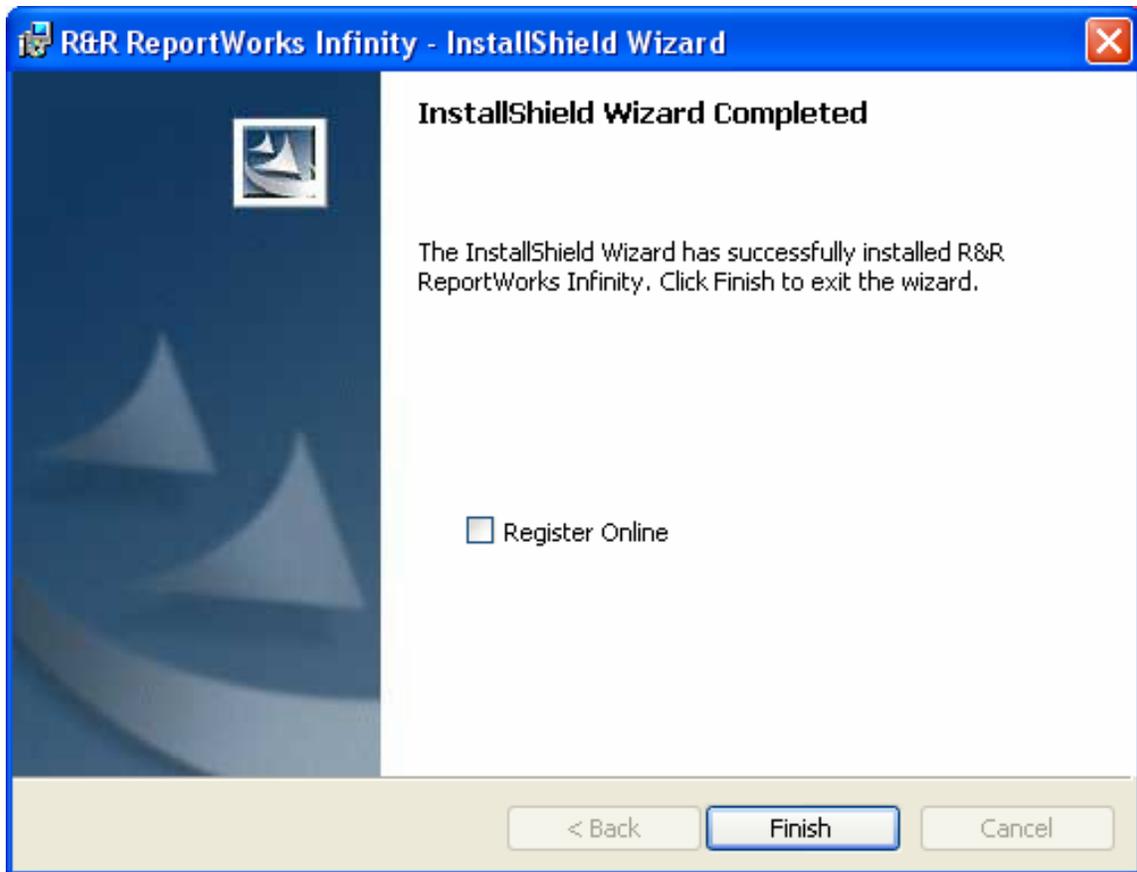


When you click the Install button, installation will begin the process of copying files to your machine and will set registry settings, file associations and Start menu program items based upon your selections. A status bar will display the progress of the installer.

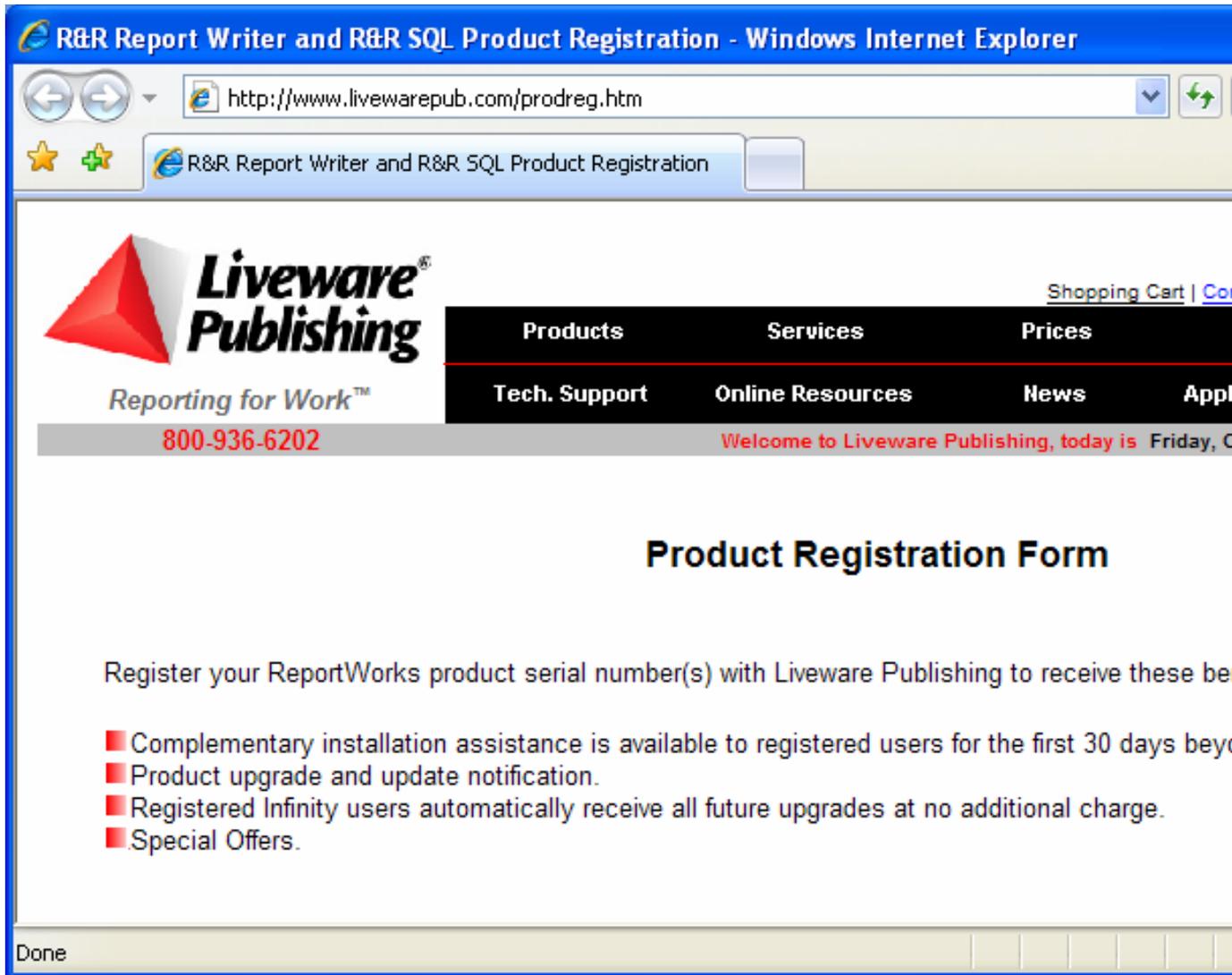
If you are running under Vista, the installer will request you to log in as an administrator to complete the installation.

If you entered a license key during installation, the final completion dialog will contain a Register Online checkbox.

If you had installed as an administrator, this screen will also contain a checkbox that allows you to view the installation log.

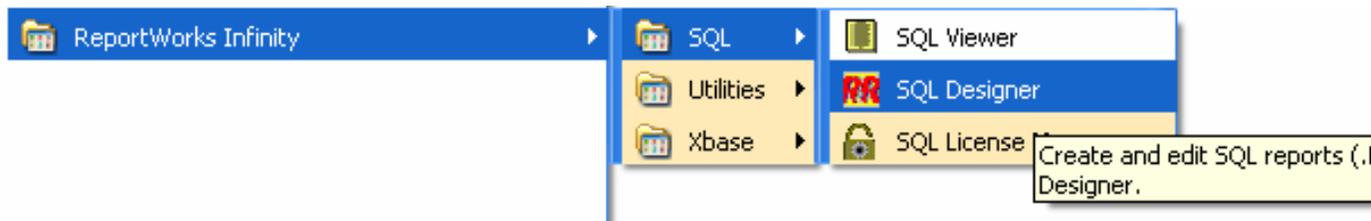


Checking the Register Online box will bring you to the Liveware website product registration page where you can register your product.



#### Start Menu Programs

Once the install completes, your Start menu will contain new Program Items for the features that were selected in Custom Setup.



The chart below describes each program item by the selected feature.

| <i>Report Works Infinity</i> | <i>Feature</i> | <i>Target</i> | <i>Comment</i> |
|------------------------------|----------------|---------------|----------------|
| SQL                          |                |               |                |

|                                |                        |                            |   |
|--------------------------------|------------------------|----------------------------|---|
| SQL Designer                   | Report Designer        | rsw.exe                    | Create and edit SQL reports (.RSW) using the ReportWorks Designer                 |
| SQL License Manager            | Report Designer        | rswusers.exe               | Manage ReportWorks SQL Designer licenses  |
| SQL Viewer                     | Report Viewer          | rswrun.exe                 | Run ReportWorks SQL reports (.RSW). No license is required to use this feature.   |
| Utilities                      |                        |                            |   |
| Data Dictionary Editor         | Librarian&Dictionary   | \r\datadict.exe            | View and edit the ReportWorks dictionary of table and field information.          |
| Report Librarian               | Librarian&Dictionary   | \r\rl.exe                  | Manage and archive ReportWorks reports.   |
| Rapid Runner                   | RapidRunner            | \rapidrun\<br>rapidrun.exe | Create and schedule report sets to automatically run ReportWorks reports.         |
| Runtime Shortcut Maker         | Runtime Shortcut Maker | rricon.exe                 | Create windows shortcuts to run ReportWorks reports.                              |
| Report Converter               | Report Converter       | rrcnvrt.exe                | Convert existing reports between a variety of R&R formats.                        |
| Xbase to SQL Conversion Wizard | Report Converter       | rrsqlwiz.exe               | Convert R&R reports to use new or existing ODBC data sources.                     |
| Xbase                          |                        |                            |   |
| Xbase Designer                 | Report Designer        | rrw.exe                    | Create and edit Xbase reports (.RRW) using the ReportWorks Designer.              |
| Xbase License Manager          | Report Designer        | rrwusers.exe               | Manage ReportWorks Xbase licenses.  |
| Xbase Viewer                   | Report Viewer          | rrwrun.exe                 | Run ReportWorks Xbase reports (.RRW). No license is required to use this feature. |

### File Associations

| <b>Extension</b> | <b>Application</b>   |
|------------------|--|
| RRW              | RRW.EXE if Designer is installed.<br>RRWRUN.EXE if viewer only |
| RSW              | RRW.EXE if Designer is installed.<br>RRWRUN.EXE if viewer only |

|     |  |
|-----|--|
| RRS | RRWRUN.EXE if Viewer is installed.       |
| RSS | RSWRUN.EXE Viewer is installed.          |
| SET | RAPIDRUN.EXE if RapidRunner is installed |

### Removing ReportWorks

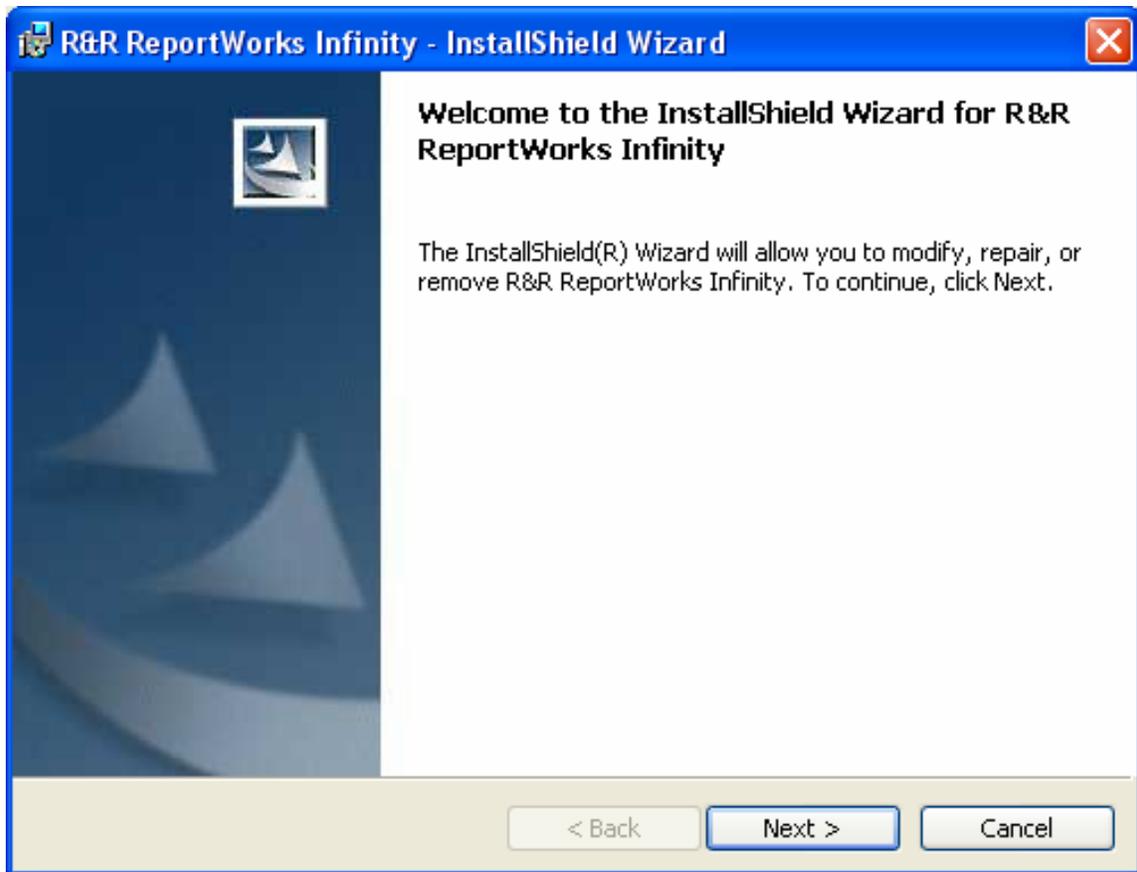
To remove ReportWorks from your machine, you can run the installer from the installation CD or you can use the Windows Control Panel.

In the control panel the program will be listed as R&R ReportWorks Infinity

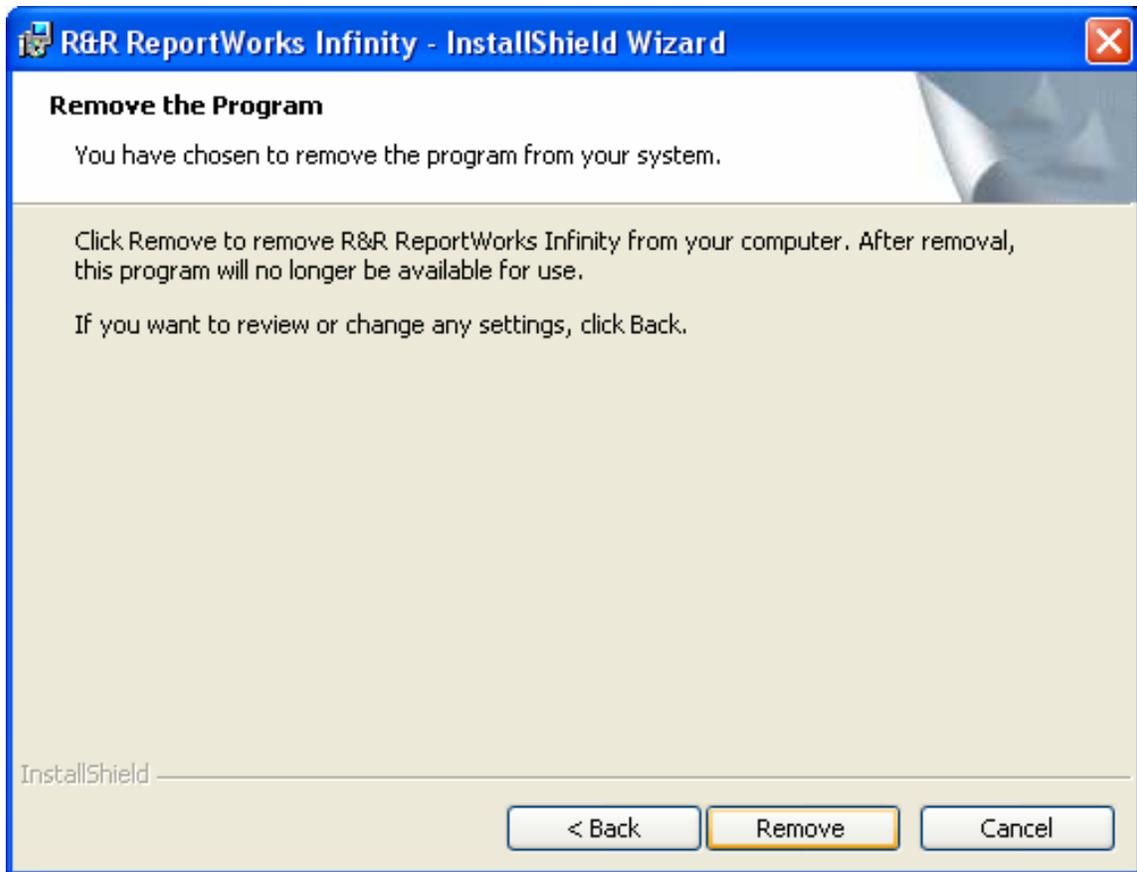
The screenshot shows a blue control panel window for 'R&R ReportWorks Infinity'. It includes a support link, size information (133.00MB), usage frequency (frequently), and last used date (9/15/2008). A 'Remove' button is visible in the bottom right corner.

|  |              |                                       |
|--|--------------|---------------------------------------|
| <b>R&amp;R ReportWorks Infinity</b>                      | Size         | 133.00MB                              |
| <a href="#">Click here for support information.</a>      | Used         | frequently                            |
| To remove this program from your computer, click Remove. | Last Used On | 9/15/2008                             |
|  |              | <input type="button" value="Remove"/> |

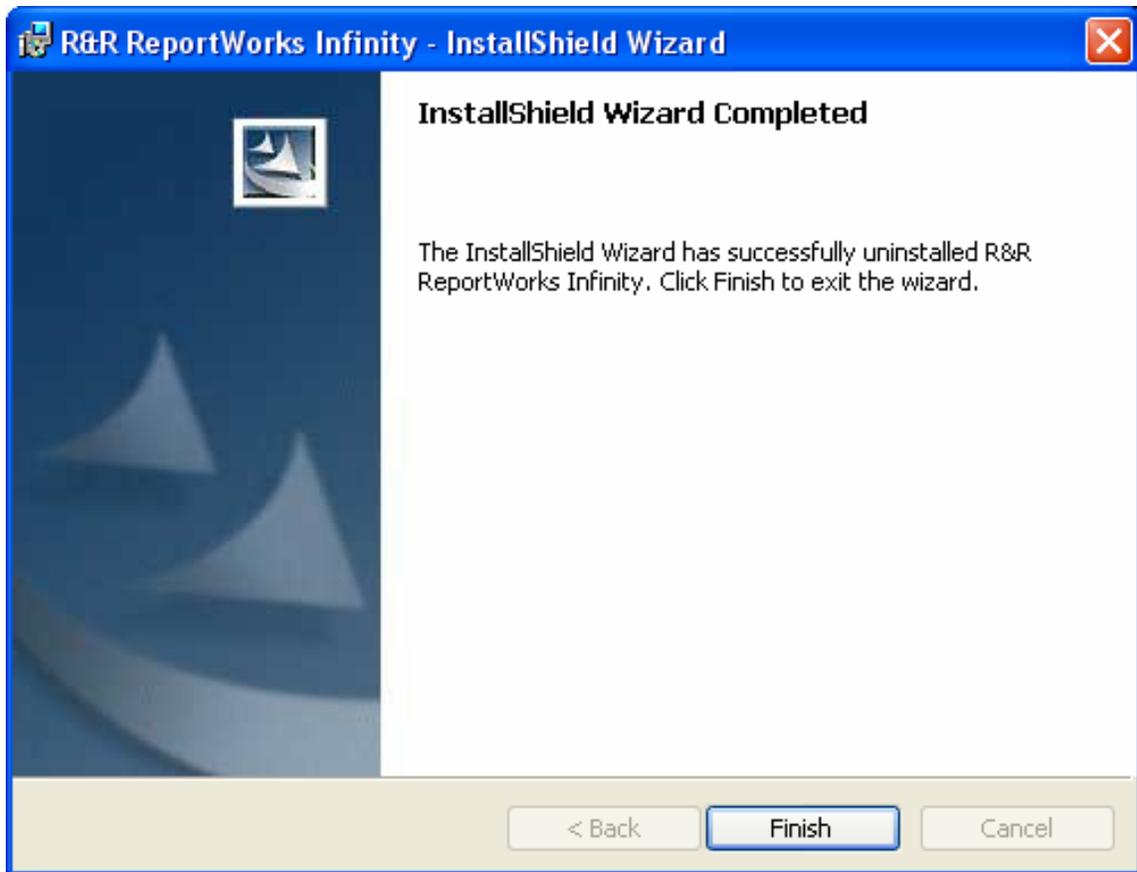
If you are removing using the Control Panel, Windows will ask you to confirm when you press remove. If you are executing from the CD, the install program will be launched with the following screen.



Selecting Next brings you to the Remove the Program dialog where you can press the Remove button to remove ReportWorks from your machine.



If your installation required you to log in as an administrator, you will also need to log in as administration to remove the program.  
When the wizard completes, it displays a final Finish dialog.



Removing the product will remove any files that were initially installed by the program and that were not modified during program operation. It will also remove any start menu program items and file associations.

Note that the data dictionary and librarian data files that are installed to the RL folder are not removed when you un-install.

### **Vista Installation Considerations**

When you install ReportWorks on a Vista machine, you need to be aware of the impact of the additional security restrictions that are imposed by User Account Control (UAC). You also need to consider the protection that Vista adds through file virtualization.

In our testing environment, the only area that we have found as problematic under Vista has been in using the Report Data Dictionary utilities. Note that you can deselect the Librarian and Dictionary feature during installation or can disable the Dictionary after the program is installed by editing the RRW.INI and RSW.INI initialization files..

The next sections give an overview of UAC and virtualization and describe the areas with ReportWorks where these features may come into play. The last section of the document describes using Report Librarian and Data Dictionary under Vista.

### **User Account Control (UAC)**

With User Account control enabled, installation of any program requires that system Administrator credentials be supplied at the time of installation. You will

need to have those credentials available in order to install or remove ReportWorks. There is not a way to bypass this requirement. Once the program is installed, it may then be run by a regular user account. Note that if shared license location was selected during installation, the user must be able to write to the LIC file that resides in that folder.

### **File Virtualization**

Legacy applications such as ReportWorks have traditionally been designed to have full access to their install folder and subfolders and to use the root of the operating system folder as the location of INI or initialization files. With Vista, Microsoft has tightened system security significantly. Installation programs are still allowed to install files in the operating system and Program Files folders. But in Vista, when you run the installed programs that may need to write to files in these protected locations, instead of writing to the actual source, Vista create a modified copy of the files to a new VirtualStore location and from that point on, will read/write data to the VirtualStore copy of the file.

Virtual stores are located in the path

C:\users\UserName\AppData\Local\VirtualStore

Within the Virtual store folder are subfolders for Program Files and for Windows. From the application perspective, it continues to use the source path. The redirection that is done by Vista is in most cases transparent to the application with one notable exception. If an application contains code that asks for the current path of a file that has been virtualized, the operating system returns the non-virtualized path of the file. This may cause an application to not see the most recently modified version of a file.

Microsoft has advised application developers that future versions of Vista may remove Virtual Store capability and suggest that applications be recoded so that any data that is written, be saved to a non-protected location.

Because of our extensive installed base of legacy users who may still be running on non-Vista machines, the current version of ReportWorks does not totally eliminate protected folder access.

If you are installing in a Vista environment, you will want to be aware of following instances where virtualization may impact installing and using ReportWorks.

Files that are installed in the Windows folder and are subject to virtualization

#### **RRW.INI and RSW.INI**

These INI files are the main initial files for the Report Designer and Viewer. They are created in the Windows folder when you install either the Report Designer or the Report Viewer. Vista will virtualize these files as soon as ReportWorks makes a request to update the file.

The Report Designer writes to the INI file when you make changes within the Options menu, whenever you save a report file and when you exit the program.

The Viewer reads the INI file but does not make changes to it. If you have used the Designer, then it is likely that you will have two separate RRW.INI files, the original one in the Windows folder and the current one in the VirtualStore/Windows folder. Vista will present the virtualized copy of the file to the designer and the runtime executables so that they will see the latest changes.

Most of the changes that are required to the RRW.INI and RSW.INI are made indirectly through the Report Designer. But there are available settings that can only be made by manually editing the file in a text editor such as changing

FlexLink prompting in the Xbase version or adding a DATABASE section in the SQL version. If you need to make these changes, they must be done to the Virtual store copy of the file if it exists since the Virtual store takes precedence over the actual windows copy of the file.

### **ReportWorks Program Folder files**

If you install ReportWorks with the Program Files folder, Vista will virtualize any files that are added or changed within this structure. If you want to avoid virtualization, you can use the Change button in the Custom Setup dialog to select folder location that is not within Program Files for install.

### **RRWLINK.INI and RSWLINK.INI**

The link files are installed in the installation program folder except when a viewer only install is performed. These files contain an entry that tells ReportWorks where to find the license key file and where to write any user defined function files. Typically you would not need to edit these files after installation. If a local license installation was done, then the link settings will point to the ReportWorks program folder itself.

### **RRW.LIC and RSW.LIC**

If you install a local license to the default Program Files location, then RRW.LIC and RSW.LIC will be virtualized to the corresponding folder within the VirtualStore. The license files are updated each time you start or exit the Report Designer. Also any user defined function files will be written to the VirtualStore.

### **Reports**

If you elect to save a report file to a protected location (any folder with Program Files), Vista will virtualize that file to the VirtualStore.

### **Data Dictionary and Librarian configuration**

The DBF, FPT and CDX files within the RL folder are used to store dictionary and librarian data. When the Dictionary and Librarian are enabled, these files are updated to any time a table is selected or a report file is saved.

You can enable/disable the dictionary and librarian by editing your RRW.INI/RSW.INI initialization file.

With the [DEFAULTS] section of the file are two parameters, LIBRARIAN and DICTIONARY. These parameters are not case sensitive and may appear anywhere within the [DEFAULTS] section.

To enable Librarian and Dictionary the file will contain:

```
[DEFAULTS]  
LIBRARIAN=ON  
DICTIONARY=1
```

To disable Librarian and Dictionary the file will contain:

```
[DEFAULTS]  
LIBRARIAN=OFF  
DICTIONARY=0
```

In addition to enabling and disabling these utilities you can also configure the location of the librarian and dictionary data files. To do this you add an RL.INI initialization file to the RL sub folder. The RL.INI file can contain a section and

parameter named RLDATA that can point to an alternative location for the librarian and dictionary data files. Here is an example of an RL.INI that sets the location of the RL data files to J:\shared\InfinityDict

```
[RLDATA]
```

```
RLDATA= J:\shared\InfinityDict
```

In addition to creation of the RL.INI file, you also need to copy all of the DBF/CDX/FPT/RRW files to the RLDATA folder.

## **How the Librarian and Dictionary interface with the Report Designer Librarian**

When you save a report in the Report Designer with Librarian enabled, a file named RPTSPEC.TXT is written to the \RL subfolder. Then a Visual FoxPro cataloging program (RLCAT.EXE for Xbase, RLSCAT.EXE) is called. The catalog program then reads the RPTSPEC.TXT and updates the existing librarian data files. The Librarian utility program RL.EXE allows you to view details about the reports that have been catalogued through the Report Designer.

### **Data Dictionary**

When you select a table in the Report Designer with Dictionary enabled, a VisualFoxpro cataloging program (DDFLDUP.EXE) to update the data dictionary data files with information about the table and its fields. If a table has been catalogued in the dictionary, when you select it in Report Designer and right click, choosing Dictionary will invoke the program Visual Foxpro program FLDVIEW.EXE and the current data dictionary entry for that field will be displayed. Unlike the Librarian, the temporary files used to update the dictionary reside the windows temp folder rather than the RL folder.

Under Vista, if the RL data files have been installed with the Program Files folder structure, files will be virtualized (have their most recent version copied to the VirtualStore folder structure) as they are modified. So you may find that some of the files are in the virtual store and others are in the actual program files folder.

What currently happens when the Dictionary is enabled under Vista

If UAC is enabled and you accept the default install location, the first time that you use the designer and select a table, the dictionary temp file does get written to the temp folder of the current user. But if you right click on a field, you get the message that the field is not in the dictionary.

When you exit ReportWorks you get a message from Vista that the program has had a problem and that the next time it is executed, it will be set to run in compatibility mode.

If you come back into the Designer a second time and create a new report, when you select the table you get a UAC elevation prompt that DDFLDUP.EXE requires admin permission. If you allow it to execute, then the dictionary is updated and you can right click the fields.

If you install to location that is not within Program Files, you still see the problem of the files not being updated on the first attempt and you get the compatibility prompt on exit. The next time you run, the dictionary is correctly updated and you do not see the UAC elevation prompt (because you are now running from a non-virtualized folder.)

This problem is a design flaw that was uncovered late in the development cycle for

Version 12.5. We are working on finding and fixing its cause. In the current release you can:

- Deselect the Librarian and Dictionary feature during installation
- Disable the Dictionary through editing the RRW.INI/RSW.INI
- Install to a non virtualized folder

Using R&R

## Chapter 1 Using Menus and Dialogs

**Understanding the Main Window**

## Understanding the Main Window

When you run Report Designer, the startup dialog displays. After you have selected a report to edit or a starting point for creating a new report, the main window appears. This window contains the following components:

- ❑ A Title Bar;
- ❑ A Menu Bar containing File, Edit, View, Insert, Format, Options, Database, Calculations, and Help selections;
- ❑ A Standard Toolbar of buttons for running commands;
- ❑ A Formatting Toolbar of buttons and edit boxes for formatting fields and specifying other layout settings;
  - A Banded Layout area with horizontal and vertical rulers;
  - A Band Area on the left displaying the band line type;
  - A Line Status area on the left used to indicate band line properties;
  - A Status Bar at the bottom of the window

In addition, the window includes an *edit cursor*, a blinking vertical line that shows the insertion point for placing objects. Figure 1.1 illustrates a sample window.

You can access all Report Designer commands from the Menu Bar; the Toolbars give you quick access to commonly used commands. When you position the cursor over each of the Toolbar buttons, a ToolTips help label appears explaining its purpose.

You can display Report Designer in a maximized window or re-size the window as necessary (follow the procedures explained in your Windows documentation for re-sizing the window).



## Using the Menu Bar

The Menu Bar contains the "top-level" commands: File, Edit, View, Insert, Format, Options, Database, Calculations, and Help. You can select a command on this menu in any of the following ways:

- ❑ Click on it;
- ❑ Type Alt plus the underlined letter in the command;
- ❑ Press F10, use the cursor keys to highlight the command, and press Enter.

Selecting any one of these commands displays a menu of additional commands that open dialog boxes or perform specific actions on selected objects or lines. See the Selecting from Menus section in this chapter for a summary of each command menu.

## Using the Standard Toolbar

For many commands, you can select a button on the Standard Toolbar (see Figure 1.2) either to execute a command or to open a dialog box in which you can select or change various options.



**Figure 1.2 Standard Toolbar**

Figure 1.3 identifies the Menu Bar command (and associated shortcut if applicable) that corresponds to each Standard Toolbar button.

| Button  | Menu Bar Command                | Shortcut |
|---|---------------------------------|----------|
|    | File ⇒ New                      | Ctrl+N   |
|    | File ⇒ Open                     | Ctrl+O   |
|    | File ⇒ Save                     | Ctrl+S   |
|    | File ⇒ Print                    | Ctrl+P   |
|    | File ⇒ Print Preview            |          |
|    | Database ⇒ View Result Set      |          |
|    | File ⇒ Security                 |          |
|   | File ⇒ Export                   |          |
|  | Edit ⇒ Cut                      | Ctrl+X   |
|  | Edit ⇒ Copy                     | Ctrl+C   |
|  | Edit ⇒ Paste                    | Ctrl+V   |
|  | Edit ⇒ Undo                     | Ctrl+Z   |
|  | Edit ⇒ Redo                     | Ctrl+Y   |
|  | Insert ⇒ Line                   |          |
|  | Insert ⇒ Box                    |          |
|  | Insert ⇒ Picture                |          |
|  | Insert ⇒ Chart                  |          |
|  | Database ⇒ Master Table         |          |
|  | Database ⇒ Relations            |          |
|  | Database ⇒ Sort Order           |          |
|  | Database ⇒ Group Order          |          |
|  | Database ⇒ Query                |          |
|  | Calculations ⇒ Calculated Field |          |
|  | Calculations ⇒ Parameter Field  |          |



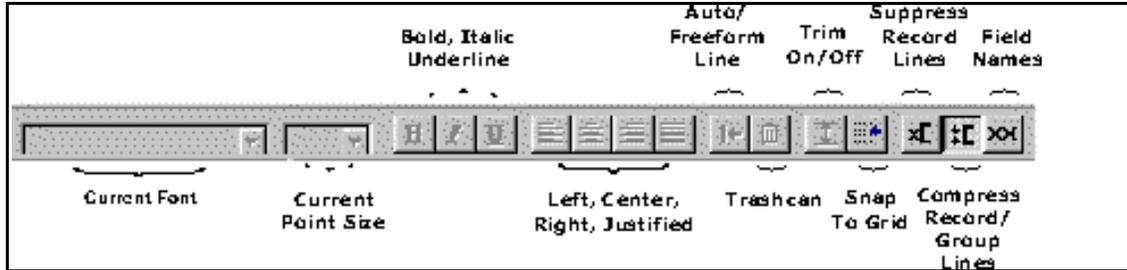
**Figure 1.3 Toolbar Buttons and Corresponding Commands**

## *Using the Formatting Toolbar*

## Using the Formatting Toolbar

The Formatting Toolbar that optionally displays below the Standard Toolbar provides a quick way of formatting fields and text in your report. After you select one or more items on the report layout, you can specify font, point size, style, and alignment by using the list boxes and buttons on this bar.

In some cases you may want to hide the Formatting Toolbar — for example, if you want to display more of the report layout without having to scroll. You use View ⇒ Toolbars to control display of the Formatting Toolbar. Click the check box next to "Formatting" to turn the bar on (checked) or off (empty).



**Figure 1.4 Formatting Toolbar**

Figure 1.5 briefly explains each item on the Formatting Toolbar.

| Toolbar Item          | Purpose  |
|-----------------------|--|
| Font                  | Apply a font to one or more selected fields                      |
| Size                  | Select or enter a size for the current font                      |
| Style Buttons         | B for <b>Bold</b> , I for <i>Italic</i> , U for <u>Underline</u> |
| Alignment             | Non-word-wrapped fields: Left, Center, Right;                    |
| Buttons               | word-wrapped fields: Left, Right, Justified                      |
| Trim Button           | Turns automatic trim on or off                                   |
| Trashcan              | Deletes currently selected item(s) or restores                   |
| Button                | most recently "trashcanned" item(s)                              |
| Auto/Freeform         | Toggles between Automatic/Freeform line                          |
| Button                | height (see Chapter 3, "Working with Bands")                     |
| Snap-To-Grid          | Turns snap-to-grid on or off                                     |
| Button                |  |
| Suppress Record Lines | Toggles between display/non-display of record                    |
|                       | band lines   |
| Compress Record/Group | Toggles between display/non-display of record                    |
| Lines                 | band lines that contain only empty fields                        |
| Field Names           | Toggles between display of fields as field names                 |
|                       | or format symbols  |

**Figure 1.5 Formatting Toolbar Items**

### ***Using the Bold, Italic, and Underline Buttons***

The style and underline buttons (B, I, and U) serve as toggles that turn each style on or off. For example, to make a selected item bold, click the Bold button. To remove the bold style, click the same button. The item's representation on the layout changes to indicate the selected style. You can apply more than one style to the same item. (Bold or Italic will print only if available for the currently selected font.)

## ***Using the Alignment Buttons***

Report Designer assigns a default alignment to each field when it is inserted on the layout. A field's default alignment depends on its data type (unless a default format has been defined in the Data Dictionary):

- ❑ Numeric fields are right-aligned;
- ❑ Memo fields are word-wrapped, left-aligned;
- ❑ All other fields are left-aligned.

To find out the alignment of any field on the layout, select it; on the Formatting Toolbar, the button for the current alignment will be "pressed in." (Note that for character and memo fields, the first character of the field symbol represents the field's alignment.)

To change field alignment, select the field and click one of the alignment buttons (Align Left, Center, Align Right, or Justify). You can also use the Alignment tab; to access the Alignment tab, select the field and press F9 (or right-click on the field and select Properties); then select the Alignment tab.

See Chapter 4, "Working with Fields," for more information about alignment and alignment symbols.

## ***Using the Other Formatting Buttons***

The remaining items on the Formatting Toolbar provide quick access to common formatting and editing tasks:

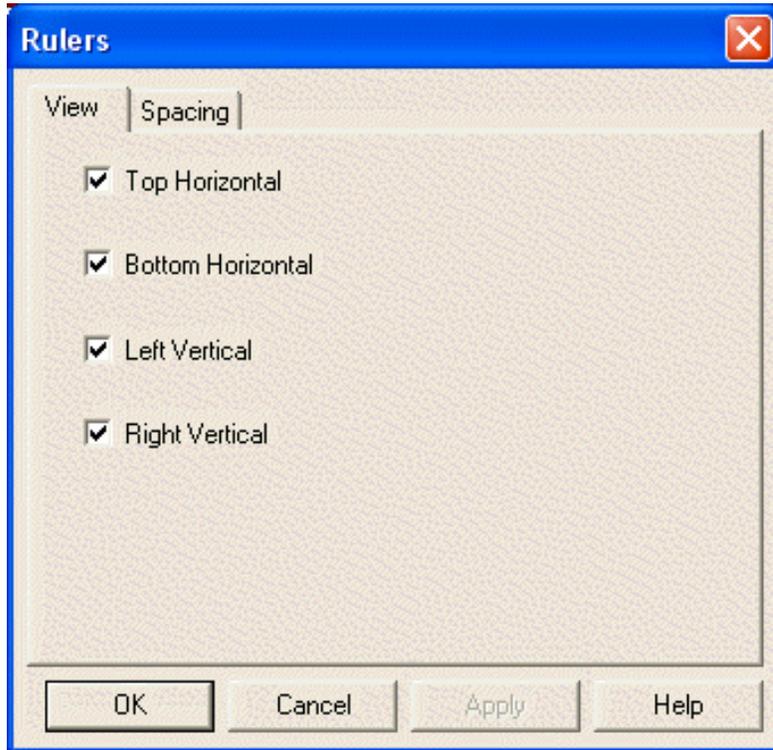
- ❑ The Trim button controls automatic trimming of blank space between fields on the same line. You can also control trim using the Alignment tab (select Format ⇒ Properties, then select the Alignment tab).
- ❑ The Trashcan button provides a quick way of clearing selected objects or restoring the most recently "trashcanned" item(s).
- ❑ The Auto/Freeform button toggles between Auto and Freeform line height type for a line or group of lines (see Chapter 3, "Working with Bands," for an explanation of Automatic and Freeform line height).
- ❑ The Snap-To-Grid button turns snap-to-grid on or off.
- ❑ The Suppress Record Lines button toggles between display/non-display of record band lines.
- ❑ The Compress Record/Group Lines button toggles between display/non-display of record band lines that contain only empty fields.
- ❑ The Field Names button toggles between display of fields as field names or format symbols.

## *Changing Horizontal and Vertical Ruler Settings*

## ***Changing Horizontal and Vertical Ruler Settings***

Calibrated horizontal and vertical rulers help you place fields, text, and objects at specific positions on the report layout. There are 4 available rulers. Horizontal rulers may be displayed at the top and the bottom of the layout window. Vertical rulers may be displayed at the left and right of the layout window.

Selecting View->Rulers from the main menu to bring up View tab of the Rulers dialog where you can select which rulers you wish to display.



**Figure 1.6a Rulers View Dialog Box**

The left, right, or center alignment point for a selected item is marked by a location indicator on the horizontal ruler. Vertical position is marked by a darkened band in the Band Area.

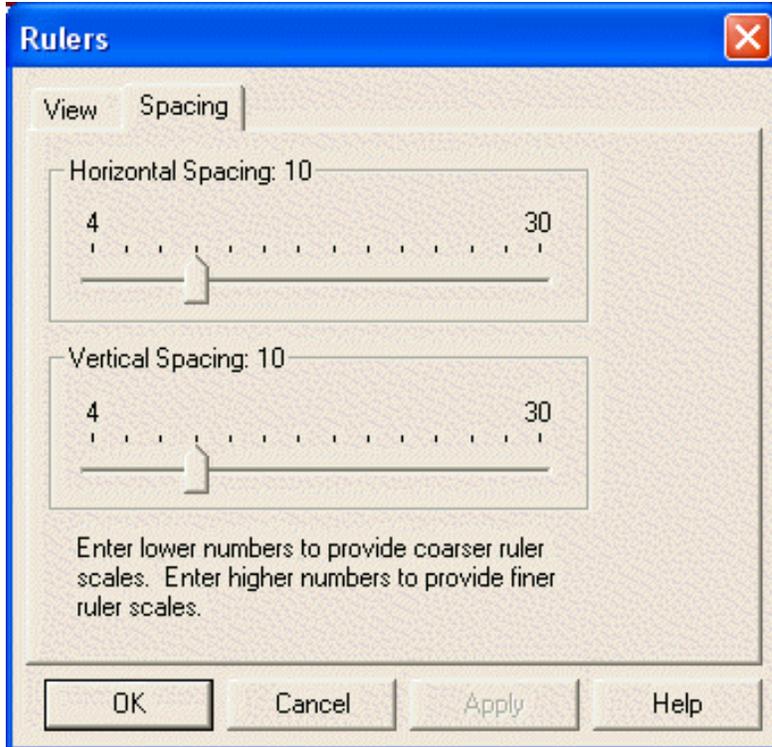
If you type a left-justified column heading on the layout immediately under the 1 inch position on the horizontal ruler, this column heading will begin printing one inch from the left margin of your report.

In addition to selecting which rulers to display, you can also control the calibration of the rulers. The default setting for both the Horizontal and the Vertical Ruler Spacing is 10; you can select a setting from 4 through 30. This setting controls the number of ruler increments per inch on each ruler. Note that the Ruler Spacing settings control only the spacing of the report layout rulers (since the fonts actually applied to fields in the report control the print spacing).

When the grid is turned on, the ruler settings determine the horizontal and vertical grid spacing for Freeform lines. For Automatic lines, the horizontal ruler setting determines the horizontal grid spacing; the vertical grid spacing is determined by the height of the largest font on each line. See Chapter 3, "Working with Bands," for an explanation of Automatic and Freeform line height.

To change the calibration of the rulers, right-click on either ruler or press F8 to display the Ruler Spacing tab of the Rulers dialog (see Figure 1.6).

Using the Horizontal or Vertical Spacing slider control, select a ruler spacing from 4 through 30 units per inch. Specify a lower number to display a coarser ruler scale; specify a higher number to display a finer ruler scale.



**Figure 1.6b Ruler Spacing Dialog Box**

- You can use either the mouse or the keyboard to change ruler settings:
- ☞ Click to the left or right of the slide pointer to decrease (left) or increase (right) the setting by 4 units at a time. Drag the slider to change the setting in 1-unit increments.
  - ☞ Use the left or right cursor key to decrease (left) or increase (right) the setting by 2 units at a time. Use Page Up or Page Down to decrease (PgUp) or increase (PgDn) the setting by 4 units at a time.

*Work Space*

## ***Work Space***

The area below the horizontal ruler line is the Work Space in which you create report layouts. The Work Space is divided into two main areas:

- The Band Area — the area to the left of the screen, which identifies the type and status of every band line on the layout. This area can be optionally displayed using a color-coding schema as well as the standard text-based band type indication.
- The Layout Area — the large area on the right in which you create a *report layout*, a schematic representation of your report that contains the fields, text, and other objects that will appear on your report.

You can adjust the relative sizes of the Band and Layout areas using the "splitter bar" between them. Click and drag the splitter bar to the right to increase the Band Area and decrease the Layout Area; drag the splitter bar to the left to decrease the Band Area and increase the Layout Area.

## ***Band Area***

The R&R Designer workspace consists of one or more bands, each with characteristics that define how the data in that band will be presented when the report is run. As Figure 1.1 illustrates, the Band Area contains a band-type indicator for each band in the Layout Area.

Band-type indicators, which Report Designer Automatically displays when you create, insert, or move lines, identify whether a line is part of the report's Title, Page Header, Group Header, Record band, Group Footer, Summary band, or Page Footer. The name of the band type will always be displayed (just once per band type) on the bottom most band line of that type. For example if you have 3 record band lines on the layout, the third one will contain the text Record. To make it easier to visual bands by type you can enable the display of color-coded band lines using the menu choice Options Preferences. To select one or more lines, click or drag the mouse in the Band Area.

The narrow channel at the right edge of the Band Area is the Line Status Area.

This area provides the following information about report lines:

- ❑ Up and down arrows in the Line Status Area indicate the top and bottom border of any Freeform line (for a full explanation of Freeform lines, see Chapter 3, "Working with Bands").
- ❑ A question mark indicates that a logical field, scan condition or no records found type has been assigned to control printing of that line. (See Chapter 3, "Working with Bands," for information about controlling line printing with logical fields; see Chapter 18, "Creating Multiple-Scan Reports," for information about scan conditions; see Chapter 3, "No records found band lines," for information about no records found band lines.)

## ***Layout Area***

The Layout Area typically contains text, which will appear in the report exactly as typed, and data fields, which are represented on the layout either by field symbols such as <xxxxxx (character data) and 99999 (numeric data) or by field names (if the Field Names setting has been enabled on the View menu). This area can also contain lines, boxes, bitmapped graphic images, or other objects.

The Layout Area can be scrolled both vertically and horizontally. You can create report layouts up to a maximum of 256 lines; the maximum layout width is determined by the page layout settings. You will see an **R** on the Horizontal Rulers that represents the position of the right margin. The area to the right of the margin indicator is shaded gray.

You can place fields within the gray area; however, they may or may not display on a printed page depending on the settings of your printer. You set the right margin using the menu choice File ⇒ Page Setup.

See Chapter 4, "Working with Fields," for information about adding text and fields to a report layout. See Chapter 14, "Adding Lines, Boxes, and Shading," for information about drawing lines and boxes. For an explanation of inserting and sizing images, see Chapter 15, "Inserting Bitmapped Images."

*Using the Status Bar and Scroll Bars*

### ***Using the Status Bar and Scroll Bars***

Immediately below the Work Space is the Status Bar, which displays information about current operations and/or the position of a selected item. At the bottom and right of the Report Designer main window are the horizontal and vertical scroll bars, which enable you to scroll the Work Space up and down, left and right.

## ***Status Bar***

When you are working in the Layout Area, the Status Bar identifies the position of the edit cursor on the layout and indicates whether the "Caps Lock" or "Num Lock" key on your keyboard is on. In addition, the Status Bar may contain descriptions of command options, prompts telling you what action to take, or information about the currently highlighted field.

## ***Scroll Bars***

Use the horizontal and vertical scroll bars to scroll the Work Space. Both the Band Area and the Layout Area can be scrolled vertically. However, only the Layout Area can be scrolled horizontally, since the information in the Band Area is relevant to the entire width of the report layout. For information about scrolling an application window, see your Windows documentation.

**Selecting from Menus**

## Selecting from Menus

You execute commands by selecting from menus or clicking buttons and then using dialog boxes to provide additional information required by some commands. Operation of Report Designer menus and dialog boxes follows the Windows conventions explained in the following sections.

The Menu Bar is the main menu, from which you select the command menus you want to use. For example, selecting File in the Menu Bar will display the File menu.

You can open a command menu from the Menu Bar in any of the following ways:

- ❑ Click on the command name;
- ❑ Press F10 (or Alt) and type the accelerator key for the command (the underlined letter in the command name — for example, F for File or E for Edit);
- ❑ Press F10, use the cursor keys to highlight a command name, then press Enter.

After opening a menu, you select a command in any of these ways:

- ❑ Click on the command name;
- ❑ Type the accelerator key for the command;
- ❑ Use the cursor keys to highlight a command; then press Enter.

For example, after opening the File menu, you can select "New" by clicking on it, by typing **N**, or by highlighting the command and pressing Enter. Cancel a command selection by clicking outside the menu box or by pressing Esc.

You can also execute some commands directly from the keyboard, without using the Menu Bar, by typing a shortcut key combination. For example, you can execute Format ⇒ Properties by pressing F9.

At some points, one or more commands on the Menu Bar or in the command menus will be dim, indicating those commands are not available.

## File Menu

Use the File menu to do the following:

- Create, open, close, save, print, or preview a report;
- Enter or edit comments for the current report;
- Set a designer or runtime password for the report;
- Define the page setup;
- Export a report to an Active X Viewer file, HTML, plain text, database, result set database, worksheet, text data, Rich Text Format (RTF), or Word merge file or to an Excel 5.0 PivotTable or Chart;
- Send a report via email;
- Exit Report Designer.

Selecting File displays a menu of choices; selecting a choice either opens a dialog or executes a command. Figure 1.7 summarizes the actions these menu choices perform.

| Command        | Purpose  |
|----------------|--|
| New (Ctrl+N)   | Create a new report  |
| Open (Ctrl+O)  | Open or delete a report; select a library  |
| Close          | Close Report   |
| Save (Ctrl+S)  | Save a report  |
| Save As        | Save a report using a different name   |
| Properties     | Enter information about the current report   |
| Security       | Set password for designer and runtime report access  |
| Page Setup     | Specify paper size, margins, orientation   |
| Print Preview  | Display the current report on the screen   |
| Print (Ctrl+P) | Print using the current printer, select a different printer, or change print options   |
| Export         | Output report data to a plain text, database, result set database, worksheet, text data, HTML, RTF, or Word merge file; or to an ActiveX Viewer file; Optionally send export file to email recipient |
| Export OLE     | Output report data to an Excel 5.0 PivotTable or Chart   |
| Send           | Send current report file to an email recipient   |
| Exit (Alt+F4)  | Leave Report Designer and return to Windows  |

**Figure 1.7 File Menu Choices**

Note that the Page Setup settings for paper size, margins, and orientation apply only to the current report and are saved with it.

## Edit Menu

The Edit menu provides choices for modifying reports — cutting and pasting, copying, deleting, moving, and so on. Figure 1.8 summarizes the purpose of each Edit menu choice.

| <b>Command</b>              | <b>Purpose</b>   |
|-----------------------------|--|
| Undo (Ctrl+Z)               | Undo last change to layout                               |
| Redo (Ctrl+Y)               | Repeat last change to layout                             |
| Cut (Ctrl+X)                | Remove selected item(s) and save to memory               |
| Copy (Ctrl +C)              | Copy selected item(s) to memory                          |
| Paste (Ctrl+V)              | Paste items saved to memory                              |
| Clear                       | Erase selected item(s)                                   |
| Paste Clipboard Image       | Paste graphic image from clipboard                       |
| Paste Special               | Link or embed an object from clipboard                   |
| Move Fields (F7)            | Move selected field(s) or band line(s) using cursor keys |
| Duplicate Fields (Shift F7) | Copy selected field(s) for movement using cursor keys    |
| Links                       | Display and modify existing links                        |
| Object                      | Modify the selected OLE object                           |

**Figure 1.8 Edit Menu Choices**

*View Menu*

## ***View Menu***

Use the View menu to do the following:

- Turn Standard Toolbar display on/off;
- Turn Formatting Toolbar display on/off;
- Turn ToolTips display on/ off;
- Enable horizontal/vertical rulers display; adjust ruler calibration;
- Turn grid display on/off;
- Display fields on layout either as symbols or as field names.

By default, the Toolbars and rulers are displayed; fields are represented by symbols on the layout; and the grid is shown. To change these settings, select View; then select the item to change.

| <b>Command</b> | <b>Purpose</b>  |
|----------------|---|
| Toolbars...    | Hide or show the Standard and Formatting Toolbars; enable or disable ToolTips display |
| Rulers...      | Select ruler display and calibration  |
| Grid           | Hide or show the grid   |
| Field Names    | When checked, Display fields as names rather than symbols                             |

**Figure 1.9 View Menu Choices**

## ***Toolbar and ToolTips Settings***

A check mark next to either "Standard" or "Formatting" on the Toolbars dialog means that the item is currently displayed. To turn off display of either, select the appropriate item.

A check mark next to the "ToolTips" item on this dialog means that a help label will display when you position the cursor over one of the toolbar items. To turn off display of these labels, click the box to remove the check mark.

## ***Horizontal and Vertical Rulers***

To turn on or off the display of the horizontal or vertical ruler, select Ruler. A check mark next to a ruler indicates that display is currently turned on.

## ***Grid***

To help you align objects on the report layout, you can enable a grid consisting of a series of dots. The grid spacing is determined by the settings for the horizontal and vertical rulers. To control grid display, select View ⇒ Grid; a check mark appears when this setting is on. When the Snap-To-Grid setting is on, items that you insert or move will "snap" to the nearest grid mark. See the Format Menu section of this chapter for information about turning Snap-To-Grid on or off.

## ***Field Names***

Fields can be represented on the layout either by field names or by symbols (such as >xxxx) that identify field type and alignment. By default, each field is represented by symbols. To display field names instead, turn on the View ⇒ Field Names setting (a check mark appears next to the setting when it is on). As a result, each field's name is shown at the field's location (depending on field width, the entire name may not appear).

*Insert Menu*

## ***Insert Menu***

Using the Insert menu choices, you can insert fields from the *composite record structure* (the set of fields available to be used in a report, including master and related table fields and any Report Designer total or calculated fields); create and insert band lines; attach a text file to provide memo fields for the report; and insert lines, boxes, images, or OLE objects. (See Chapter 19, "Creating Form Letter Reports," for information about preparing, attaching, and using a text memo file.)

Figure 1.10 briefly explains the Insert menu commands.

| <b>Command</b>                 | <b>Purpose</b>   |
|--------------------------------|--|
| Field (Ins, F11)               | Insert field from composite record structure                           |
| Band Line<br>(Shift+F11)       | Insert line of same type above current line                            |
| Create Band Line<br>(Ctrl+F11) | Insert one or more lines of any band type                              |
| Text File                      | Insert text memo file  |
| Line                           | Draw horizontal or vertical line                                       |
| Box                            | Draw box or add shading  |
| Picture from File              | Insert bitmapped graphic image file                                    |
| Picture from Field             | Insert a character field whose contents contain an image path/filename |
| Chart                          | Insert chart   |
| Object                         | Insert an OLE object   |

**Figure 1.10 Insert Menu Commands**

## *Format Menu*

## ***Format Menu***

The Format menu choices enable you to control the format and alignment of fields and lines, specify record formatting options, change ruler settings, and turn snap-to-grid on or off. Figure 1.11 lists the commands and explains the purpose of each. See Chapter 4, "Working with Fields," for detailed information about using these commands.

| <b>Command</b>          | <b>Purpose</b>  |
|-------------------------|---|
| Font (F5)               | Specify typeface, size, and style   |
| Properties (F9)         | For selected band line(s): Control line height and logical/scan conditions; for selected field(s): Modify format (width, number of integers and decimals, numeric format, etc.), alignment, trim, field comment                                   |
| Align                   | Align all selected objects to the Left, Center, Right, Top, Middle, Bottom of the last object that was selected.  |
| Band Line Justify       | Align all fields on selected line(s)  |
| Record Layout           | Specify various record formatting options. The Record Layout dialog provides settings for formatting the Record and Summary bands of a report, including selections for multiple and "snaked" columns, Avery labels, and number of record copies. |
| Rulers (F8)             | Change horizontal and vertical ruler spacing and display  |
| Snap To Grid (Shift+F8) | Turn snap-to-grid on and off  |

**Figure 1.11 Format Menu Choices**

## *Options Menu*

## Options Menu

The Options command provides the following choices: Preferences, Default Settings, and File Settings. Figure 1.12 summarizes the settings available with each.

| Command          | Purpose  |
|------------------|--|
| Preferences      | Turn scroll bars on and off; enable colors for band area/preview; enable colors for total and group field dialogs; control result of selecting File ⇒ New; specify memo editor; specify display of report dictionary descriptions in field lists; specify Auto Save settings |
| Default Settings | Set paper size, margins, font, spacing, logical strings  |
| File Settings    | Specify default data, report,lookup,image and template directories; default text and index file extensions;  |
| Chart Settings   | Specify default Font name and size Palette for chart titles, labels and legends. Specify color palette;  |

**Figure 1.12 Options Menu Choices**

You use the Preferences dialog box to control the display of horizontal and vertical scroll bars and to specify what action Report Designer will take when you select File ⇒ New. You also use this dialog to indicate which database memo editor was used to prepare tables that supply memo fields for your reports.

In addition you can use the Field Lists section of the Preferences dialog to specify the format and order of field lists in Report Designer.

See Chapter 5, "Setting Defaults," for more information about the Preferences dialog.

The Default Settings dialog controls global settings for paper size, margins, font and point size, font color, ruler spacing, logical strings, and snap-to-grid. These settings apply to all newly created reports. The Default File Settings dialog enables you to set default data, report, template and image directories; specify default file extensions for index, and text memo files;

## *Database Menu*

## ***Database Menu***

Use the Database menu choices to specify the tables from which data will be drawn for a report, to sort and group that data, to select a master index, to specify a scope for the master table, to create a query to select specific records, or to view the Result Set browser window. Figure 1.13 briefly summarizes the Database menu choices.

| <b>Command</b>  | <b>Purpose</b>  |
|-----------------|---|
| Master Table    | Select or change master table; apply scope; select master index; assign alias |
| Relations       | Select, edit, and remove table relations                                      |
| Sort Order      | Select fields to control report sort order                                    |
| Group Order     | Select fields to group report data  |
| Query           | Specify selection conditions to filter records                                |
| View Result Set | View all fields used in report in database browser window.                    |

**Figure 1.13 Database Menu Choices**

## *Calculations Menu*

## Calculations Menu

The Calculations menu choices enable you to create and edit calculated fields, ParameteRR fields, total fields, and User-Defined Functions (UDFs), as well as to purge a report of any unused total, calculated fields, and/or ParameteRR fields.

| Command            | Purpose   |
|--------------------|---|
| Calculated Field   | Create and edit calculated fields   |
| Total Field        | Create and edit total fields  |
| ParameteRR Field   | Define a field whose final value will be determined at report execution time. |
| User Function      | Create and edit User-Defined functions  |
| Auto Total         | Create totals for all selected fields   |
| Purge Calculations | Remove all unused calculated, parameteRR or total fields                      |

**Figure 1.14 Calculations Menu Choices**

You use the Calculated Fields dialog box to create fields whose values are computed as a report is generated, rather than being retrieved from the database. You use the Total Fields dialog to create fields that contain summary information such as a subtotal or grand total figure; Report Designer calculates the value of such a field according to the total options you select. You can create total and calculated fields, insert them in reports, and manipulate them just as you do data and text fields.

You use the ParameteRR Fields dialog to create fields whose values can be modified via a ParameteRR Value Entry screen when the report is executed.

To edit a total, calculated, or ParameteRR field that has been inserted on the layout, you can simply select the field and press F2 to display the appropriate edit dialog.

You use the User Function dialog to create UDFs to process data according to an expression or formula that you define. You can create UDFs to perform complex operations and then use those UDFs (in the same way you would use predefined functions) in calculated field expressions in any report.

The Auto Total dialog enables you to select multiple fields on the layout and have Report Designer automatically create totals for those fields and then insert the totals on a new band line based on the selected total reset level.

Use the Purge Calculations command to remove any unused total, calculated, or ParameteRR fields from the report definition. Removing unused total and calculated/ParameteRR fields can speed up report generation and reduce the amount of memory required.

## Using Dialog Boxes

## Using Dialog Boxes

Like other Windows applications, Report Designer uses dialog boxes to request and display information related to a specific command.

Many of the dialog boxes are standard Windows dialog boxes. For example, the Report Designer File ⇒ New dialog box is like the File New dialog in many Windows applications.

Other dialog boxes are unique to Report Designer, since they request information specific to report generation. For example, the Database ⇒ Query dialog box requests information that enables Report Designer to construct a query selecting specified records for a report.

You can move around in a dialog box using either the mouse or the keyboard. Using a mouse, simply click on any option to make it active. Using the keyboard, tab from option to option or press Alt plus the underlined letter in the option you want to select. When an option is active, it is marked by a highlight or dotted rectangle.

*List and Edit Boxes*

## ***List and Edit Boxes***

A *list box* is any vertical list from which you select a setting, file, or other item. Many dialog boxes contain *edit boxes* in which you can enter text such as paths, file names, field names, or numeric values. In some cases, an edit box and list box are combined so that you can either select from the list or type your choice in the edit box (such boxes are often referred to as "combo boxes").

## ***List Boxes***

Some list boxes open automatically when you select a command or item; on some dialog boxes, you must first click the scroll arrow next to an item to open a list box containing choices for that item. To select a choice from a list box, either click on the choice or use the cursor keys to highlight it. From the keyboard, you can select a field from a field list box by typing the first letter of the field name until the field is highlighted on the list.

Note that the complete field name (or the report dictionary comment for that field, if there is one) is displayed in the Status Bar when a field is highlighted in the field list box.

## ***Edit Boxes***

To enter or modify text in an edit box, move the edit cursor (the vertical bar) to the box either by clicking in the box or tabbing to it. Any characters you type will be inserted at the position of the edit cursor. If the text in a box is currently selected, characters you type will replace that text.

For more information on Windows text editing operations, see your Windows documentation.

## *Buttons and Check Boxes*

## ***Buttons and Check Boxes***

Most dialog boxes have *command buttons*, rectangular, labeled boxes that look like three-dimensional buttons on many displays. The most common command buttons are the OK and Cancel buttons you see in dialog boxes to indicate whether the application should accept the information in the dialog box.

Some dialog boxes have *option buttons*, small circles with an option name beside them. These buttons (also referred to in some Windows applications as "radio buttons") represent mutually exclusive options, only one of which can be selected at a time. When an option is selected, its circle is black.

*Check boxes* function as toggles to turn a setting on or off. When there is an X in the box next to an item, that setting is on.

## Selecting a Command Button

Using a mouse, select a command button by clicking on it. From the keyboard, tab to the button and press the spacebar. For those commands with an underlined letter, you can type Alt plus the underlined letter. If a button is dim, it is currently unavailable.

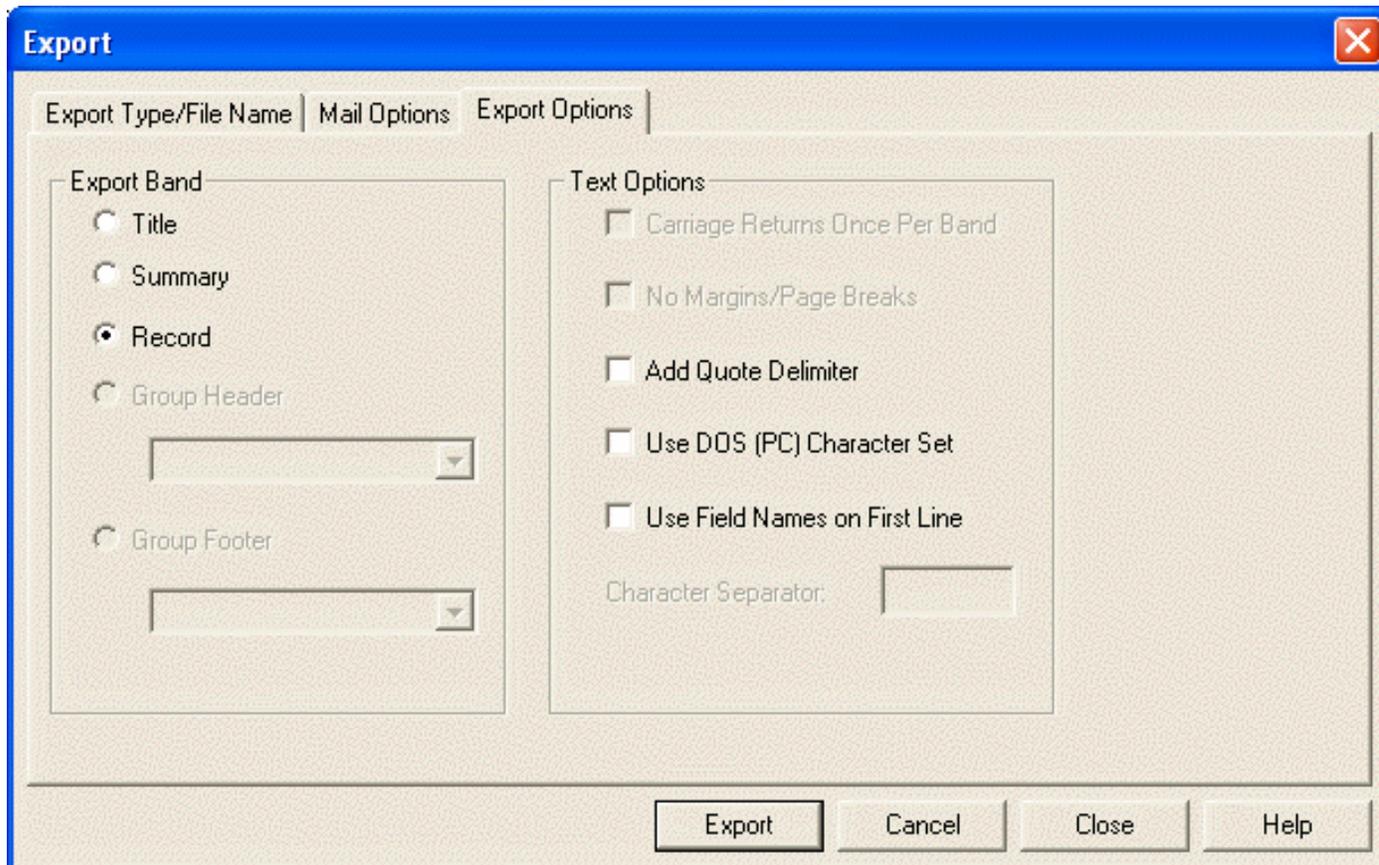


Figure 1.15 Dialog Box with Option Buttons and Check Boxes

## ***Selecting an Option Button***

Using a mouse, select an option button by clicking on it. Using the keyboard, tab to the button that is currently on and press ↑ or ↓ to select a different button. For those options with an underlined letter, you can type Alt plus the underlined letter to turn an option button on or off. If an option button is dim, it is currently unavailable.

## ***Check Boxes***

Using a mouse, click on a check box item to turn it on or off. Using the keyboard, tab to a check box and press Spacebar to turn it on or off. For those options with an underlined letter, you can type Alt plus the underlined letter to turn a check box on or off.

**Using Command-Line Switches**

## Using Command-Line Switches

You can include one or more switches in the command line you use to execute Report Designer. Using command-line switches provides a quick way of opening a specific report, specifying a master table for a blank or instant report, or loading a Dynamic Link Library (DLL) at startup. Figure 1.16 explains each of the command-line switches.

| Switch           | Purpose   |
|------------------|---|
| /L<library file> | Applies only to reports that have been saved in a report library file. Specifies the report library containing the report identified with the /R switch. Substitute the name of the library file for <library file>.  |
| /R<report name>  | Specifies the report to be opened. Substitute the name of the report you want to open for <report name>. Can be used in conjunction with /L to open a report from a library.  |
| /T<table name>   | Specifies that Report Designer create a blank report using <table name> as the master table. Substitute the full path and name of the table you want to use for <table name>.   |
| /I<table name>   | Specifies that Report Designer create an Instant Report using <table name> as the master table. Substitute the full path and name of the table you want to use for <table name>.  |
| /G               | Prints the report specified with /R to the saved printer or to a disk file (if report was saved with a "Print to File" destination).  |
| /D<DLL name>     | Causes Report Designer to load the Dynamic Link Library (DLL) substituted for <DLL name>. You should use this switch to improve performance of reports containing calculated fields using the CDLL() function.  |
| /S<script file>  | Causes Report Designer to open and process the specified script file. See Chapter 5, "R&R Open Scripting," of the <i>Developing Applications</i> manual for an explanation of the Report Designer Open Scripting interface. Note that use of this switch overrides the /L, /R, /T, and /I switches. |

**Figure 1.16 Command-Line Switches**

## Chapter 2 Managing Reports

## Introduction (Managing Reports)

## **Introduction (Managing Reports)**

This chapter explains the basic procedures for creating and managing reports and templates and for documenting reports. This information is presented in the following sections:

- ❑ Creating and Modifying Reports
- ❑ Using R&R Report Wizards
- ❑ Documenting Reports and Templates

## Compound Document Files and Report Libraries

When you create a report or template, you develop a *report definition* that tells Report Designer how to select, analyze, summarize, and present data from the database files you select. After you create and save a report definition, you can open, modify, and run it at any time.

By default, Report Designer saves a report definition as a *compound document file*. Reports saved as compound document files can have names of up to 250 characters and are given a default file extension of RRW.

Unlike the report libraries used by some older versions of R&R to group multiple reports in one file, each report in Version 10 is saved as a separate compound document file. The compound document file has the advantage of being able to store multiple "documents" or object types in a single file — for example, you can embed one or more OLE objects in a report, and they become part of the compound document file when you save the report.

To allow compatibility with reports created using older versions of R&R, also allows you to open reports in existing report libraries (the Open Report dialog lists both compound file reports and earlier .RP5 and .RP1 report library files). However, Version 10 will not allow you to modify a report and save it back into an existing library; all reports are saved as compound document (RRW) files.

## Templates

A *template* is simply a report definition with a specialized purpose: to serve as the common starting point for a series of reports. When you create a new report using a template, R&R opens a copy of the template report as a new untitled report. If the template was saved without a master table, you are prompted to select a master table.

You can create and modify templates the same way you do reports.

You can save your templates in a specific template folder to keep them separate from your reports. In Options File Settings you can set the location of your default template directory. When you create a new report using a template, R&R will look in this template directory for report files. As a result, you can easily save, retrieve, manage, and distribute templates. In this chapter, explanations of procedures for managing reports apply also to templates, except as noted.

## Instant Reports

If you create a report by selecting Instant Report on the File ⇒ New dialog, Report Designer generates an Instant Report layout for you automatically. The Instant Report layout includes the following items:

- ❑ All fields in the master table (or as many as will fit horizontally on the layout);
- ❑ Calculated fields for master table name, date, time, page number, and number of records printed;
- ❑ Calculated fields for query expression and report name (these are created but not placed on the layout);
- ❑ Grand totals of all numeric fields that have decimal places.

In many cases, you can use the Instant Report layout as a starting point for creating your own layouts.

**Creating and Modifying Reports**

## **Creating and Modifying Reports**

You develop a report by specifying the arrangement and analysis of data from your database. The following sections explain how to create and manage reports.

## Creating a Report

The general procedures for creating and saving a report are as follows:

Start. By default, a dialog displays (see Figure 2) offering the following options:

Report Wizards, Instant Report, Blank Report, and Template.

(Note that you can use Options ⇒ Preferences to specify bypass this dialog and go directly to the option that you choose. See Chapter 5, "Setting Defaults," for more information.)

To create a report, select Report Wizards, Instant Report, Blank Report, or Template; then select OK.

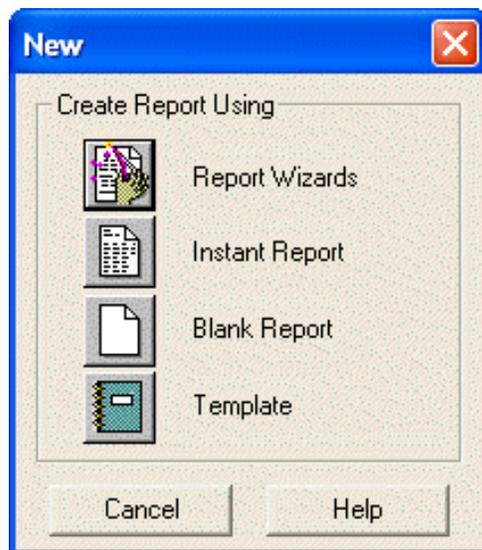
If you select Report Wizards, will assist in the step-by-step creation of a Label, Basic Columnar, or Grouped Columnar report.

Selecting Instant Report will display the Master Table dialog.

After you select the master file, R&R will create a report layout consisting of record band containing as many fields in the master table as will fit horizontally with field names above each on a page header band along with title, summary, and page footers.

If you select Blank Report, you can create a report either with or without a master table by turning the "Create Report Without Master Table" setting off (unchecked) or on (checked). A blank report starts with no data fields. It does, however, contain five page header band lines, one record band line, and two page footer band lines. It also includes predefined calculated fields for master table name, date, time, page number, record number, query expression, and report name.

Selecting Report Template enables selection of a Template to use as the starting point for your report. If prompted to do so, select a master table (a table that will serve as the initial source of data for your report) from a list of tables in the default Data directory (or the program startup directory, if no default Data directory has been set).



**Figure 2.1 Startup Dialog**

Develop the report by setting database relations, inserting and formatting fields, specifying sorting and grouping, creating a query, and so on. Refer to the relevant

chapters of this manual for detailed information about developing a report.

## Saving an Untitled Report

When you create a new report, R&R uses the default name Untitled. This name is displayed on the Title bar of the report window. To save the report, select File ⇒



Save or click the Save icon on the Standard toolbar. A Save As file dialog will be displayed. The default location for the report is determined by the Default Report Folder that has been set in Options ⇒ File Settings. If you want to save the report in a different location, locate and open the folder.

In the File name box, replace the default name of Untitled with a descriptive name for the report. The name can have up to 250 characters, and the default extension is **.RRW**.

## Report Security

When you create a report you may want to limit the kind of modification and viewing access that users may have to that report. Before saving a report, you can use the File->Security command to set a Designer and/or a Runtime password for a report.

If a report has a runtime password, then any user who wishes to simply run the report must supply the correct runtime password.

If a report has a designer password, then any user who wishes to view or modify the report in the Report Designer must supply the correct designer password.

You may set either password or may set both passwords. If both are set, you can choose different passwords for each type of access.

This password may be up to 30 characters in length. There is not limit to which characters are used. Passwords are case-sensitive. When you enter a password, your input is masked on the display.

When a password(s) has been set in File Security, when the report is save (via Save or Save As) you will be asked to Verify the password(s) by re-entering it. The report will not be saved unless the password(s) correctly matches the password(s) that was set in File Security.

When you open a report in the report designer or at runtime that has a password set, you will be given a screen to enter to the password. This password must match the password that is saved in the report.

### **IMPORTANT NOTE OF CAUTION:**

Once a report is saved with a password, it can only be opened if that password is correctly entered.

### **There is no facility available to recover a lost password.**

If you set a password for a report, it is strongly suggested that you print your Report Specifications before saving the report and keep this information in a secure place. Any Designer or Runtime password will be printing in the header area of the report specification. You will then have a record of the password(s) that has been set for the report.

Note that password information is NOT saved to the Report Librarian.

Reports with a saved password cannot be converted to any other format using the ReportWorks Report Converter.

## **Saving a Report Template**

A report template is exactly the same as a regular report and can in fact be opened and saved as a regular report. Typically a template report is initially created as blank report and the Create report without master table box is checked. Design changes are then made (such as adding a company logo to the Page Header) and the report is saved to the directory that is set as the Default Template directory in Options->File Settings.

When you then create a new report using the Create Report Using Template option, R&R will display the available reports that are in the template directory as the default location. When you select a report that does not contain a master table, you are then prompted to select a master file because you are using the Open using Template option. And the new report will have an Untitled report name.

## Using a Template to Create a Report

After you have created and saved a template, you can retrieve it to use as the basis for one or more reports.

To use a template to create a report, do the following:

Select File ⇒ New. On the startup dialog, select Template.

Report Designer lists the template files in the default template folder, if one has been defined (see Chapter 5, "Setting Defaults," for information about setting a default template folder). If the template file you want to use is in another location, first select the appropriate folder.

Select the template that you want to use as the starting point for your report and select OK.

If the template report was saved without a master table, you will be prompted to select a master table.

The report will then be opened as a new Untitled report rather than using the name of the selected template.

Modify the report definition as necessary. When you are done, select File ⇒ Save to save the report.

Enter a name for the report. The name can have up to 250 characters, and the default file extension is **.RRW**.

*Modifying Reports*

## ***Modifying Reports***

After you have created and saved a report, you can open it, modify it, and run it at any time. Any report that you have retrieved from a report library can be saved only as an RRW compound file.

The following sections explain how to open, copy, and delete reports.

## ***Opening an Existing Report***

To open a previously saved report, do the following:

1. If a layout is currently displayed, save it if necessary. Select File ⇒ Open (or press Ctrl+O). The names of report files (\*.RRW, \*.RP5, \*.RP1) in the current location are listed if Files of type Report Files is selected.
2. If necessary, select another folder to display report files in a different location.
3. Highlight the report name in the displayed list and select Open.
4. If you have selected an older .RP5 or .RP1 library you will see a second Open dialog which allows you to select the report name.

The report you selected is opened and displayed. After modifying a report, you can re-save it in the current location or select/open another location in which to save it. Note that you can only save a report to an RRW file. Reports opened from library files cannot be saved back to library format.

If the selected report was saved with a Designer password, you will be prompted to enter that password. The password you enter must match the saved password in order to open the report.

**Using R&R Report Wizards**

## Using Report Wizards

Report Wizards provide the capability of creating three common types of instant reports (Labels, Basic Columnar, or Grouped Columnar) without having to navigate through R&R's menus and dialog boxes. The Wizard dialogs lead you through several simple steps in the preparation of each report type, giving you the opportunity to preview the report output.



For an explanation of each Wizard, click on the illustration or the text below it.

**Figure W.1 Initial Wizards Dialog**

To use the Report Wizards, select File ⇒ New and select "Report Wizards" on the New dialog. The initial R&R Wizards dialog appears (see Figure W.1). To see sample output for each of the report types, right-click on the appropriate illustration.

To create a report using Wizards, do the following:

1. Click on the illustration of the report type you want to create (or tab to the report type and press Enter).
2. Follow the instructions on the dialog box (or in the on-line help) for each step of developing the report. To move from one dialog to the next, select the Next button at the bottom; to change selections in a previous dialog, select the Back button.
3. When you are done, select Finish.
4. If you left the "Preview the report when finished" setting on (the default), the report preview window appears; if you turned that setting off, the layout window appears. If necessary, you can make additional changes to the report before printing.
5. Save the report.

The Report Wizards make use of the R&R Open Scripting mechanism (explained in Chapter 5 of the *Developing Applications* documentation) to pass a user-specified report specification to the main executable. Visual Basic source code for the Report Wizards is available on request from Liveware Publishing Inc.; you can use this source code to modify the Report Wizards or to create your own Wizards.

## *Using the Label Wizard*

## ***Using the Label Wizard***

Creating a report using the Label Wizard involves three steps:

- Selecting and Arranging Data

- Determining Printing Order

- Specifying Label Type or Dimensions.

The dialog for each step has Help, Cancel, Back, Next, and Finish buttons at the bottom.

Step 1 in defining a label report involves selecting fields and placing them in the desired locations in the Label Format box.

In Step 2, you select one or more fields to establish the order in which report data will be sorted.

Step 3 enables you either to select a predefined Avery label type or to specify user-defined label dimensions.

## ***Selecting and Arranging Label Data***

|  |  |
|--|--|
| <b>Preview</b>                         | Shows table data as it will appear in the report. Select   |
| <b>Record 1 Box</b>                    | Preview at the bottom of the dialog to display data for successive records.  |
| <b>Field Names/<br/>Field Data Box</b> | Displays either a list of the fields in the master table or a sampling of the data in the highlighted field. To display field data, highlight a field name and select the Field Data button; to return to the field list, select the Field Names button. |
| <b>Label<br/>Format Box</b>            | Enables placement of table fields as they will appear on the report layout. Drag and drop field names to the appropriate locations as desired.   |

Fields from the master table are listed in the Field Names box. To select report data and specify its arrangement on each label, do the following:

1. Drag and drop fields from the Field Names box to the Label Format box, placing each field where you want it to appear on the label. You can enter text fields directly into any area of the Label Format box.
2. Look at the Preview box at the top of the dialog to see how the data will be arranged on the report. You can select Preview at the bottom of the dialog to display data from successive records. If necessary, rearrange the fields by dragging and dropping within the Label Format box.
3. When you have arranged the fields, select Next to move to the second Label Wizard step.

## ***Determining Printing Order***

**Field Names/** Displays either a list of the fields in the master table or a  
**Field Data Box** sampling of the data in the highlighted field. To display field data, highlight a field name and select the Field Data button; to return to the field list, select the Field Names button.

**Sort in Order** Drag and drop one or more fields into this box to specify the  
**By Box** order in which records will be printed.

**Order of 1st** Shows a sampling of the order in which data from the first

**Sort Field Box** Sort field will be arranged in the report.

To specify the order in which data from the selected fields will be arranged in your report:

1. Drag and drop one or more fields from the Field Names box to the Sort in Order By box. A sampling of sorted data from the first field is displayed in the Order of 1st Sort Field Box.
2. To change sort field selections, you can either highlight a field in the Sort in Order By box and select press Delete on the keyboard or select Clear to start over.
3. After establishing sort order, select Next to move to the next Label Wizard dialog.

## ***Specifying Label Type or Dimensions***

### ***User-Defined Label Dimensions***

---

**Height/Width** Custom label dimensions  
**Number** Number of labels to print horizontally on the page.  
**Across**

### ***Avery Label Specification***

---

**Avery Product** Name and Product Number for the selected Avery label.  
**Number**  
**Label Type** Description of label type for selected Avery label  
**Height/Width** Dimensions of the selected label  
**Number** Number of labels to be printed horizontally and vertically (as  
**Across/** determined by the selected label type)  
**Number Down**  
**Top Margin** Top margin setting for selected label type  
**Interlabel Gap** Horizontal distance between labels

You have two options: selecting a predefined Avery Label type, or specifying custom label settings.

1. To use a predefined label type, select one from those listed in the drop-down list box. The Label Type, dimensions, and layout will be shown; these settings are preset for the selected label type and cannot be changed.
2. To specify a custom label, select "User-defined" (the first choice) in the drop down list. Then enter or select the desired Height, Width, and Number Across for the user-defined choice.
3. Select Finish to start R&R using the label report settings you have specified. If "Preview the report when finished" is on (the default), the Preview window will automatically display.

## *Using the Basic Columnar Wizard*

## ***Using the Basic Columnar Wizard***

Creating a report using the Basic Columnar Wizard involves four steps:

- Selecting and Arranging Data

- Defining Totals

- Determining Printing Order

- Specifying Band Areas

The dialog for each step has Help, Cancel, Back, Next, and Finish buttons at the bottom.

Step 1 in defining a basic columnar report involves selecting fields and placing them in the desired locations in the Report Format box.

In Step 2, you can define grand totals for any numeric fields you selected in Step 1.

In Step 3, you select one or more fields to establish the order in which report data will be sorted.

Step 4 enables you to specify which band areas will be included in the finished report.

## ***Selecting and Arranging Data***

**Field Names/  
Field Data Box** Displays either field names for the master table or data for the highlighted field.

If field names are displayed, select the Field Data button below the list to display data for the currently highlight field.

If field data is displayed, select the Field Names button below the list to display field names.

Note that if a Report Dictionary file is available, the dictionary description for the highlighted field is shown just below the Field Data/Field Names button.

**Report Format  
Box** Displays the column headings and fields as you have defined them for the report layout.

To select and arrange data for a basic columnar report, do the following:

1. Drag Fields (or double click) from the Field Names list to the Report Format box. If you drop a field over an existing field, the layout is adjusted by shifting the existing fields.
2. If "Use Field Names as Headings" is checked, the layout headings will initially be the same as the field names. You can either edit the existing headings or replace them.
3. Adjust the fields within the Report Format box as necessary. To remove a field or heading, you can simply drag it to the Trashcan.
4. When you are done arranging the data, select Next.

## ***Defining Totals***

**Numeric Fields** Highlight a numeric field in the drop-down list and select the total type: Sum, Average, Minimum, or Maximum.

To create a grand total for any of the numeric fields in your report, do the following:

1. Highlight the field name in the Numeric Fields drop-down list.
2. Select the total type from those displayed: Sum, Average (Avg), Smallest Value (Min), or Largest Value (Max). To turn off a totaling option after you've specified one, highlight the field and select None.
3. After defining totals, select Next.

## ***Determining Printing Order***

**Field Names/  
Field Data Box** Displays either field names for the master table or data for the highlighted field.

If field names are displayed, select the Field Data button below the list to display data for the currently highlight field.

If field data is displayed, select the Field Names button below the list to display field names.

Note that if a Report Dictionary file is available, the dictionary description for the highlighted field is shown just below the Field Data/Field Names button.

**Sort in Order  
By** Drag and drop (or double-click) one or more fields from the Field Names list to specify the order in which data will appear in your report.

**Order of 1st  
Sort Field** Shows a sampling of the order in which data from the first Sort field will be arranged in the report.

To specify the order in which data from the selected fields will be arranged in your report:

1. Drag and drop one or more fields from the Field Names box to the Sort in Order By box. A sampling of sorted data from the first field is displayed in the Order of 1st Sort Field Box.
2. To change sort field selections, you can either highlight a field in the Sort in Order By box and select press Delete on the keyboard or select Clear to start over.
3. After establishing sort order, select Next to move to the next Wizard dialog.

## ***Specifying Band Areas***

Your report may have a Title area which prints once at the beginning of your report, a Summary area which prints once at the end of your report (and has the grand totals you specified), a Group Header area for your group field and group headings, and a Page Footer that prints at the bottom of each page.

If you've specified totals, they will appear in the Group Footer (for group totals) and in the Summary area (for grand totals). Check the boxes under "Bands" to have R&R define these areas within your report. If a Band box is not checked, R&R will not define this area as part of your report.

Enter the title for your report within the area "Enter a Title Here". The Title Area also specifies the table used for your report (left justified) and today's date (right justified). You can drag the table name and/or the date to the trash can if you do not want them printed as part of your report.

*Using the Grouped Columnar Wizard*

## ***Using the Grouped Columnar Wizard***

Creating a report using the Grouped Columnar Wizard involves four steps:

- Selecting and Arranging Data

- Defining Totals

- Determining Printing Order

- Specifying Band Areas

The dialog for each step has Help, Cancel, Back, Next, and Finish buttons at the bottom.

Step 1 in defining a grouped columnar report involves selecting fields and placing them in the desired locations in the Report Format box.

In Step 2, you can define grand totals for any numeric fields you selected in Step 1.

In Step 3, you select one or more fields to establish the order in which report data will be sorted.

Step 4 enables you to specify which band areas will be included in the finished report.

## ***Selecting and Arranging Data***

**Field Names/  
Field Data Box** Displays either field names for the master table or data for the highlighted field.

If field names are displayed, select the Field Data button below the list to display data for the currently highlight field.

If field data is displayed, select the Field Names button below the list to display field names.

Note that if a Report Dictionary file is available, the dictionary description for the highlighted field is shown just below the Field Data/Field Names button.

**Group Header** Drag and drop a field from the Field Names list to serve as the field that will be used to group records in the report

**Report Format  
Box** Displays the column headings and fields as you have defined them for the report layout.

To select and arrange data for a grouped columnar report, do the following:

1. Drag and drop a field from the Field Names list to the Group Header box. R&R will use the data in the field to group the records in your report.
2. Drag Fields (or double click) from the Field Names list to the Report Format box. If you drop a field over an existing field, the layout is adjusted by shifting the existing fields.
3. If "Use Field Names as Headings" is checked, the layout headings will initially be the same as the field names. You can either edit the existing headings or replace them.
4. Adjust the fields within the Report Format box as necessary. To remove a field or heading, you can simply drag it to the Trashcan.
5. When you are done arranging the data, select Next.

## ***Defining Totals***

**Numeric Fields** Highlight a numeric field in the drop-down list and select the total type: Sum, Average, Minimum, or Maximum.

To create a grand total for any of the numeric fields in your report, do the following:

1. Highlight the field name in the Numeric Fields drop-down list.
2. Select the total type from those displayed: Sum, Average (Avg), Smallest Value (Min), or Largest Value (Max). To turn off a totaling option after you've specified one, highlight the field and select None.
3. After defining totals, select Next.

## ***Determining Printing Order***

**Field Names/  
Field Data Box** Displays either field names for the master table or data for the highlighted field.

If field names are displayed, select the Field Data button below the list to display data for the currently highlight field.

If field data is displayed, select the Field Names button below the list to display field names.

Note that if a Report Dictionary file is available, the dictionary description for the highlighted field is shown just below the Field Data/Field Names button.

**Sort in Order  
By** The Group Field you selected in Step 1 is automatically inserted as the first-level sort field. Drag and drop (or double-click) one or more fields from the Field Names list to specify additional sorting levels for your report.

**Order of 1st  
Sort Field** Shows a sampling of the order in which data from the first Sort field will be arranged in the report.

To specify the order in which data from the selected fields will be arranged in your report:

1. Drag and drop one or more fields from the Field Names box to the Sort in Order By box. A sampling of sorted data from the first field (the Group Field you specified in Step 1) is displayed in the Order of 1st Sort Field Box.
2. To change sort field selections, you can either highlight a field in the Sort in Order By box and select press Delete on the keyboard or select Clear to start over (the Group Field will always remain as the first sort field).
3. After establishing sort order, select Next to move to the next Wizard dialog.

## ***Specifying Band Areas***

Your report may have a Title area which prints once at the beginning of your report, a Summary area which prints once at the end of your report (and has the grand totals you specified), a Group Header area for your group field and group headings, and a Page Footer that prints at the bottom of each page.

If you've specified totals, they will appear in the Group Footer (for group totals) and in the Summary area (for grand totals). Check the boxes under "Bands" to have R&R define these areas within your report. If a Band box is not checked, R&R will not define this area as part of your report.

Enter the title for your report within the area "Enter a Title Here". The Title Area also specifies the table used for your report (left justified) and today's date (right justified). You can drag the table name and/or the date to the trash can if you do not want them printed as part of your report.

**Documenting Reports and Templates**

## Documenting Reports and Templates

Report Writer provides several methods to document and annotate the contents of report and template files.

Firstly you can add unique identifying information using the File Properties dialog within the Report Designer.

You can additionally display or print a *report specification*, which provides a complete description of the report or template.

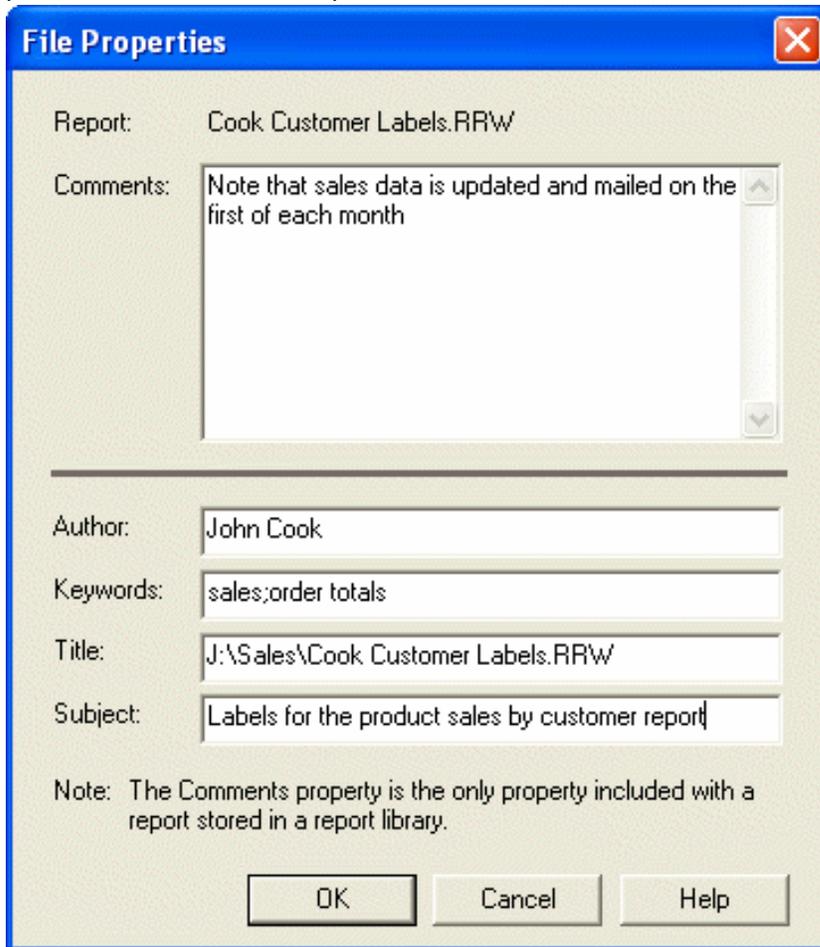
The Report Librarian™ utility program (RL.EXE) uses the information contained within a report specification and automatically updates a set of Report Librarian databases each time that a report is saved. You can then use Report Librarian™ to manage and run reports.

## Adding File Properties Information

Using File ⇒ Properties, you can add identifying information to a report such as author name, keywords, title, subject, and explanatory comments. This information is saved with the report.

To add or edit File Properties entries, do the following:

Open the report or template and select File ⇒ Properties. The report name is shown at the top of the File Properties dialog (see Figure 2.3), originator of the current report is shown in the Author box, and the Title entry defaults to the full path and name of the report.



**Figure 2.3 File Properties Dialog**

In the **Comments** box, enter a text explanation (up to 255 characters) to be attached to the report or template.

The **Author** box shows the name of the current report's author (if you are creating a new report, this defaults to your log-on name). Edit this entry as necessary.

In the **Keywords** box, enter one or more words that could be used with a file browser to locate this report file. Separate multiple keyword entries with spaces.

The Title entry defaults to the full path and name of the report; edit this entry as necessary.

In the **Subject** box, enter a subject line identifying report content.

Select OK. When you save the report or template, the File Properties information is saved with it.

## Printing a Report Specification

To print or display a report specification, do the following:

1. Select File ⇒ Print. In the "Print what" list box, select Report Specification.
2. On the Print dialog, you can either select Preview to display the specification or select OK to send the specification to the printer (or to print to a file, if you have specified an output file in the "Print file" box).
3. The specification is output to the selected destination. For printed output, whenever possible Report Designer uses a fixed-pitch font on the current printer.

Contents of a report specification:

A report specification is divided into sections and includes the following information:

### Header information

- Report Writer and operating system version.
- Unique report serial number (used by Report Librarian).
- Report name and date/time last saved.
- The R&R internal report version.
- The report comment (if any).
- Any Designer or Runtime Password.

### Format information

- Print options including, report copies, page range and paper source.
- Page size, margins, orientation and ruler settings.
- Record layout information.
- Selected Export Options such as file name and export type.

### File information

- Names and locations of master table and index, related table(s) and index(es), and text memo file (if any).

### Query information

- Query (if any).

### Field Information

- Position, width, data type, format, font, trim setting, and color of all fields on the layout.
  - Names and sizes of all fonts used in the report.
  - Size and type of any OLE objects
- Names, locations, sizes, and scaling settings of bitmapped images.
- For vertical and horizontal lines: size, thickness, and color.
  - For boxes: size, border thickness and color, foreground and background color, number of included sides, and pattern.
  - Chart types and values.

- Alphabetical listing of all names and expressions of all calculated, parameter and total fields;

**Line Information**

- Any conditional or scan dependent line settings and any line height overrides.

**Sort/Group Information**

- Sort/group field selections and settings.

**Regional settings**

- Numeric, currency, date and logical settings saved with report.

**Miscellaneous Information**

- Database memo editor and default file extensions.

## Chapter 3 Working with Bands

## Introduction (Working with Bands)

## **Introduction (Working with Bands)**

This chapter explains how to create band areas; insert, move, and copy band lines; and specify and modify band line properties. This information is presented in the following sections:

- ❑ Creating Bands and Inserting Band Lines
- ❑ Manipulating Band Lines
- ❑ Modifying Band Line Characteristics
- ❑ Specifying Conditional Line Printing
- ❑ Specifying Scan Conditions

## Selecting Lines

To work with one or more band lines, you must first select the line or lines to be operated on. For example, to specify a field to control printing of several lines, you first select those lines so that the fields on them are highlighted.



With the mouse: Click on the appropriate line in the Band Area. To select multiple contiguous lines, drag the mouse up or down in the Band Area until all lines are highlighted; if the lines are not contiguous, Ctrl-click on each line.



From the keyboard: Position the cursor on a line and press Shift+Spacebar to select it. To extend the selection to other lines, press ↑ or ↓. After marking the line(s), press Enter. When you are finished working with the selected lines, press Esc to unmark them.

## **Displaying the Band Line Properties Dialog**

You access most band line settings through the Band Line Properties dialog box. To display this dialog to format a single line, either select the line you want to modify and select Format ⇒ Properties (or press F9) or right-click on the line in the Band Area and select "Properties" from the menu.

If you select multiple lines to modify, you must select Format ⇒ Properties (or press F9), since right-clicking and then selecting "Properties" displays the Band Line Properties dialog for a single line only.

**Creating Bands and Inserting Band Lines**

## Creating Bands and Inserting Band Lines

Every report has one or more of the following bands that control where data appears on the report:

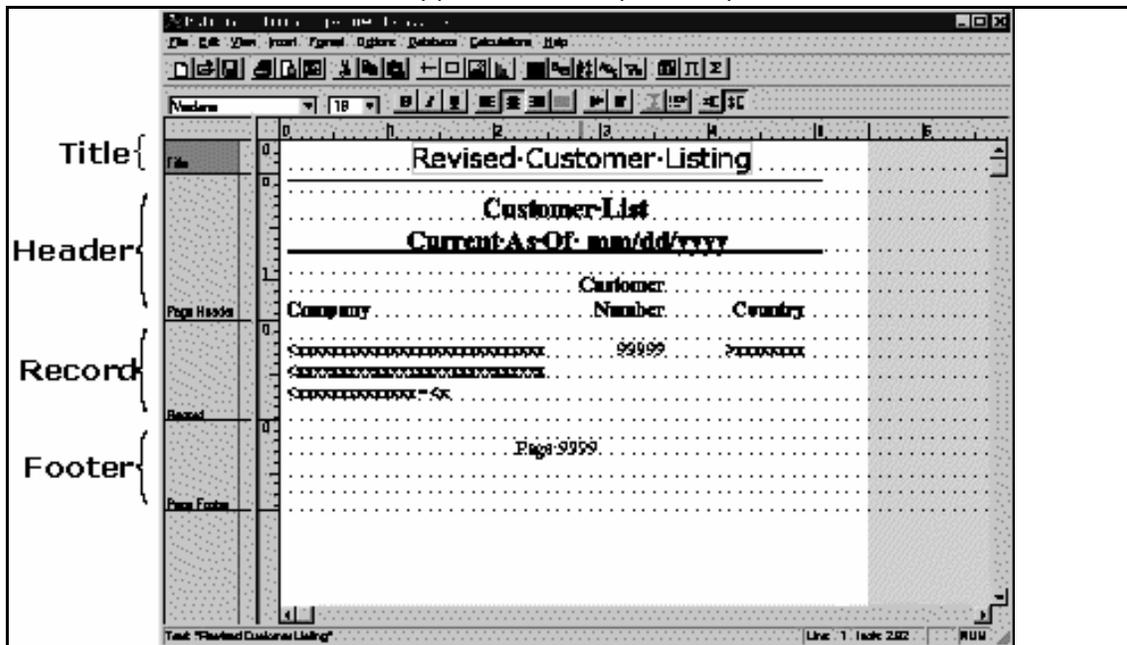
|              |              |
|--------------|--------------|
| Title        | Group Footer |
| Page Header  | Page Footer  |
| Group Header | Summary      |
| Record       |              |

Each band contains one or more lines. You can include as few or as many bands as your report requires. The bands you create determine where the text and fields you place in those areas will appear in your report output. Figure 3.1 explains where data placed in each band will appear in the report.

| Band         | Location in Report Output   |
|--------------|---|
| Title        | Prints once per report at beginning of first page or on separate title page |
| Page Header  | At top of each page   |
| Group Header | Before each group of records (see Chapter 11)                               |
| Record       | Once per composite record   |
| Group Footer | After each group of records (see Chapter 11)                                |
| Page Footer  | At bottom of each page  |
| Summary      | Once per report at end of last report page or on separate summary page      |

**Figure 3.1 Band Types**

Figure 3.2 shows a sample layout with the bands labeled. Figure 3.3 shows where the data from each band will appear in the report output.



**Figure 3.2 Report Layout Showing Bands**

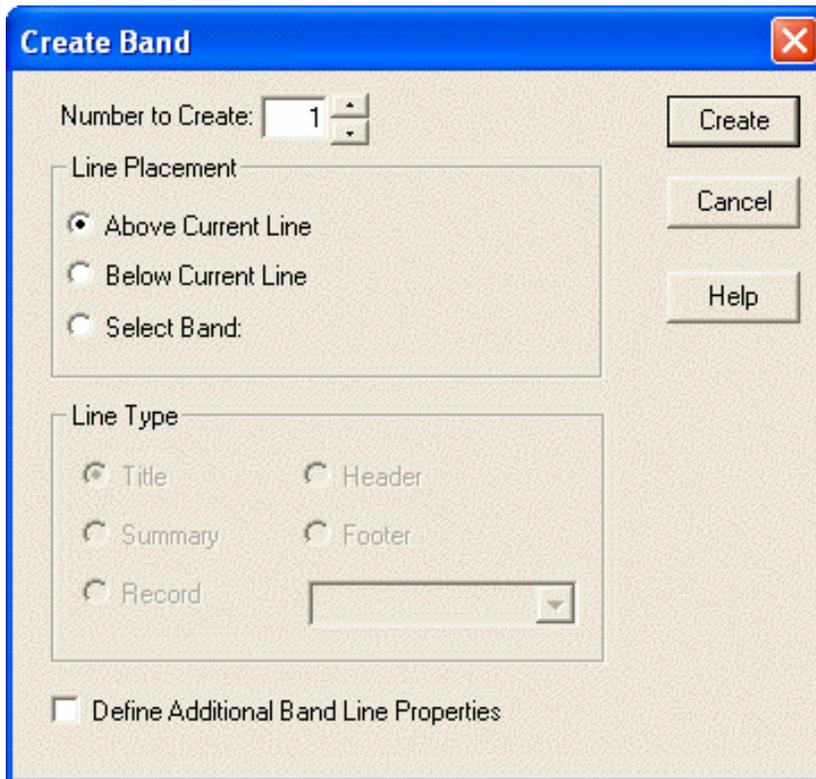
|                 |   |                            |                |
|-----------------|---|----------------------------|----------------|
| <b>Title</b> {  | Revised Customer Listing  |                            |                |
| <b>Header</b> { | <hr/> <b>Customer List</b><br><b>Current As Of 03/24/2001</b> <hr/> |                            |                |
| <b>Record</b> — | <b>Company</b>  | <b>Customer<br/>Number</b> | <b>Country</b> |
|                 | Bouhadi & Fils<br>450, rue de la Cité<br>Avignon                    | 10060                      | France         |
|                 | Bussens Producing Coosa<br>490 Walker Avenue<br>Austa TX            | 10026                      | U.S.A          |
|                 | Carson Associates<br>400 Summit Street<br>Silver Spring MD          | 10011                      | U.S.A          |
|                 | Computer Consultants<br>234 Diamond Road<br>Birmingham AL           | 10002                      | U.S.A          |
|                 | Computerware<br>100 Main Street<br>Charlottesville VA               | 10027                      | U.S.A          |
|                 | Discount Software<br>1901 South Sumner<br>Indianapolis IN           | 10030                      | U.S.A          |
|                 | Elekta-Flamm<br>Kuchhofstr 14<br>Biele                              | 10067                      | Germany        |
| <b>Footer</b> { | Page 1  |                            |                |

Figure 3.3 Corresponding Location of Data in Output

## Creating a Band

To create a band, select Insert ⇒ Create Band Line, press Ctrl+F11, or double-click in the Band Area to display the Create Band Line dialog (see Figure 3.4). Then do the following:

1. In the "Number to Create" box, enter the number of lines you want to insert in the band area you are creating.



**Figure 3.4 Create Band Line Dialog Box**

2. Choose the Line Placement radio button. If you opened the dialog from a selected band line, then you can choose to create the new line(s) above or below the current line. Or you can choose the select band button. When select band is enabled, the buttons in the Line Type frame will be active.
3. Select a band line type for the new band line(s). To determine the appropriate band type based on where you want the data to appear in the report, refer to Figure 3.1.
4. If you want to specify any additional band line properties such as height or any special conditions, check the Define Additional Band Line Properties checkbox at the bottom of the dialog.
5. Select Create. Report Designer inserts the line or lines of the specified type in the appropriate place on the layout. If the Define Additional Properties box was checked, the Band Line Properties dialog will be immediately displayed.
6. If you have enabled Colored Bands/Preview on the Preferences dialog, the Band Area of the report layout displays color-coding as well as the name of the band type. Note that the name of the Band type displays only once and will be on the bottom-most band line of that type. Color-coding, however, extends to all of the band lines of that type.

| <b>Band Type</b>   | <b>Color</b> |
|--------------------|--------------|
| Title              | Pink         |
| Page Header        | Dark pink    |
| Group 1 Header     | Peach        |
| Group 2 Header     | Chartreuse   |
| Group 3 – 8 Header | Yellow       |
| Record             | Light gray   |
| Group 3 – 8 Footer | Light green  |
| Group 2 Footer     | Green        |
| Group 1 Footer     | Dark Green   |
| Summary            | Light pink   |
| Page Footer        | Light blue   |

**Figure 3.5 Band Area Color-Coding**

## **Inserting Single Band Lines**

To insert lines one at a time in the current band:

1. Position the edit cursor in the band where you want to add the line(s).
2. Select Insert ⇒ Band Line (or press Shift+F11).

Report Designer inserts a new line of the same band type above the current line.  
Repeat this procedure to add additional lines to the current band.

## Inserting Multiple Band Lines

To insert multiple lines in any band on the layout:

1. To insert the new lines above or below an existing line, position the edit cursor on that line.
2. Select Insert ⇒ Create Band Line (or press Ctrl+F11) to display the Create Band Line dialog (see Figure 3.4).
3. In the "Number to Create" edit box, enter or select the number of new lines you want to insert in a single location.
4. In the "Line Placement" group box, select one of the option buttons to indicate where you want to insert the new lines:

**Above Current Line** inserts the new line(s) above the current line.

**Below Current Line** inserts the new line(s) below the current line.

**Select Band** allows you to select a specific band in which to insert the new line(s), regardless of the current line. Select a band type from the drop-down list.

If you select a band type that currently exists on the layout, Report Designer inserts the new line(s) below the last line in that band.

If you select a band type that does not exist on the layout, Report Designer adds the band to the report and inserts the specified number of lines.

5. Check the Define Additional Band Line Properties box if you want to specify any special conditions for the new lines.
6. Select Create to insert the new line(s). Report Designer inserts the new line(s) in the location you indicated.

## Inserting Page Breaks

To insert page breaks in your report, you use the Band Line Properties dialog to place a new-page line where you want the break to occur. You can place a new-page line anywhere on the layout; note, however, that Report Designer ignores new-page lines in certain bands, such as a Page Header/Footer or a swapped Group Header/Footer (see Chapter 11, "Sorting and Grouping Data," for information on swapped Headers and Footers).

Figure 3.6 explains where new-page lines should be inserted to produce page breaks in the appropriate places.

| <b>Position of New-Page Line on Report Layout</b> | <b>Resulting Page Break in Report</b> |
|---|---------------------------------------|
| Last line in Title band                           | After title                           |
| Last line in Group Footer band                    | After group                           |
| Last line in Record band                          | After each record                     |
| First line in Summary band                        | Before summary                        |

**Figure 3.6 Common Locations for New-Page Lines**

To insert a page break, do the following:

1. Select Insert ⇒ Create Band Line (or press Ctrl+F11).
2. In the Line Placement group box, specify where you want the new-page line to be inserted (Above Current Line, Below Current Line, or in a selected band area).
3. Check the Define Additional Band Line Properties box at the bottom of the dialog;
4. Press Create to create the line and open the Band Line Properties dialog.
5. Turn on the "New Page Line" setting on the Type tab; an X appears in the box indicating that the line will be made is a new-page line.
6. Select OK. Report Designer inserts a dashed line in the specified area of your report layout, indicating a page break.

You can move, copy, or delete a new-page line just like other lines on your report layout.

You can also produce conditional page breaks by assigning a logical control field to a new-page line. For example, if some of your purchase orders require an additional page for footnotes and others do not, you can specify that the inserted new-page line will cause a page break only when the control field contains a specified value. For more information on how to use logical control fields, see the Specifying Conditional Line Printing section in this chapter.

## Manipulating Band Lines

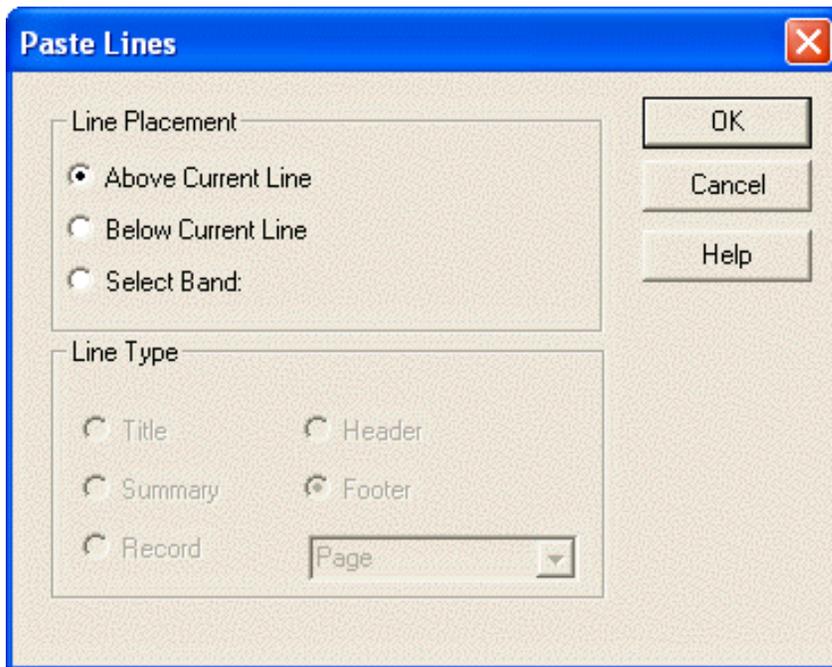
## **Manipulating Band Lines**

After you have created bands and inserted additional lines as needed, you can copy or move one or more lines (and all fields on those lines) to other locations on the layout; you can also delete band lines.

## Copying or Moving Band Lines

To copy or move one or more lines (and all fields currently on those lines), do the following:

1. Select the line or lines to be copied or moved. To copy the lines, select Edit ⇒ Copy or the Copy button (or press Ctrl+C). To move the lines, select Edit ⇒ Cut or the Cut button (or press Ctrl+X).
2. Position the edit cursor where you want to copy or move the lines. Select Edit ⇒ Paste Lines or the Paste button (or press Ctrl+V).



**Figure 3.7 Paste Lines Dialog**

3. The Paste dialog (see Figure 3.7) presents the following options: Above Current Line, Below Current Line, and Select Band. Selecting Above or Below pastes the line(s) either above or below the current line. The band type of the pasted lines will be the same as that of the current line.
4. Choosing Select Band lists all available band types. If you select a band type that currently exists on the layout, the pasted lines will be appended to that band. If the band type does not exist, Report Designer will create the band and paste the lines there.

## Deleting Band Lines

Deleting differs from cutting in that you cannot then Paste the line or lines elsewhere on the report. If you delete lines by mistake, however, you can select Edit ⇒ Undo Last Clear (Ctrl+Z) or select the Trashcan button again to re-insert the lines in their original position.

Use any one of the following methods to delete one or more lines (and all fields on the line or lines):

- Select the line or lines and select Edit ⇒ Clear;
- Select the line or lines and select the Trashcan button ();
- Select the line or lines and press the Delete key.

## Modifying Band Line Characteristics

## **Modifying Band Line Characteristics**

After you have created and inserted band lines, you can modify the following characteristics of those lines:

- Justify all fields on selected line(s);
- Trim blank space between fields;
- Specify Automatic or Freeform line height.

The following sections explain how to perform these procedures.

## Justifying All Fields on One or More Lines

You can position (or *justify*) all the fields on one or more lines as a unit, without changing the spacing between the fields.

To justify all the fields on one or more lines:

1. Select the lines you want to justify. The lines need not be contiguous — for example, you can click on Line 1 and then Control-click Lines 2, 4, and 7 to select them.
2. Select Format ⇒ Band Line Justify to display the Band Line Justify dialog.
3. Select Left, Center, or Right justification and then select OK. Report Designer justifies the fields within the margins of your report.

If any line you justify contains only a single field or a single series of trimmed fields, the format of that field or series of fields will also be set to the specified alignment, so that the data will be appropriately aligned within the field width. For example, if you select Center to center a line containing a single field, the format of that field will be changed to centered. If you center a line that contains a series of trimmed fields, the format of the first field in this series will be changed to centered. Since the format of the first field controls the behavior of the entire series of fields, the trimmed data from all the fields will be centered within the fields' collective width.

Note that if more than one record is being printed horizontally across the page, justification of Record lines is based on the record width rather than the right margin. See Chapter 16, "Printing Reports," for information about printing multiple records across the page.

## *Controlling Automatic Trim*

## ***Controlling Automatic Trim***

To control whether Report Designer removes or retains blank space between fields on selected lines in your report, select one of the Trim settings on the Alignment tab. To access the Trim settings, select the field and press F9 to display the Properties tabbed dialog; then select the Alignment tab.

When you specify "Print at End of Previous Field," Report Designer removes blank space (other than space inserted in text fields by means of pressing the spacebar) between the beginning of a field and the end of the previous field on that line.

When you specify "Print at Field Position," Report Designer retains blank space between the fields. The default value is "Print at Field Position."

To apply automatic trim to one or more fields on a line or to remove it from a field or fields:

1. Select the fields whose trim you want to control.
2. Press F9 (or select Format ⇒ Properties). Select the Alignment tab.
3. In the Trim box, select "Print at Field Position" to retain blank spaces between adjacent fields (the default); select "Print at End of Previous Field" to remove blank spaces between adjacent fields.
4. Select OK.

## ***Auto-Trim Examples***

The ability to trim blank space allows you to place fields on the report layout so that they will not be separated by spaces. For example, if you have specified "Print at End of Previous Field" as the trim setting, **PAGE 999** on a report layout will print as **PAGE 2** instead of **PAGE 2**. Also, when the trim setting is "Print at End of Previous Field," first- and last-name fields on a line will print without space between them.

For example, `<xxxxxxxxxxxx>.<xxxxxxxxxx` will print as **William Hickock** instead of **William Hickock**.

### ***Auto-Trim and Field Alignment***

When you place a series of fields so that they will trim, these fields become a single field for the purposes of field alignment. The entire series of fields takes on the alignment (that is, left-aligned, centered, or right-aligned) of the first field in the group.

For example, if you have a series of fields on a Title line, the alignment of these fields within their collective field width depends on the alignment of the first field. If it is centered, the trimmed data from all the fields will be centered within the fields' collective width. You can then use the Format ⇒ Band Line Justify "Center" setting to center this series of fields between the margins of the page. The result will be a title that is centered on the report page, no matter what fonts are applied to the fields.

## *Specifying Band Line Height*

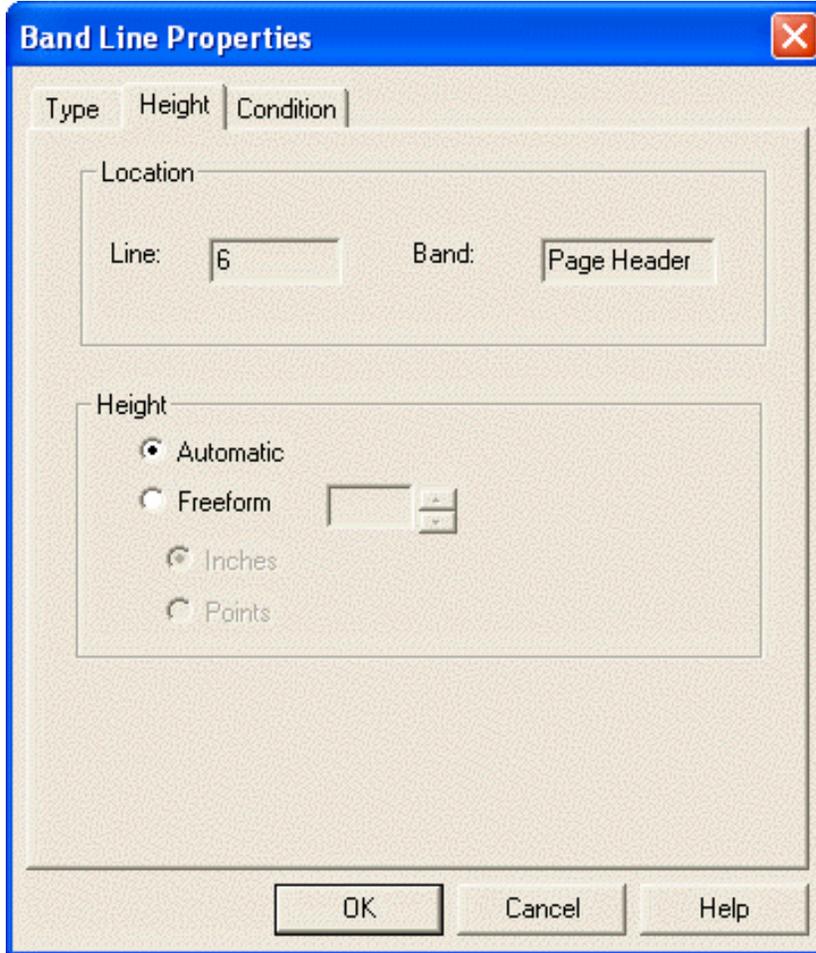
### ***Specifying Band Line Height***

Report Designer provides two line height types: Automatic (the default) and Freeform. For any line with an Automatic height setting, Report Designer adjusts line height to accommodate the largest font on the line. For a Freeform line, you can either specify a height on the Band Line Properties dialog or adjust line height as necessary on the layout.

To specify the height of any line(s) in your report, select the line or lines and open the Band Line Properties dialog (see Figure 3.8). Select the appropriate item (Automatic or Freeform) in from the Height tab.

## ***Automatic Line Height***

When you set line height to Automatic, Report Designer automatically adjusts line height to accommodate the largest font on the line(s). This choice is the default, since it provides appropriate line spacing in most cases.



**Figure 3.8 Band Line Properties Dialog Box**

## Freeform Line Height

For any line with a Freeform height setting, you can specify a line height in inches or points on the Band Line Properties dialog. On the layout, a Freeform line is indicated by up and down arrows in the Line Status Area (the narrow channel at the right edge of the Band Area). Freeform lines are useful for areas of a report where you plan to insert images, since you can adjust the height of the line to accommodate any image you insert on it.

Note that a Freeform line will *not* expand to accommodate an image or a word-wrapped field placed on it; you must specify a Height for the Freeform line that is sufficient for the maximum number of lines that the image or word-wrapped field will occupy in the report output.

### Switching Between Freeform and Automatic Line Settings

You can change a line's type from Automatic to Freeform or from Freeform to Automatic using either of the following methods.

- ❑ Select one or more lines and select Format ⇒ Properties (or press F9). On the Band Line Properties dialog, select Freeform from the Height tab and enter or select the appropriate line height. Then select OK.
- ❑ Select one or more lines and select the Auto/Freeform Line button on the Formatting Toolbar (). For a single selected line, this button acts as a toggle — a Freeform line becomes Automatic, and an Automatic line becomes Freeform.

If you selected multiple lines, selecting the Auto/Freeform Line button will have one of the following results:

- ◆ If all selected lines are Automatic, they become Freeform.
- ◆ If all selected lines are Freeform, they become Automatic.
- ◆ If the selected lines are a mixture of Automatic and Freeform, they all become Automatic.

### Adjusting the Height of a Freeform Line

You can adjust the height of a Freeform line in either of two ways:

- ❑ To size a Freeform line on the layout, click and hold on the top or bottom arrow in the Line Status area; the cursor changes to an arrow (either  or  depending on whether you clicked on the top or bottom of the line). Drag the cursor up or down as necessary to increase or decrease the line height; when the line is the desired height, release the mouse.
- ❑ To size a Freeform line to an exact measurement in inches or points, open the Band Line Properties dialog (either right-click on the line and select Properties or select multiple lines and press F9). In the Band Line Properties dialog, select Inches or Points in the Height box; then select a measurement.

## Specifying Conditional Line Printing

## Specifying Conditional Line Printing

To print a line or lines only under certain conditions, select a control field from the Logical Field list box on Condition tab of the Band Line Properties dialog by using the [...] to display the Select Logical Field dialog. This setting enables you to use any field in the composite record structure (except a page total) as a control field to trigger line printing. Report Designer places a question mark in the Line Status area to indicate that a logical field has been assigned to control printing.

After selecting a control field, you can turn on either "Print When True" or "Print When False." If you specify "Print When True," the line or lines will print only when the control field contains a "true" value (see Figure 3.9). If you specify "Print When False," the line or lines print only when the control field contains a "false" value.

| Data Type of Control Field | True Value          | False Value   |
|----------------------------|---------------------|---------------|
| Logical                    | True                | False         |
| Character                  | Not empty           | Empty         |
| Numeric                    | Not empty, Non-zero | Empty or zero |
| Date                       | Not empty           | Empty         |
| Memo                       | Not empty           | Empty         |

**Figure 3.9 Print Values for Control Fields**

For example, in invoices that subtotal line item amounts before calculating tax, you might not want a subtotal to print if there is only one line item. In this case, you could suppress printing of the Group Footer line containing the SUBTOTAL field by proceeding as follows.

First, create a total field called ITEMS, which counts the number of line items for each order. Next, create a logical calculated field called PRINT that controls printing of the subtotal Group Footer line. If the value in this field is true, the line will print. If the value is false, the line will be suppressed. The expression for this field is:

```
ITEMS>1
```

To assign the control field to the Group Footer line, select the line and open the Band Line Properties dialog. Open the Logical Field list box to display the names of all fields that can be used to control printing. Select PRINT; then select OK.

When the report prints, the Group Footer line will print only when the value in the PRINT field is true, in other words only when the invoice contains more than one line item. (To specify that the line print only when the control field value is *false*, you would select "Print When False" on the Band Line Properties dialog.)

Although logical fields are typically used as control fields, you can use character, numeric, date, or memo fields as well. The value that triggers line printing varies depending on the data type of the control field you use, as Figure 3.9 illustrates.

Report Designer indicates that a logical field has been assigned to control printing by placing a question mark in the Line Status Area. To remove a logical condition from one or more lines, first select the line or lines. Select Format ⇒ Properties (or press F9); the name of the field assigned to control printing of the selected line(s) appears in the Logical Field box. Open the Logical Field list box and select the first option (None); then select OK.

Note that there is a **Calc Field** button in the Logical Field box that takes you directly to the calculated field dialog where you can create a new calculated field. When done, you are returned to the Band Line Properties dialog where you can then select that field from the Logical Field list.

**Specifying Scan Conditions**

## Specifying Scan Conditions

For multiple-scan reports, you can select a table to control the printing of one or more lines. In a multiple-scan report, two or more tables are scanned by the same controlling table or by a table related to the controlling table by a lookup relation.

To print a line or lines only when a selected table is being scanned, select a table from the "Scan Table" list box that is found in the Band Line Properties Condition tab (table aliases will appear in this list only for multiple-scan reports). Specifying a scan table is useful when you want to print certain lines when one table is being scanned and other lines when another table is being scanned. See Chapter 18, "Creating Multiple-Scan Reports," for more information about using this feature.

When a scan condition has been assigned to a line, Report Designer places a question mark (?) in the Line Status area for that line.

To assign a scan condition to one or more lines, do the following:

1. Select the line or lines whose printing you want to control. Open the Band Line Properties dialog box.
2. Open the Scan Table list box to display the aliases of all the tables being scanned for the report. Select a table to control printing of the lines.
3. Select OK.

To remove a scan condition from one or more lines, select the line or lines you want to affect and open the Band Line Properties dialog box. If a table has been assigned to control printing of the current line, the alias of that table is displayed in the "Scan Table" box. Open the Scan Table list and select the first option (None); then select OK.

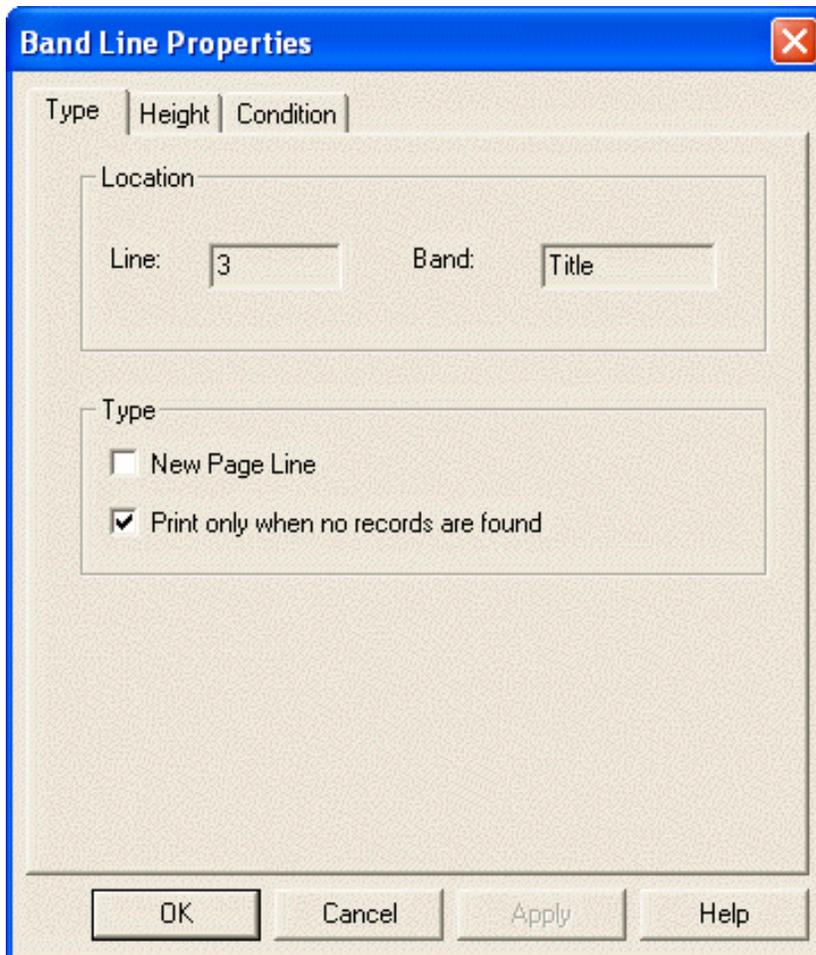
**Printing a band line when no record are found**

## No records found band lines

By default, when a report is run and no records are found that meet the report conditions, R&R displays a "No Records Found" error dialog box rather than producing report output.

If you would rather produce a printed report when no records are found, you can create a Title band and on the Type tab of the Band Line Properties dialog you can check the Print only when no records are found box.

This checkbox that it available for Title band lines.



When this box is checked, the title band will print both in the designer and at runtime only when no records are found. This allows you display and print any on a no records found Title lines when no records are found that meet the report conditions. A no record found line is ignored when records are found.

When Print when No records found has been assigned to a Title line, Report Designer places a question mark (?) in the Line Status area for that line.

## Chapter 4 Working with Fields

## Introduction (Working with Fields)

## **Introduction (Working with Fields)**

This chapter explains how to insert, move, copy, and format fields in reports. This information is provided in the following sections:

- ❑ Manipulating Fields
- ❑ Applying Fonts, Styles, Effects, and Colors
- ❑ Formatting and Sizing Fields
- ❑ Specifying Alignment
- ❑ Controlling Automatic Trim
- ❑ Adding Field Comments

## Selecting Fields

In order to modify fields that have been inserted on the layout, you must first select them. Follow these procedures to select a field or group of fields:

- ☞ With the mouse: Click on the field to select it. To select additional fields, Control-click on each. If the fields to be selected are in the same section of the layout, you can also select them by dragging the mouse to form a rectangle that touches each field you want to select. (Note that the rectangle does not have to completely enclose the fields to be selected; as long as part of the rectangle touches a field, the field will be selected.)
- ☞ From the keyboard: Tab to the field and press Spacebar to select it. To select additional fields, tab to each and press Ctrl+Spacebar to select.

## Methods of Applying Field Characteristics

After you have selected individual fields or groups of fields on a report layout, you can use either the Font and Properties dialogs or the Formatting Toolbar buttons to control the following field characteristics:

- ❑ Font and point size;
- ❑ Font Style (regular, bold, italic), Effect (strike-out, underline), and Color;
- ❑ Field width and format;
- ❑ Alignment (left, center, right, justified);
- ❑ Automatic trim ("Print at Field Position" or "Print at End of Previous Field");
- ❑ For total, Parameter, and calculated fields, field Comment (a brief annotation attached to the field).

You can access the Font dialog in any of the following ways: select the field and press F5; select the field and select Format ⇒ Font; or right-click on the field and select Font.

Use any of the following methods to access the Properties tabbed dialog, which has tabs for Width/Format, Alignment, and Comment: select the field and press F9; select the field and select Format ⇒ Properties; or right-click on the field and select Properties.

You can quickly apply any font, font style, or alignment (except Word-wrap) using the Formatting Toolbar. Figure 4.1 shows the Formatting Toolbar options and identifies the purpose of each.

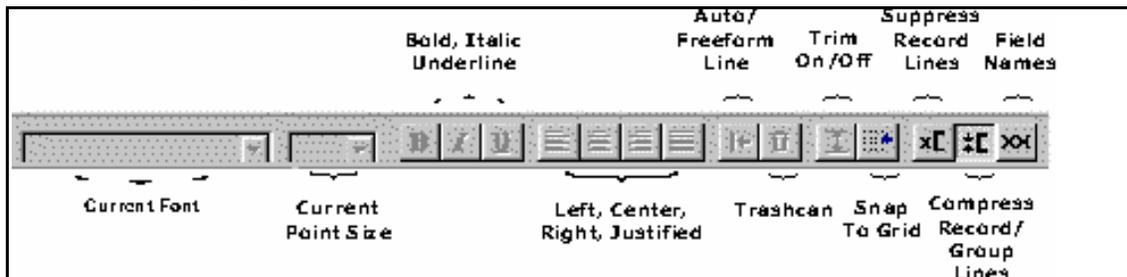


Figure 4.1 Format Options in Formatting Toolbar

## Manipulating Fields

## **Manipulating Fields**

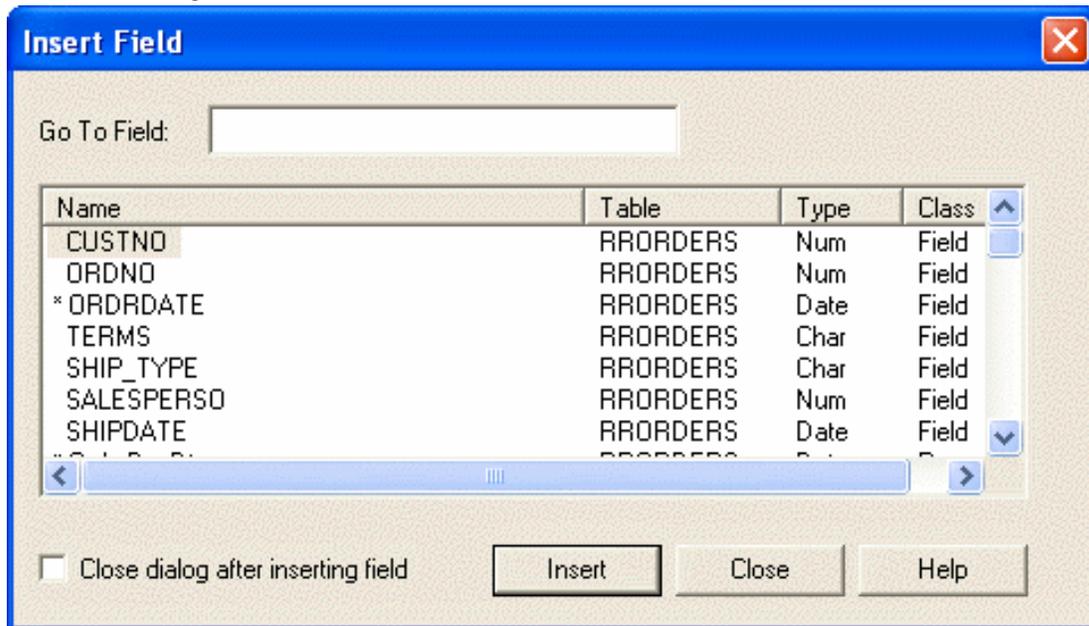
After you have created bands by inserting band lines on your layout, you can insert or type fields on those lines. You can then copy or move a field or group of fields anywhere on the layout.

## Inserting Fields

To insert a field, you select from the fields listed in the Insert Field dialog box. You can open this dialog box in any of the following ways:

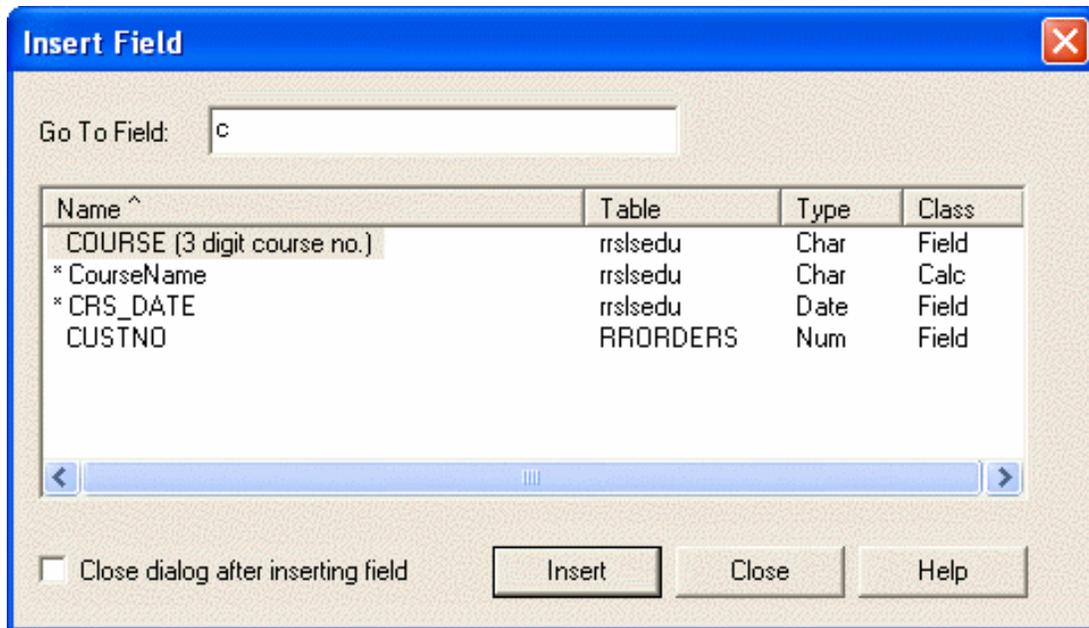
- Position the edit cursor and press F11;
- Position the edit cursor and select Insert ⇒ Field;
- Position the edit cursor and press the Insert key;
- Double-click at the location you want to insert the field.

The Insert Field dialog box (see Figure 4.2) displays all field names from the composite record structure — that is, the names of all fields from the master table and all related tables; all calculated, Parameter, and total fields; and memo fields from any attached text memo file.



**Figure 4.2 Insert Field Dialog**

The Go To Field box at the top of the dialog lets you enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.



Press backspace to clear the box and display all fields.

The field list section lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

- An asterisk \* before a field name indicates that the field is currently used within the report.
- Click on a column heading to **sort** the list by that column.
- Click on a sorted column heading to **reverse** the sort order.
- Click on a column header separator bar to **resize** a column.
- Use arrow keys or the scrollbars to scroll through the list.
- You can select a field name and then **drag** it from the list onto the report layout.
- **Double-clicking** on a field is the equivalent of pressing the Insert button.

By default, the Insert Field dialog will remain open after you have inserted a field to enable selection and insertion of several fields in succession. When you are finished inserting fields, select Close. To specify instead that the Insert Field dialog close after you have inserted a field, click the check box next to "Close Dialog After Inserting Field." As a result, the Insert Field dialog will close after you select and insert a field.

To include text in a report (for example, to insert column headings), simply position the cursor where you want the text to begin and type it. You can edit existing text on the layout by selecting it and then using the F2 function key. For large text selections, create a separate text file and attach it to your report as a text memo file (see Chapter 19, "Creating Form Letter Reports," for information

about creating and attaching a text memo file).

## Right Click Options

You can right click on anywhere on the report layout to bring up a popup menu of available options. If you right click after selecting a field on the layout, the available menu choices will operate on that selected field.



**Figure 4.1 Right Click menu options**

| <b>Command</b> | <b>Purpose</b>   |
|----------------|--|
| Cut            | Removes the selected object and copies it to memory  |
| Copy           | Copies the selected object to memory   |
| Paste          | Pastes any objects in memory to the current location   |
| Clear          | Removes the selected object  |
| Font...        | Available for text, database and R&R computed fields<br>Brings up the font dialog for the selected field   |
| Expression...  | Available for calculated, total and parameter fields<br>Brings up the edit dialog for the selected field   |
| Total...       | Available for text, database and R&R computed fields<br>Brings up a New Total with the current field selected as the target field to be totaled.   |
| Dictionary     | Available for database and calculated fields that have been defined in the R&R Data Dictionary.<br>Brings up the dictionary Field Detail dialog where you can view and edit the current dictionary definition. |
| Properties...  | Brings up the Properties dialog for the selected field.  |

## Copying Fields

You can copy any field and insert the copy in a new position anywhere on the layout. To copy a field:

1. Select the field or fields you want to copy.
2. Select Edit ⇒ Copy or press Ctrl+C.

Report Designer copies and stores the selected fields.

3. To place the field copy, position the edit cursor at the new location.
4. Select Edit ⇒ Paste Objects or press Ctrl+V.

Report Designer pastes the copied fields at the cursor position.

When you copy a field, the original field remains in position. The field copy retains all characteristics (width, format, font, and attribute) of the original. You can change any of these characteristics for the copy without affecting the original.

## Moving Fields

You can move any field or group of fields on the layout to another location. If you are moving multiple fields, the fields retain their positions relative to one another when you move them.

To move one or more fields:

1. Select the field or fields you want to move.
2. Move the field(s) in any of these ways:
  - Drag the field or field group to the new location and release the mouse button.
  - Select Edit ⇒ Move Fields (or press F7). Use the cursor keys to position the field(s) at the new location; then press Enter.
  - Select Edit ⇒ Cut (or press Ctrl+X). Position the edit cursor where you want to insert the field(s) and select Edit ⇒ Paste Objects (or press Ctrl+V).

Report Designer copies the field or group of fields to the new location. If you used drag-and-drop or Edit ⇒ Move Fields (F7), you can select Edit ⇒ Undo Last Move to return the field(s) to the original position.

When you paste a group of fields, the alignment of the topmost field in the group determines the starting point of the paste location. If the topmost field is left-aligned, its left edge will be positioned at the edit cursor; if it is center-aligned, it will be centered on the edit cursor position; and if it is right-aligned, its right edge will be positioned at the edit cursor. The other fields in the group will maintain their positions relative to the topmost field.

Note that you may first have to insert additional lines in a band so that you can copy fields to a line or lines of the proper type.

## Deleting Fields

To delete one or more fields from the layout:

1. Select the field or fields you want to delete.
2. Delete the fields in any of these ways:
  - Select Edit ⇒ Clear;
  - Select the Trashcan button ();
  - Press the Delete key.

Report Designer removes the fields from the layout. Deleting differs from cutting in that you cannot then Paste the fields elsewhere on the report. If you delete fields by mistake, however, you can select Edit ⇒ Undo Last Clear (Ctrl+Z) or select the Trashcan button again to re-insert the fields in their original positions.

**NOTE** Deleting database fields from the layout does not remove them from your database; they are simply erased from the report layout. Deleting calculated and total fields you created in Report Designer does not remove them from the composite record structure. You can use Field ⇒ Insert to replace any database, calculated, or total field you deleted.

## Applying Fonts, Styles, Effects, and Colors

## **Applying Fonts, Styles, Effects, and Colors**

When you print a report, the text and data print in a particular type and size of print. This combination of typeface and type size is referred to as a *font*.

Depending on the currently selected printer, you can access a range of fonts to vary the style and size of selected areas of your reports. For example, you could use a large font for report titles and a smaller font for record areas.

With many fonts you have the additional option of applying *styles* (bold and italic), *effects* (strikeout and underline), and color to further emphasize specific fields or areas of a report. By combining fonts, styles, effects, and colors, you can enhance the appearance and improve the readability of report output.

## *Font Characteristics*

## ***Font Characteristics***

When you apply fonts to fields in a report, you select fonts by typeface name (such as Times New Roman or Arial) and point size. The following characteristics of the fonts you select can affect the placement and alignment of fields in your report output.

## ***Spacing and Pitch***

Fonts that have characters of equal widths are called *monospaced* (or fixed-pitch) fonts. The character spacing of a monospaced font is expressed as *pitch*, the number of characters per horizontal inch. You can calculate the pitch of a monospaced font by dividing 120 by the point size. For example, the pitch of a typical 12-point Courier font is 10 ( $120/12 \text{ points} = 10 \text{ pitch}$ ).

Fonts that have characters of different widths are called *proportional* fonts. Since a proportional font does not have a fixed number of characters per inch, it does not have an absolute pitch.

## ***Point Size***

A font's *point size* refers to its height measured in points (1 point = 1/72 inch). For example, the body text of this manual is printed in a 12-point font; the distance from the top of the highest character to the bottom of the lowest character is 12 points (12/72 inch). Some fonts (referred to as bitmapped fonts) are available only in predetermined point sizes. Other fonts (often called scalable or outline fonts), such as TrueType fonts, are available in almost any point size.

*Specifying Font, Styles, Effects, and Color*

## ***Specifying Font, Styles, Effects, and Color***

The range of fonts available to be applied to report fields depends on the current printer and the fonts installed for that printer. See your Windows documentation for information about selecting printers.

When a field is selected, its current font is identified by typeface name (for example, Times New Roman) in the Formatting Toolbar, and the size is shown in points. You can apply any font that is available on the current printer.

## ***Default Font Assignments***

Initially, fields that you insert on the report layout are assigned either a 12-point Arial (TrueType) font or your default font and point size (if defaults have been specified using Options ⇒ Default Settings). If the current printer does not support your default font, Report Designer assigns the first font in the Font list for that printer.

You can use the Options ⇒ Default Settings dialog box to change Report Designer's default font and point size assignments. Refer to Chapter 5, "Setting Defaults," for instructions. If you change the default font after creating a report, only those fields you insert *after* that change will be assigned the new default.

## Specifying Font and Point Size

To change the font and point size for one or more fields on the current report layout, do the following:

1. Select the field or fields you want to change.
2. Select Format ⇒ Font (or press F5). Select a font from the Font menu (see Figure 4.3).
3. Select a point size from the Size menu. If the font you selected is scalable and the point size you want is not displayed, enter the desired point size.
4. Select OK.

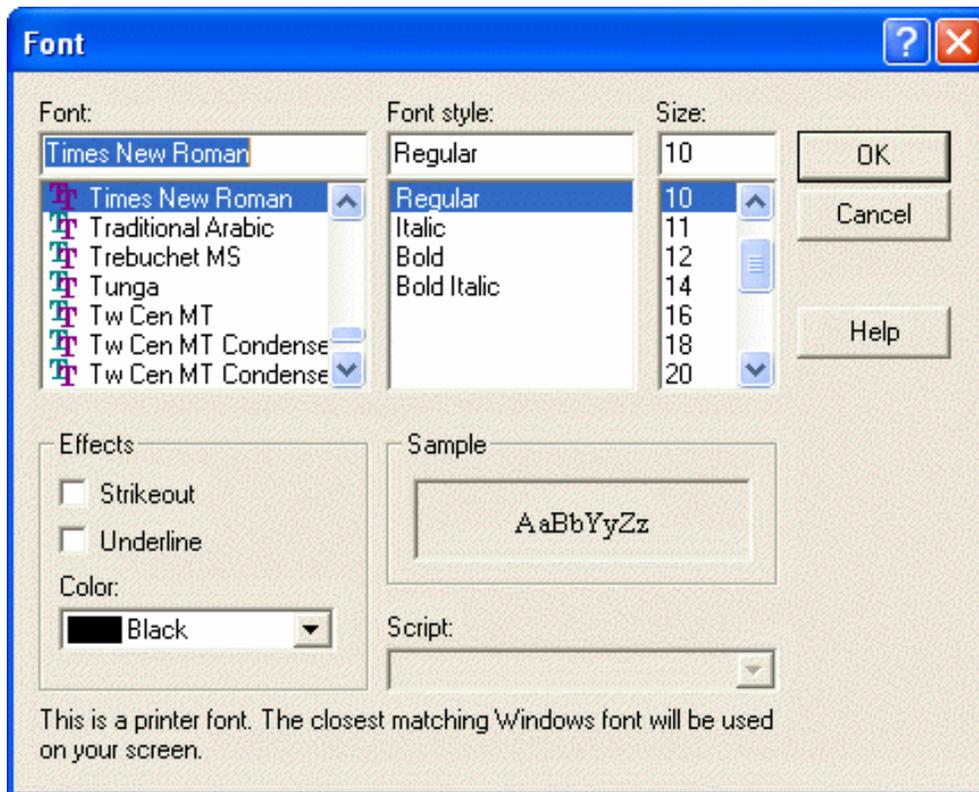


Figure 4.3 Font Dialog

## ***Specifying Styles and Effects***

In addition to specifying size, with many fonts you can also apply **bold**, *italic*, ~~strikeout~~, or underline (or a **combination** of these). Bold and italic styles are not available with all fonts; refer to your printer or font documentation for information about styles.

To apply one or more styles or effects, select a field or group of fields and select the B, I, and/or U button. You can also select Format ⇒ Font and choose a style from the Font Style list (Bold, Italic, or Bold Italic for most fonts) and Strikeout or Underline from Effects; then select OK.

## ***Specifying Color***

The default color for any inserted field is black. You can specify a different field color either by setting a default color on the Default Settings dialog (accessed by selecting Options ⇒ Default Settings) or by applying a color to a field or group of fields. If you change the default, the new default color will be applied to any fields you add after making the change; however, fields currently on the layout are not affected.

To specify a color for a selected field or group of fields, do the following:

1. Select the field or fields and select Format ⇒ Font (or press F5).
2. Open the Color list box. Select a color from those listed.
3. Select OK; the color is applied to the selected field(s).

You must have a color printer in order to produce color output. If you apply colors to fields and then print the report on a monochrome printer, the printer will convert those colors either to black or to some level of gray scale (depending on the printer). For example, on most laser printers a field formatted as yellow will print light gray.

## Formatting and Sizing Fields

## Formatting and Sizing Fields

Field format refers to:

- The width of a character, memo, or logical field;
- The numeric format (currency, percentage, and so on) and number of integer and decimal places for numeric fields;
- The format and arrangement of month, day, and year for date fields;
- The format and arrangement of month, day, year, hours, minutes, and seconds for datetime fields.

A field's format is usually displayed in the Status Bar when the field is highlighted. To change field format, use the Width tab (for character, memo, and logical fields) or Format tab (for all other field types) on the Field Properties tabbed dialog (select the field and press F9 to display the Properties tabbed dialog).

Formats affect only the way a field prints or displays; unformatted field values are used in sorting, queries, totals, and calculations. For example, formatting a three-decimal-place numeric field to display only two decimal places will not cause Report Designer to ignore the thousandths value in sorts, queries, totals, and calculations that involve that field. Formatting a date field with an abbreviated format that doesn't show the year will not cause Report Designer to ignore the year value if the field is used in a sort, query, total, or calculation.

*Specifying Character, Memo, or Logical Field Width*

### ***Specifying Character, Memo, or Logical Field Width***

When you first insert a character, memo, or logical field on the layout, Report Designer assigns a field width based on the maximum width of the data in your database. If this field width is not appropriate for one or more fields, you can modify it either by sizing the field(s) on the layout or by using the Width tab on the Field Properties tabbed dialog.

Note that you can also define a default width and format for a database field within the R&R Data Dictionary Editor. The dictionary width will then be used when you first insert the field in place of the default.

### ***Sizing a Field on the Layout***

To change the width of a character or memo field directly on the layout, select the field and drag one of the field "handles" either left or right as necessary to increase or decrease field width.

## ***Sizing a Field Using the Width Tab***

To change the width of a character or memo field using the Properties tabbed dialog, select the field and press F9. On the Width tab, either select Characters and enter the maximum number of characters for the field data or select Inches (or Centimeters, depending on your Windows configuration) and enter the maximum width for the data.

The unit of measurement that you select — Characters or Inches/Centimeters — determines how the data will print or display.

- If you specify field width in Characters, Report Designer will always print or display all of the data in the field up to the number of characters specified. As a result, the width of the field may vary depending on what font you have applied to it.
- If you specify field width in Inches (or Centimeters), Report Designer will always print or display the field up to that size, regardless of the width of the data itself. Any data that does not fit within the specified field width will be truncated (or wrapped, if word-wrap format has been applied).

## *Specifying Date Formats*

## Specifying Date Formats

Report Designer provides 24 options for formatting dates. Figure 4.4 lists and gives examples of the basic date format options.

| Format       | Meaning                   | Example                 |
|--------------|---------------------------|-------------------------|
| dd-mmm-yy    | Day-Month-Year            | 07-Mar-96               |
| dd-mmmm-yyyy | Day-Month-Year            | 07-March-1996           |
| dd-mmm       | Day-Month                 | 07-Mar                  |
| mmm-yy       | Month-Year                | Mar-96                  |
| mmm-yyyy     | Month-Year                | Mar-1996                |
| mmmm d, yyyy | Month Day, Year           | March 7, 1996           |
| d mmmm yyyy  | Day Month Year            | 7 March 1996            |
| mmmm yyyy    | Month Year                | March 1996              |
| mmmm d       | Month Day                 | March 7                 |
| d mmmm       | Day Month                 | 7 March                 |
| mm/dd/yy     | Month/Day/Year            | 03/07/96                |
| mm/dd/yyyy   | Month/Day/Year            | 03/07/1996              |
| dd/mm/yy     | Day/Month/Year            | 07/03/96                |
| dd/mm/yyyy   | Day/Month/Year            | 07/03/1996              |
| dd.mm.yy     | Day.Month.Year            | 07.03.96                |
| dd.mm.yyyy   | Day.Month.Year            | 07.03.1996              |
| yyyy-mm-dd   | Year-Month-Day            | 1996-03-07              |
| yy-mm-dd     | Year-Month-Day            | 96-03-07                |
| mm/dd        | Month/Day                 | 03/07                   |
| dd/mm        | Day/Month                 | 07/03                   |
| dd.mm        | Day.Month                 | 07.03                   |
| mm-dd        | Month-Day                 | 03-07                   |
| Long Date    | Windows Long Date Format  | Thursday, March 7, 1996 |
| Short Date   | Windows Short Date Format | 3/7/1996                |

**Figure 4.4 Date Formats**

When you insert a date field on a new layout, it is assigned the current Windows Regional date format. When you insert a date field on a report that you have retrieved for editing, the field is assigned the Regional date format that was in effect when the report was saved. Note that you can change the default Regional date format by opening the report and making a change on the Regional Settings dialog (accessed from the Windows Control Panel). If you make a change to Regional Settings while the report is open, the report inherits this setting and retains it when it is saved.

To change the format of a date field, select the field and press F9. On the Format tab, select from the menu. A sample of the format you select is shown at the bottom of the dialog. Select OK or Apply.

Note that display formats do not affect the sort order. Even if you have selected a date format that doesn't show the year, Report Designer still sorts dates chronologically.

You can also define a default format for a date database field within the R&R Data Dictionary Editor. The dictionary format will then be used when you first insert the field in place of the default.

## *Specifying Datetime Formats*

## Specifying Datetime Formats

Report Designer supports both Datetime and Time data types. For the date portion of a datetime field, the basic date format options listed in Figure 4.4 in the **Specifying Date Formats** section are available. In addition, you can select one of the time formats listed in Figure 4.5 for the time portion of a datetime field.

| Format         | Meaning                             | Example     |
|----------------|-------------------------------------|-------------|
| h:mm           | Hours (24-hour): minutes            | 8:45        |
| hh:mm          | Hours (24-hour): minutes            | 08:45       |
| h:mm:ss        | Hours (24-hour):<br>minutes:seconds | 8:45:30     |
| hh:mm:ss       | Hours (24-hour):<br>minutes:seconds | 08:45:30    |
| h:mm am/pm     | Hours:minutes am/pm                 | 8:45 am     |
| hh:mm am/pm    | Hours:minutes am/pm                 | 08:45 am    |
| h:mm:ss am/pm  | Hours:minutes:seconds<br>am/pm      | 8:45:30 am  |
| hh:mm:ss am/pm | Hours:minutes:seconds<br>am/pm      | 08:45:30 am |
| International  | Windows Regional Time<br>Format     | 08:45:30 am |

**Figure 4.5 Time Formats**

You can also define a default format for a date/time database field within the R&R Data Dictionary Editor. The dictionary format will then be used when you first insert the field in place of the default.

## *Specifying Numeric Formats*

## Specifying Numeric Formats

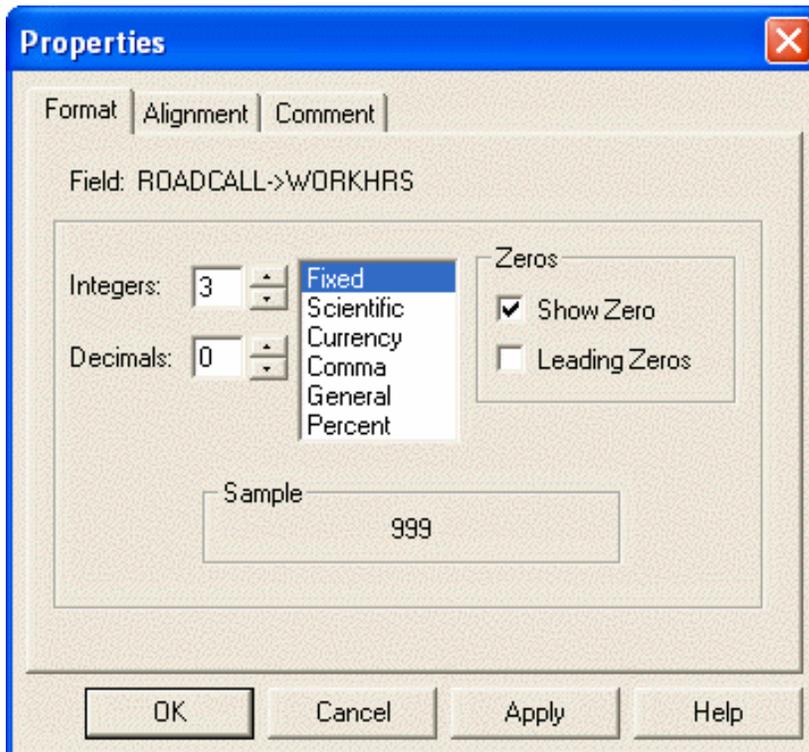
Report Designer provides six choices for formatting numeric data. Figure 4.6 lists them and gives an example of each. Numeric formats affect only the way in which the number displays on the report. Sorting, queries, and calculations are performed using unformatted field values.

| Format     | Meaning  | Value | Example  |
|------------|--|-------|----------|
| Fixed      | Fixed number of decimal places (0 - 15)                                  | 1.23  | 1.23     |
| Scientific | Exponential notation   | 1.23  | 1.2E+00  |
| Currency   | Currency sign; format determined by Windows Regional settings            | -1.23 | (\$1.23) |
| Comma      | Comma and negative value formats determined by Windows Regional settings | -1234 | (1,234)  |
| General    | Floating decimal   | 12.30 | 12.3     |
| Percent    | Multiplied by 100, followed by percent                                   | .123  | 12.3%    |

**Figure 4.6 Numeric Formats**

The default characteristics of the Currency and Comma formats are determined by the Windows Regional settings (accessed through the Control Panel), which control currency sign and placement and the format for negative values.

To change a field's numeric format, select the field and press F9. On the Format tab (see Figure 4.7), select a numeric format from the displayed menu. Then enter the maximum number of integers and/or decimal places for the field data.



#### **Figure 4.7 Format Tab for Numeric Field**

When you select Fixed, Scientific, Currency, Comma, or Percent, you can also specify between 0 and 15 decimal places. Note that the number of integer places plus the number of decimal places cannot exceed 19.

You can also define a default format for a numeric database field within the R&R Data Dictionary Editor. The dictionary format will then be used when you first insert the field in place of the default.

### ***Show Zero Option***

For any numeric format, you can turn the "Show Zero" option on or off. To print or display the value in the field, even if it is zero, turn on "Show Zero". To print or display spaces when a field value is zero, turn off "Show Zero." If the value in the field is blank, this option has no effect; that is, blank values *always* display and print as blank.

When "Show Zero" is turned off for a field, Report Designer does not include zero values in counts and averages. Blank fields are never included.

### ***Leading Zeros Option***

When you have selected Fixed as the numeric format and 0 as the number of decimal places, you can then turn the "Leading Zeros" option on or off. To display leading spaces, turn "Leading Zeros" off. For example, if you have 876 in a field of 5 integer places, Report Designer displays the number as 876. To change leading spaces to zeros, turn "Leading Zeros" on. For example, if you have 876 in a field of 5 integer places, Report Designer displays the number as 00876.

**Specifying Alignment**

## Specifying Alignment

The Alignment tab provides four options: Left, Center, Right, and Word-Wrap. These alignment options control the position of field data within the maximum width of the field. (To position fields within the margins of a report, use Format ⇒ Band Line Justify).

To change the alignment of one or more fields using the Alignment tab:

1. Select the fields whose contents you want to align.
2. Select Format ⇒ Properties (or press F9) to display the Properties tabbed dialog.
3. Select the Alignment tab (see Figure 4.8). In the Alignment box, select one of the option buttons:

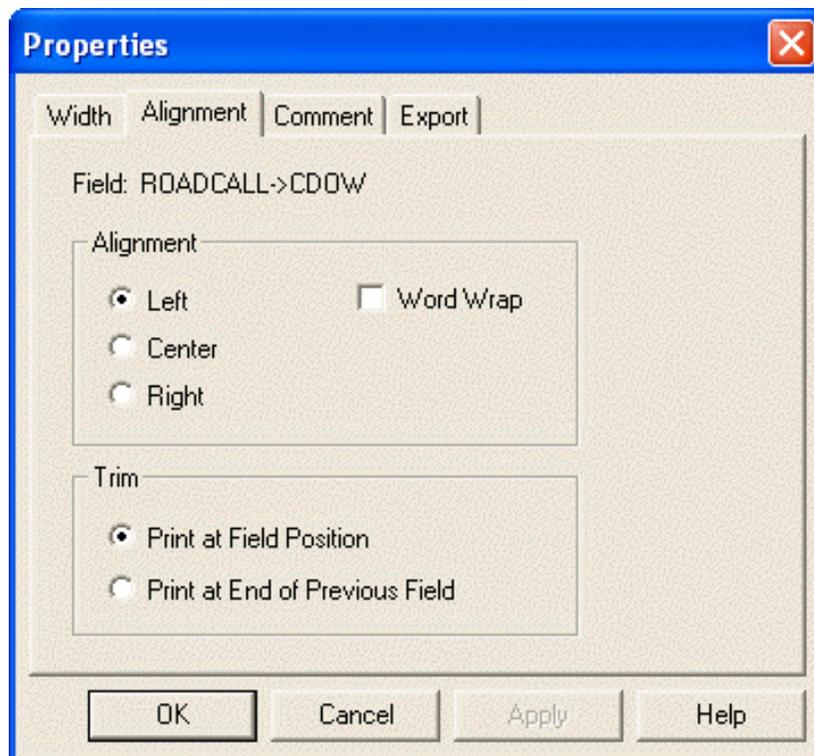
**Left** causes the field contents to be left-aligned.

**Center** causes the contents to be centered on the midpoint of the field width.

**Right** causes the contents of the field to be right-aligned.

**Word Wrap** aligns fields whose values wrap to more than one line. Select **Left**, **Right**, or **Justified** to align word-wrapped fields.

4. Select OK.



**Figure 4.8 Alignment Tab**

The alignment is applied to all the selected fields. Each field maintains its alignment even if you move the field to another line. However, the alignment is not applied to any other fields you subsequently move to or insert on the line.

A field's type (text, character, numeric, memo, or logical) determines the range of alignment options available to be applied to that field. The following sections explain the field alignment options and identify which ones are valid for each field

type.

*Applying Left, Center, or Right Alignment*

### ***Applying Left, Center, or Right Alignment***

You can assign Left, Center, or Right alignment to text, date, and numeric fields. The alignment you specify determines how Report Designer calculates the starting or ending position of the field data on the printed report.

To specify alignment for a field, select the field and press F9 to display the Properties tabbed dialog. On the Alignment tab, select Left, Center, or Right; then select OK.

### ***Positioning of Left-Aligned Data***

Report Designer starts printing a left-aligned field at the position occupied by the left edge of the field on the layout. For example, if the first letter of a left-aligned text field begins at two inches on the layout, Report Designer will start printing two inches from the left margin. Depending on the font applied, the position of the last character in the field data will vary.

### ***Positioning of Right-Aligned and Centered Data***

Report Designer starts printing a right-aligned field so that it *ends* at the position occupied by the right edge of the field on the report layout. For example, if the last letter of a text field is at two inches on your layout, Report Designer will adjust the starting point of the text, depending on the field's font, so that the field ends two inches from the left margin. The position of the first character in the field will vary depending on the font applied to the field. Similarly, the position of data within centered fields is determined by the position of the middle character of the field value.

## *Applying Word-Wrap Alignment*

## Applying Word-Wrap Alignment

You can assign Word-wrap alignment to character, text memo, and logical fields. If you select Word-wrap format, data for that field will continue to print on subsequent lines after the data fills the field width on the first line.

To specify word-wrap alignment for a character, memo, or logical field, select the field and press F9. On the Alignment tab, select "Word-wrap" and specify whether the word-wrapped field will be left, right, or fully justified. Then select OK.

After you specify an alignment, the field symbol on the report layout changes to indicate the new alignment. Figure 4.9 lists the available alignment formats and their symbols and gives an example of each.

| Alignment                   | Symbol            | Example   |
|-----------------------------|-------------------|---|
| Left                        | < (Left Angle)    | <xxxxxxxxxxxxxxxx<br>New York   |
| Center                      | ^ (Circumflex)    | ^xxxxxxxxxxxxxxxx<br>New York   |
| Right                       | > (Right Angle)   | >xxxxxxxxxxxxxxxx<br>New York   |
| Word-Wrap,<br>Left Justify  | « (Left Chevron)  | «xxxxxxxxxxxxxxxx<br>New York City<br>is the largest<br>city in the<br>U.S.A. |
| Word Wrap,<br>Right Justify | » (Right Chevron) | »xxxxxxxxxxxxxxxx<br>New York City<br>is the largest<br>city in the<br>U.S.A. |
| Word Wrap,<br>Full Justify  | = (Double Line)   | =xxxxxxxxxxxxxxxx<br>New York City<br>is the largest<br>city in the<br>U.S.A. |

Figure 4.9 Alignment Options

## ***Word-Wrap Format***

Word-wrap is useful for formatting long character fields, which can be wrapped down the page or broken up into separate lines by inserting new-line characters as line terminators. Word-wrap is also the default format for text memo fields and long character fields.

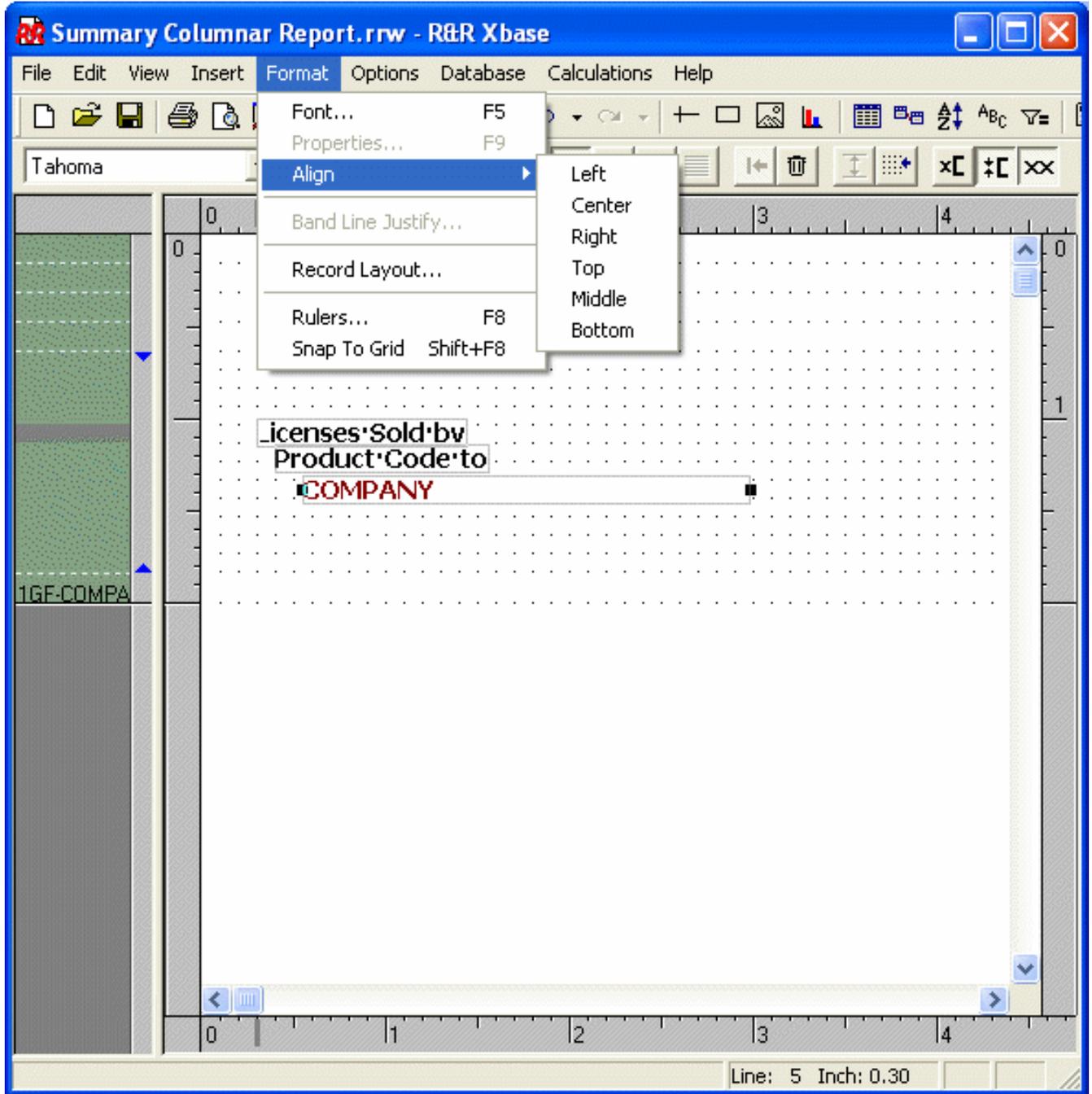
Word-wrap format is controlled by the following rules:

- ❑ Report Designer prints any field that is on the same line as the word-wrapped field in the column in which it has been placed on the layout. The positions of fields that do not extend beneath the word-wrapped field on subsequent lines are not affected.
- ❑ For word-wrapped fields in Page Header and Page Footer bands, Report Designer truncates the data to fit within the band area. For example, if there is a word-wrapped field on the second line of a 3-line Page Header, the data wraps only for the remaining line. Data for fields placed on line 3 is not printed, since the Page Header band is fixed in length.
- ❑ For word-wrapped fields in any other band, Report Designer prints all the data, inserting as many additional lines as necessary and *pushing down* any fields below the word-wrapped field. The data continues to wrap from one line to the next within its field width until it is all printed. Any such additional lines do not consume subsequent blank lines inserted in the band.

## *Aligning Multiple Fields*

## Aligning Multiple Fields

The Format menu has an Align item that allows you to align multiple selected objects on the report layout.



For example you could select 3 fields on 3 separate band lines and then choose Format->Align Left to move the first two selected objects to have the same left edge as the last selected object.

**Controlling Automatic Trim**

## Controlling Automatic Trim

By default, Report Designer will print or display a field in the position where it has been inserted on the layout. You can specify that Report Designer remove blank space (other than spaces inserted with the spacebar) between fields, regardless of how far apart those fields are on the line.

If you want two fields to print without intervening space, select the field on the right and press F9 to open the Properties tabbed dialog. In the Trim box at the bottom of the Alignment tab, select the "Print at End of Previous Field" option and select OK. When you print or display the report, the fields will have no space between them, even if they are separated by space on the report layout.

The ability to trim blank spaces enables you to eliminate space between fields whose data varies in width. For example, data from first- and last-name fields on the same line will print with no space between if you have selected "Print at End of Previous Field" for the last-name field.

You can include a single space between fields by inserting a text field consisting of one space and setting the trim for that field to "Print at End of Previous Field."

## Adding Field Comments

## Adding Field Comments

You can enter a brief comment (up to 100 characters) to serve as a "plain English" explanation of a total, Parameter, or calculated field. When a total or calculated field has a comment attached to it, that comment is displayed in the Status Bar when the field is highlighted.

(Note that if there is a report dictionary attached to the report, this tab displays the text of the report dictionary Comment field for any selected *database* field. Display of Comment text for database fields is read-only, however; you must use your database software to edit database field comments.)

To enter or edit a comment for a total, Parameter, or calculated field, select the field and press F9. On the Comment tab, enter or edit the field comment in the Comment box. Then select OK or Apply.

You can also add or edit a comment for a total, Parameter, or calculated field by selecting the Comment button on the Calculated Field, Parameter, or Total Field dialog.

See Chapter 7, "Working with Calculated Fields," and Chapter 8, "Working with Total Fields," for more information about total and calculated field comments. See Chapter 9, "Working with Parameter Fields," for more information about Parameter fields.

## Chapter 5 Setting Defaults

## ***Introduction (Setting Defaults)***

This chapter explains how to change default settings — settings that Report Designer uses automatically unless you override them for each report. This information is presented in the following sections:

- ❑ Changing Display Preferences
- ❑ Changing Layout and Formatting Settings
- ❑ Specifying Default Directories and Extensions
- ❑ Changing Regional Settings
- ❑ Modifying Case Sensitivity
  - ❑ RRWHANDLES setting

**Changing Preferences**

## Changing Preferences

You can use the View menu and the Options ⇒ Preferences dialog to modify Report Designer's default characteristics in any of the following ways:

- Turn on or off the display of scroll bars, toolbars, rulers, or grid;
- Turn on or off the display of colors in band area/preview and in Totals/Grouping;
- Specify that fields be represented on the layout as field names rather than symbols;
- Specify what action Report Designer should take when you select File ⇒ New;
- Specify which database memo editor was used to prepare memo fields for reports;
- Specify whether Report Designer displays field descriptions in field lists.
- Specify whether field name listings will be initially sorted by name.
- Specify whether backup copies of reports will automatically be created as design changes are made.

The following sections explain how to make these changes. In each case, the change takes effect for the current session and becomes the default for future sessions.

## *Changing Settings with the View Menu*

## Changing Settings with the View Menu

You use the View menu command to turn on or off the display of the toolbars and rulers; to turn on or off display of the ruler grid; and to change the representation of fields on the layout.

Figure 5.1 shows the Report Designer window with the Standard Toolbar, Formatting Toolbar, Horizontal and Vertical Ruler, and Field Names settings turned on.

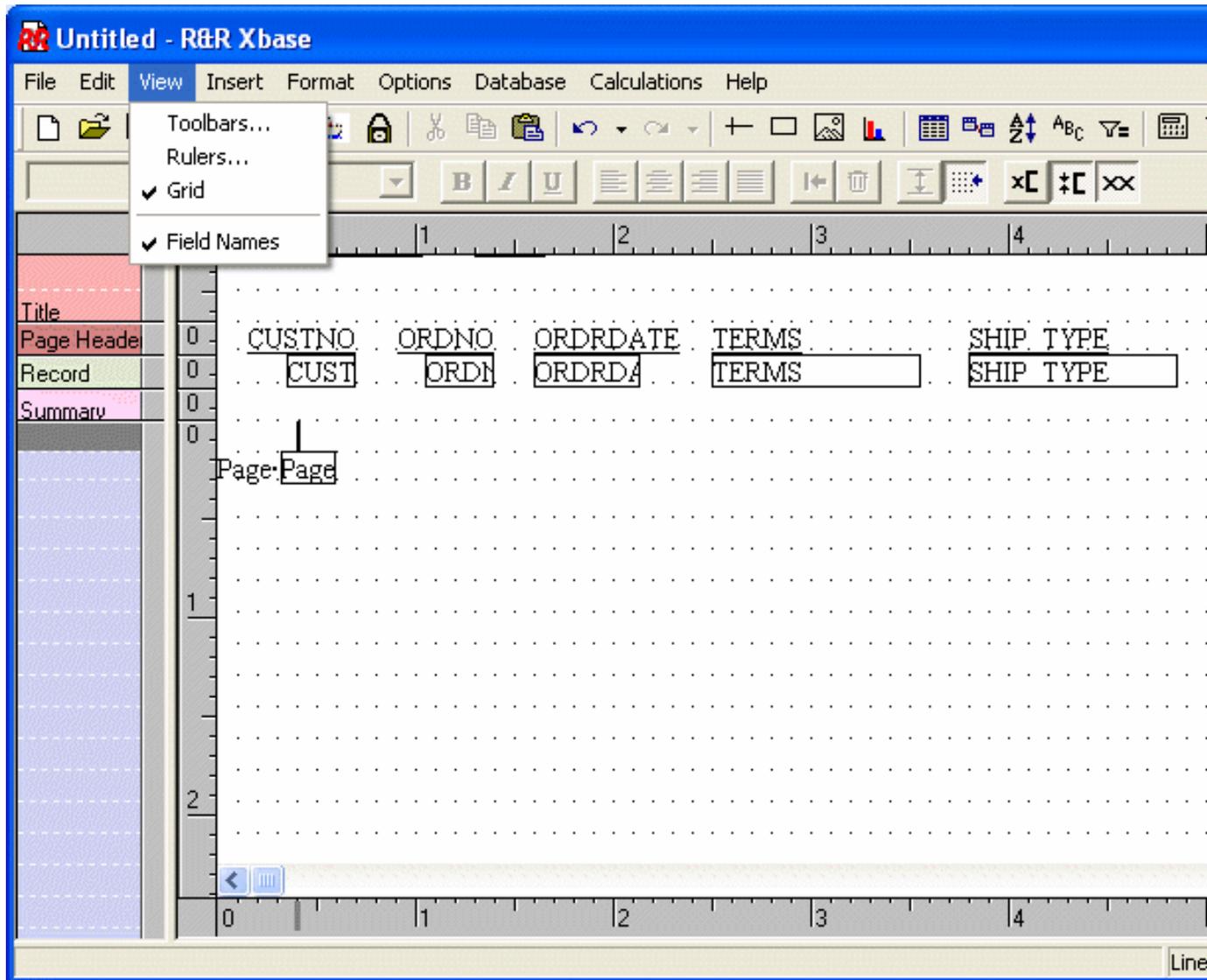


Figure 5.1 Window Showing View Menu Choices

### ***Controlling Grid Display***

You can also choose to show or hide the grid, which consists of a series of dots spaced according to the "Units per inch" settings specified for the rulers. You can use the grid to help you more accurately place fields and images. To turn on the grid, select View ⇒ Grid; a check mark appears next to the setting when it is on.

## ***Changing Field Display***

The Field Names item in the View menu controls how the fields display in the Layout Area. By default, each field is represented by symbols that indicate the field's data type and alignment. To display field names rather than representative symbols, select Field Names. As a result, each field's name is shown in a box at the field's location (depending on the field width, the entire field name may not appear).

## *Changing Preferences Dialog Box Settings*

### ***Changing Preferences Dialog Box Settings***

Use the Preferences dialog (see Figure 5.2) to control display of scroll bars; to enable or disable color-coding; and to specify the starting point for new reports, the memo editor used to prepare database memo files, select the content of field lists and enable automatic saving of the current report.

## ***Changing Scroll Bar Displays***

By default, Report Designer displays horizontal and vertical scroll bars. To remove these scroll bars from the display, select Options ⇒ Preferences. In the Display section of the Preferences dialog box, turn off Horizontal or Vertical Scroll Bar. When you are finished making changes, select OK.

## ***Specifying Starting Point for New Report***

You use the Options ⇒ Preferences dialog box to specify the starting point for new reports.

The File New group box on this dialog offers the following options:

- Display Dialog
- Report Wizards
- Instant Report
- Blank Report
- Template

With the default setting of "Display Dialog," each time you select File ⇒ New, Report Designer will display a dialog enabling you to choose the starting point for creating the report (Report Wizards, Instant Report, Blank Report, or Template).

If you select "Report Wizards," at File ⇒ New Report Designer will execute its Report Wizards tool, which leads you step-by-step through the creation of one of three types of instant report (Labels, Basic Columnar, or Grouped Columnar). See the **Using Report Wizards** section of Chapter 2, "Managing Reports," for more information.

Selecting "Instant Report" will cause Report Designer to prompt for selection of a master table at File ⇒ New and then create an Instant Report. Instant Report places all fields from the selected master table (or as many as will fit) on the layout, with column titles inserted for each field. The Instant Report also includes calculated fields for date, time, page number, and number of records printed, as well as grand totals of numeric fields that have decimal places.

Selecting "Template" will cause Report Designer to display a list of templates in the default template folder. You can then select a template and use it as the starting point for your new report. See the **Using a Template to Create a Report** section of Chapter 2, "Managing Reports," for more information.

Selecting "Blank Report" will cause Report Designer to display the Master Table dialog at File ⇒ New. To create a blank report with *no* master table, simply select OK. To create a blank report *with* a master table, first turn off the "Create Report Without Master Table" setting; then choose a table and select OK. Report Designer will create a blank report layout consisting of one record line.

## ***Specifying Memo Editor***

In the Memo Editor tab, you can specify which memo editor was used to prepare files that supply database memo fields for your reports. Two choices are provided: "Xbase" (the default) and "Other." Retain the default setting if memo files were created with an Xbase memo editor; select "Other" if memo files were created with some other editor. This setting controls how Report Designer handles horizontal spacing and line endings in database memo fields.

## ***Specifying the Content of Field Lists***

In the Field Lists tab you can specify whether Report Designer optionally displays report dictionary field descriptions/field comments along with the actual field name in field list dialogs.

Checking the Sort field names box will set the initial default display of field lists to alphabetical order by field name rather than displaying fields in their database table order. Within a field list dialog you can additionally click on any column heading to sort by that column.

## ***Auto Save***

When auto recovery is enabled, R&R saves a copy of the current report in the same directory as the original at the designated interval. This file uses the current report's file name preceded by "Autosave-" It also writes the name of the saved file in the RRW.INI file. Should there be a problem causing R&R closes unexpectedly, the next time that you open the Report Designer, you will be asked if you want to open the auto saved file. This file will contain all of the changes to the file that was open in your last designer session as of the last recovery point. Check the Save AutoRecover box to automatically save any changes to a backup copy the report that is currently being edited. You can specify a recovery interval of 1 to 120 minutes between each save to the auto save file.

**Changing Layout and Formatting Settings**

## Changing Layout and Formatting Settings

To change defaults for paper size, margins, logical strings, ruler spacing, font, snap-to-grid, and file write access, select Options ⇒ Default Settings. The changes you make in this dialog box (see Figure 5.3) will then apply globally to all newly created reports.

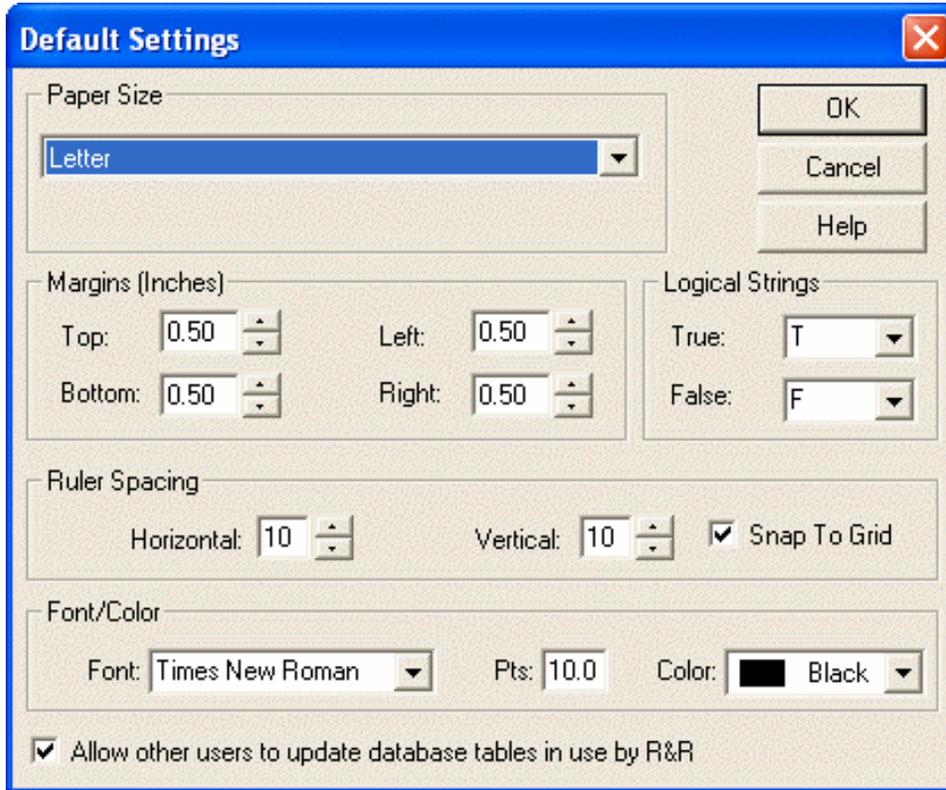


Figure 5.3 Default Settings Dialog Box

## **Paper Size**

Default: Letter. Use this setting to specify paper size for printed output.

To select a different size, open the Paper Size list box. Then select the paper size you want from the displayed list (which is based on the current Windows printer).

## Margin Settings

Enter values to specify the amount of space at the top, bottom, left, and right of the report page (default value for each: 0.50 inches). On the layout, the right margin is indicated on the ruler by the letter **R** and the area to the right of the right margin is shaded gray.

## Font, Point Size, and Color

Use this setting to specify a default font, point size, and color that will then be automatically applied to all fields in newly created reports (and to any fields added to the current report after you change the default). To specify a default font, either enter a font name in the Font edit box or open the Font menu and select from the displayed list for the current printer. To change the point size, enter the desired point size in the Pts edit box. To change the default color, open the Color list box and select a color.

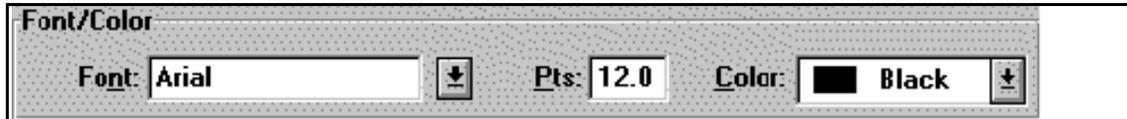


Figure 5.4 Font/Color Group Box

## Ruler Spacing and Snap-To-Grid

The default setting for both the Horizontal and the Vertical Ruler Spacing is 10; you can select a setting from 4 through 30. This setting controls the number of ruler increments per inch on each ruler. Note that the Ruler Spacing settings control only the spacing of the report layout rulers (since the fonts actually applied to fields in the report control the print spacing).

For band lines with a Freeform line height, the ruler settings determine the horizontal and vertical spacing of the layout grid. For lines with an Automatic line height, the horizontal spacing of the grid is determined by the ruler setting; the vertical grid spacing is determined by the height of the largest font on each line.

When Snap-To-Grid is on (indicated by an x in the Snap-To-Grid box), objects on the layout will "snap" to the grid marks when inserted, moved, or sized. To turn off this default setting, click the Snap-To-Grid box to remove the x. You can also control this setting for individual reports with the Format ⇒ Snap-To-Grid command (Shift+F8) or the Snap-To-Grid button on the Formatting Toolbar.

## Specifying Logical Strings

By default, logical field results will print or display as **T** for True and **F** for False. To specify a different string for either True or False, select Options ⇒ Default Settings. In the Logical Strings box, either open the menu and select a string or enter the string (up to a maximum of 15 characters) in the data-entry area.

## Changing File Write Access Setting

If you are running Report Designer on a network, database users might try to access the tables and indexes used by your report. By default, the "Allow Other Users to Update Database Tables in Use by R&R" setting is on — that is, Report Designer allows database users to access and modify files being used by a report. This setting is useful in instances where you want database users to be able to update files while you are reporting on them.

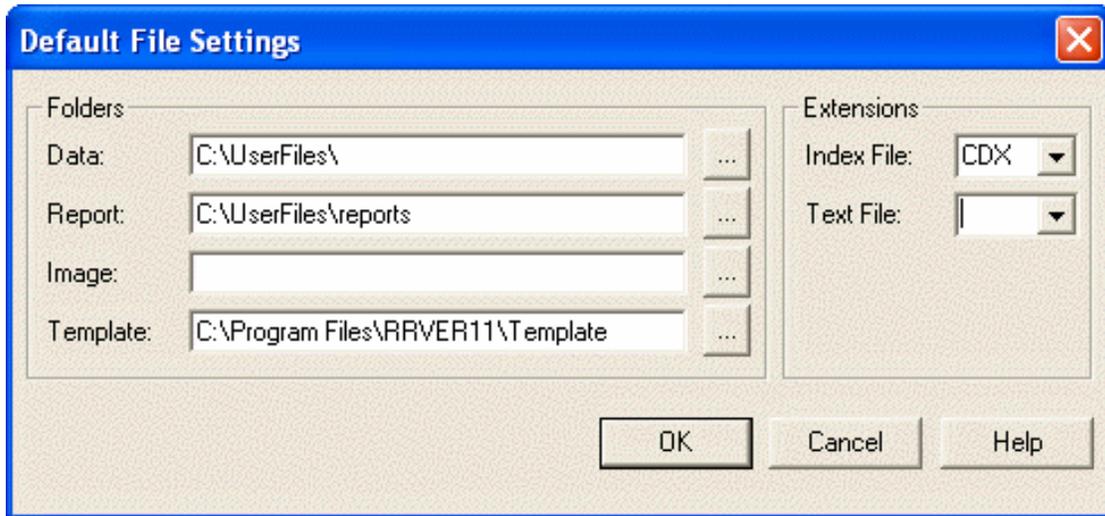
If you do *not* want users to have access to files being used to run a report, turn the "Allow Other Users to Update" setting off. As a result, database users will be prevented from changing tables and indexes used by a report while the report is being generated. Other Report Designer users will still have access to those files.

**Specifying Default Directories and Extensions**

## Specifying Default Directories and Extensions

You use the Options ⇒ File Settings dialog (see Figure 5.5) to specify the following:

- Folder locations for your data, report, image, and template files;
- File-name extensions for your index and text memo files;



**Figure 5.5 Default File Settings Dialog**

Changes you make to these settings are written to RRW.INI and take effect for the current session and all future sessions.

*Specifying Data, Report, Lookup, Image, and Template Folders*

## ***Specifying Data, Report, Image, and Template Folders***

Use the Options ⇒ File Settings dialog to specify a default data, report, image, or template folder. Initially, if no defaults are defined Report Designer looks for all files in the current folder.

You can specify default locations so that Report Designer will search in the following locations for the files it needs:

- Data: Location of tables, indexes, and text files
- Report Directory: Location of report files
- Image: Location of bitmapped image files
- Lookup: Location of parameter lookup files
- Template: Location of template report files

To set a default for each of these directories, select Options ⇒ File Settings. Then select the directory path using the button to the right of the field you wish to change. When complete, select OK. Changes made will be written to RRW.INI.

### ***Default Data Folder***

To specify a default folder in which Report Designer will search for all data files used by a report (for example, tables, indexes, and text files), select full directory path in the Data Folder box.

This setting is stored in the [Defaults] section of the RRW.INI as:

DataDir=<path>

### ***Default Report Folder***

To specify a default folder in which Report Designer will search for and store report files, select the full directory path (for example, c:\rrw\reports) in the Report Folder box. The folder you specify provides the list of report files that displays when you are opening or saving a report.

This setting is stored in the [Defaults] section of the RRW.INI as:

LibDir= <path>

### ***Default Image Folder***

Specify a folder where Report Designer will initially search for bitmapped image files when you select Insert ⇒ Picture (or the Picture button).

This setting is stored in the [Defaults] section of the RRW.INI as:

ImgDir=<path>

## ***Default Lookup Folder***

To specify a default folder in which Report Designer will initially search for dynamic parameter lookup tables, select the full directory path (for example, c:\rrw\reports) in the Lookup Folder box.

This setting is stored in the [Defaults] section of the RRW.INI as:

LookupDir=<path>

When a report is executed, R&R will search for any dynamic parameter lookup tables using the following search rules:

The saved location of the lookup table

The Default Lookup folder specified in the RRW.INI file

The current report directory.

### ***Default Template Folder***

Specify a folder in which Report Designer will look for and save report templates.

This setting is stored in the [Defaults] section of the RRW.INI as:

TemplateDir= <path>

## *Specifying Index and Text File Extensions*

## ***Specifying Index and Text File Extensions***

You can use the Default File Settings dialog box to specify default file-name extensions for index, and text files. As a result of setting defaults for these file extensions, Report Designer will initially search for and display only files with the default extension when you are selecting an index, or text file.

## ***Default Index File Extension***

If you set a default index file-name extension, initially only files with that extension display when you are selecting index files in the Database ⇒ Master Table or Database ⇒ Relations dialog boxes. You can override the default by specifying a different file type in the dialog box or by typing the full name and path.

Report Designer supports the following index extensions: *cdx*, *idx*, *mdx*, *ndx*, *nsx*, *ntx*, and *wdx*. You can use **?** as a wildcard in specifying a default (for example, entering **?dx** will cause Report Designer to display files ending in *dx*).

If you don't set a default extension, Report Designer initially displays files with *ndx* extensions.

This setting is stored in the [Defaults] section of the RRW.INI as:

IndExt=

### ***Default Text File Extension***

The default memo file-name extension you specify controls which files display for selection when you use the Insert ⇒ Text File command to include a text memo file in a report. For example, if the text memo files you will be using in reports have TXT extensions, specifying TXT as the Memo File Extension ensures that Report Designer will initially display files with a TXT extension when you are selecting a text memo file.

This setting is stored in the [Defaults] section of the RRW.INI as:

MemExt=

**Changing Regional Settings**

## Changing Regional Settings

Report Designer uses the Regional settings currently set in your Windows configuration. These settings include the following:

- Unit of measurement (inches or centimeters)
- Date format
- Currency format
- Number format

Since all Regional settings are controlled by the Windows configuration at the time of report creation, you must use the Regional Settings option on the Control Panel to change any of these settings. See your Windows documentation for instructions. The following sections explain the effects of Windows Regional settings on layout display and field formats.

Note that any changes that are made in the Windows control panel while a report is open in the designer will be inherited by that report and will be preserved when the report is saved.

## Unit of Measurement

The unit of measurement used by Report Designer (inches or centimeters) is determined by your Windows configuration. The Windows "Measurement system" setting determines whether the following will display in inches or centimeters:

- Horizontal position indicator in Report Designer Status Bar
- Margin settings
- Character field width setting specified with Format ⇒ Properties
- Line height
- Record width/height
- Image dimensions

## **Date, Currency, and Number Formats**

The Windows Regional Date, Currency, and Number format settings determine the initial field formats for date and numeric fields. You can change field formats within Report Designer using Format ⇒ Properties.

In Version 10 you can also define default date and number formats for specific fields using the Data Dictionary editor that will override the defaults set here.

Note that the "Position of currency symbol" and "Negative number format" settings in the Windows Regional Currency dialog must be consistent — that is, if you select a currency setting that specifies a trailing symbol, you must also select a negative number format that specifies a trailing symbol.

## Modifying Case Sensitivity

## Modifying Case Sensitivity

By default, Report Designer does not distinguish between upper- and lower-case letters when sorting or comparing character data in Database ⇒ Sort Order and Group Order operations, queries, and calculations (that is, these operations are *case insensitive*).

To change this default behavior for sorting and comparing character data, use any text editor to edit RRW.SRT, the file that controls Report Designer's case sensitivity. This file resides in the Report Designer program directory. Directions for editing the file are contained within the file itself.

Note that database relations are not affected by the case sensitivity setting in RRW.SRT. Database relations that use character linking fields are *always* case sensitive.

## The RRWHANDLES Environment Variable

## **RRWHANDLES setting**

By default R&R allows for 55 files to be to be open simultaneously in a report. This limit is generally sufficient for almost all reports. However if you are creating a complex report with many related tables, you may get an "Insufficient file handles" error. You can increase this limit by adding an entry to the RRW.INI file. This entry goes in the [Special] section of this file and takes the format RRWHANDLES=n where n is the maximum number of files that can be open at the same time.

Example:

To increase the available files to 300, in your RRW.INI add the following:

```
[Special]
```

```
RRWHANDLES=300
```

If your RRW.INI does not contain a [Special] section, you can add it to the end of file along with the RRWHANDLES line.

## Chapter 6 Selecting Data Files

## ***Introduction (Selecting Data Files)***

This chapter explains how to select and control the files that provide data for your report. Using the Database menu options, you can relate tables for multi-table reports, change the master table selection, and specify a database scope to limit the records that Report Designer retrieves.

The explanation of selecting data files is presented in the following sections:

- Types of Database Relations
- Specifying Database Relations
- Modifying Database Relations
- Defining Scan Groups
- Sample Database Relations
- Specifying Database Scope
- Changing the Master Table
- Selecting or Changing a MasterIndex
- Working with DBC Container Files

In addition to drawing information from the master table, reports can draw information from up to 99 additional tables, called *related tables*, that are joined to the master table or to each other.

To generate a report that draws information from more than one table, you first define database relations among the tables you want to use.

In any database relation, the table used to initiate the relation is called the *controlling table*; the other table is called the *related table*.

After you select a related table, you also select a related index file that indicates what record or records in the related table contain the same data as the controlling table linking field. Report Designer uses this index as a cross-reference to the related table. If you do not have an available index, you can create one on the fly using R&R's FlexLink feature.

## Types of Database Relations

## **Types of Database Relations**

Three types of database relations are available in Report Designer: Exact Lookup, Approximate Lookup, and Scan. In addition, as an alternative to setting database relations you can create calculated fields that use Report Designer's lookup functions to extract single field values from other tables. The following sections explain each relation type and briefly describe the lookup functions.

## Exact Lookup Relations

In an exact lookup relation, there is a one-to-one relationship between records in the linked tables. In other words, Report Designer uses each record in the controlling table to search for one and only one corresponding record in the related table (even if there are potentially other matching records in the related table). The resulting relationship increases the number of fields in the composite record structure, but not the number of composite records.

For example, you could set an exact lookup relation between an orders table and a customer table (using a customer number linking field) to have Report Designer match each customer number in the orders table with its associated customer information (e.g. name and address) in the customer table.

Exact lookup relations can be based on any type of field except a logical or memo field.

An exact lookup is the default value when a new relation is created. This may not be appropriate for all reports. If you want to create a one to many relation, you need to select Scan as the relation type rather than exact lookup.

## Approximate Lookup Relations

The second type of relation is an approximate lookup, also a one-to-one matching of each record in the controlling table with a single record in the related table. In this case, however, Report Designer locates the first record whose index value is equal to or greater than the linking field value. The resulting relationship also increases the number of fields in the composite record structure, but not the number of composite records.

For example, suppose you have a discounts table and an orders table and you want to assign price discounts based on the quantity of items ordered. The orders table has a QUANTITY field containing total number of items for each order; the discounts table has a MAXQTY field that sets the maximum values for various quantity ranges to establish discounts based on quantity ordered. If you set an approximate lookup relation between the discounts and orders tables using QUANTITY as the linking field, Report Designer will search for the MAXQTY value that is equal to or greater than each QUANTITY value and assign the appropriate discount based on that match.

Approximate lookup relations can be based on any type of field except a logical or memo field.

## Scan Relations

The third type of relation is called a scan. In this case, there is a one-to-many relationship between table records. In other words, Report Designer uses each record in the controlling table to search for all the corresponding records in the scanned table. The resulting relationship usually increases the number of composite records, as well as the number of fields in the composite record structure.

For example, suppose you have an employee table and a dependents table. You can set a scan relation to have Report Designer search for all dependents records associated with each employee number in the employee table.

Scan relations can be based on any type of field except logical or memo.

## Single-Field Lookups

As an alternative to setting database relations, you can use Report Designer's lookup functions — CLOOKUP( ), DLOOKUP( ), DTLOOKUP( ), LLOOKUP( ), and NLOOKUP( ) — to retrieve values from a single field in another table. To do so, you create a calculated field using the appropriate function to return values from a character, date, logical, or numeric field. Then, instead of setting an exact, full-match relation to the other table, you use that calculated field to retrieve the value of the single field.

For example, suppose you are developing an invoice report using RRORDERS as the master table. Without setting a database relation, you could retrieve the value of the PRICE field in the RRPRICES table by creating a calculated field whose expression uses NLOOKUP( ). For more information about the lookup functions, see Chapter 10, "Using Functions."

**Specifying Database Relations**

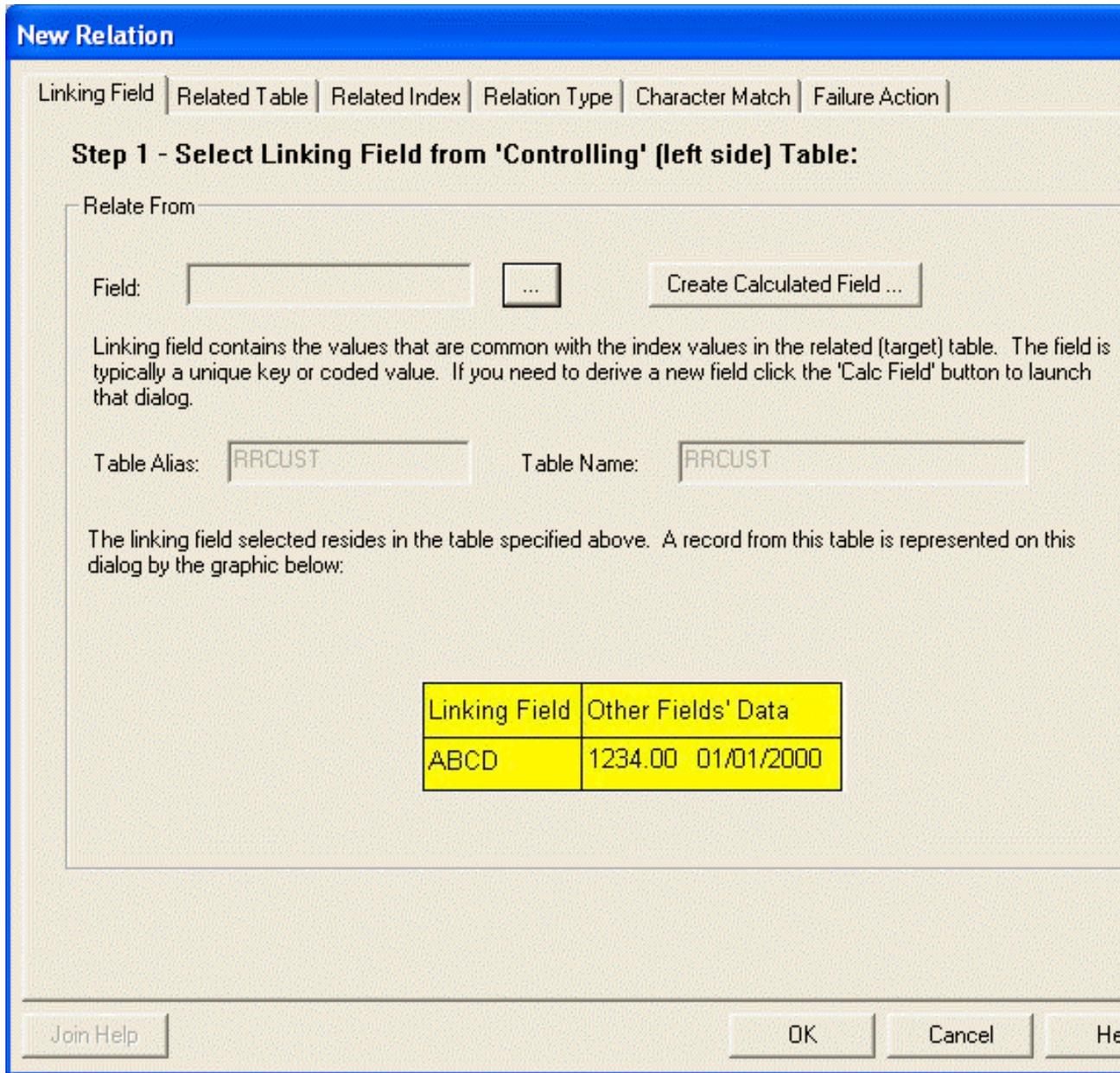
## Specifying Database Relations

You use the Database ⇒ Relations command or the Relate button on the Standard Toolbar to set or edit relations between tables. These relations define the composite record structure, making all fields in each table available for your report. The database relation dialog contains numbered areas to walk you through the process of building a relation.

To establish a database relation for a report:

1. Select Database ⇒ Relations or the Relate button.

If no relations have been previously set for the report, the New Relation dialog box appears. If one or more relations have already been defined, the Relations dialog appears; select New to display the New Relation dialog (see Figure 6.1). The New Relation dialog contains one tab for each step in the relation process.



**Figure 6.1 New Relation Dialog Box**

2. In the **Linking Field** tab, use the select field button to select a linking field from the menu of fields in the current composite record structure. Report Designer allows you to use any of three types of linking fields:
  - A data field from the controlling table that contains the same data as the field or expression used to index the related table.
  - A calculated field based on the data in the controlling table. The value of this calculated field must also be the same as the value of the field or expression used to index the related table. You can use the Calc button to the right of the field box if you determine that you need to create a new calculation. This will bring you to the Calculated Field dialog where you can click the New button to create a new calculation. When you close

the Calculations dialog you will be returned to the Edit Relation dialog where you can then select the newly created field from the field list.

- A total field based on the data in the controlling table. The value of this total field must also be the same as that of the field or expression used to index the related table.
2. In the **2) Related Table tab**, press the Select Related Table button to select the related table. You can accept the default alias (which is the table name without its file extension or if you have defined an default alias in the Data Dictionary, it will be that dictionary alias.) or you can type in an up to 8 character unique alias name.
  3. In the **3) Relate Index tab**, you then select the Relate Through option that will be used for record matching. There are three ways to establish a relation link:
    - **Relate through an existing index**

Choose the Predefined related table option button to specify a link based on an index file. Then use the select related index button to choose an index whose key expression corresponds to the initial linking field. Report Designer will use this index to access data in the related table. For a compound index file (such as an MDX or CDX), you must also select a tag name from the available drop down list. Each tag provides a different index expression so you need to select the expression that matches the selected linking field. The index key box allows you to scroll horizontally if you have a index key whose value is longer than the display box. If your linking field will only match the first part of an index expression, you will also need to use the Character Match tab to specify a partial length.
    - **FlexLink**

It is possible that the related table that you have selected may not have an available index for the field(s) containing that are common to the relate from file. For this situation, you can select the FlexLink option button. This will tell Report Designer to build a FlexLink index for you. A FlexLink index is an index file with the extension .RRX or .IDX that is created in a \windows\temp subdirectory. After selecting the FlexLink button, you will then need to click the Edit Flexlink Key button. This will bring you to the Define Index Expression dialog so you can create the index expression whose value will be used to match the linking field from the relate from file.

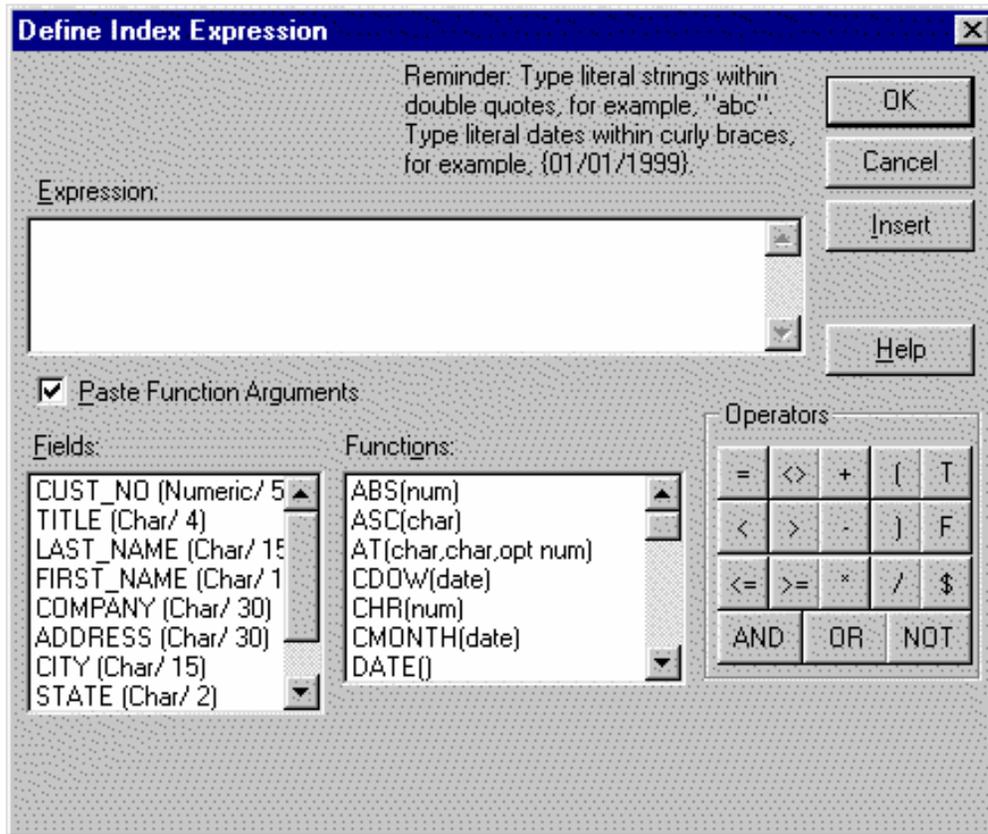
The Define Index Expression dialog is similar to the Calculated Expression box but with some differences. The field list is limited to the fields from the Relate To table and includes the data type and field length along with the field name. The function list is only a subset of all available R&R functions.

Insert a field name by double-clicking on an item in the Fields list; insert a function by double-clicking on an item in the Functions list; insert an operator by selecting the Operator buttons.
    - **Record number link**

For an Exact-Lookup relation based on a numeric linking field, you can specify a record number link instead of an index file to match each record in the controlling table with a specific record in the related table. If you specify a record number link, Report Designer uses the integer part of the linking field's value to locate the matching record in the related table. To use a record number link, select the Related table record number option button.

Once you have defined an index expression, select OK to return to the Relation dialog. Note that the index will be built when the report is actually processed. If you save a report that uses a FlexLink index, that index will be rebuilt each time

the report is opened or printed.



**Figure 6.2 Define Index Expression Dialog**

In the **4) Relation Type Tab** Select the Relation Type: Exact-Lookup, Approximate-Lookup, or Scan.

In an exact lookup relation, there is a one-to-one relationship between records in the linked tables. In other words, Report Designer uses each record in the controlling table to search for one and only one corresponding record in the related table (even if there are potentially other matching records in the related table). The resulting relationship increases the number of fields in the composite record structure, but not the number of composite records.

The second type of relation is called a scan. In this case, there is a one-to-many relationship between table records. In other words, Report Designer uses each record in the controlling table to search for all the corresponding records in the scanned table. The resulting relationship usually increases the number of composite records, as well as the number of fields in the composite record structure.

The third relation type is an approximate lookup. It is a one-to-one matching of each record in the controlling table with a single record in the related table. In this case, however, Report Designer locates the first record whose index value is equal to or greater than the linking field value. The resulting relationship also increases the number of fields in the composite record structure, but not the number of composite records.

3. The **5) Character Match Tab** applies only to character linking fields; the default Character Match setting is "Full." As a result, Report Designer

matches the entire length of the linking field value to the entire length of the related index key value.

If the related index is longer in length than the linking field or you only want to match a certain number of characters from the linking field to that same number of characters in the index key, select "Partial, Length" in the Character Match box. In the data-entry box, enter the number of characters to match. Partial-match indexes are required when the linking field is only the first part of the index key of the related file. For example, a 10-character linking field of LNAME would require a 10-character partial match if the index key of the related file were LNAME+DEPTNAME.

4. The **6) Failure action Tab** determines what happens if the linking field value does not match any value in the related table index. In that case, Report Designer executes the *failure action* (that is, an action to follow if it doesn't find a matching record in the related table) that you specify. There are 3 choice for failure action.
  - **Blank:** if Report Designer doesn't find a match between the controlling table linking field and the related table linking field, it creates the composite record anyway, leaving fields from the related table blank for that record. This is the default value when you create a new relation.
  - **Skip:** When it does not find a matching record, Report Designer eliminates the entire composite record from the report.
  - **Terminate:** When it does not find a matching record, Report Designer stops processing the report and notifies you of the failure.

The following sections provide examples of how each failure action might be used.

**Blank Failure Action:** Suppose you have defined a Scan relation between an employee table and an employee dependents table. For those employees who have no dependents, you still want to print the employee information; therefore, you would select "Blank" as the failure action.

**Skip Failure Action:** In an invoice report, suppose you have defined a Scan relation between a customer table and an orders table. You might select "Skip" as the failure action so that Report Designer will print invoices only for those customers who have placed orders. Report Designer simply leaves out any composite record that has no order data.

**Terminate Failure Action:** In an invoice report that has an Exact Lookup relation from a customer table to an address table, you want Report Designer to stop processing the report if it finds a customer for whom there is no address. Therefore, you might select "Terminate" as the failure action.

Once you have completed your choices for each relation component, select OK. Report Designer displays the Relations dialog, which includes a plain-English description of the relation. Select Close.

## Join Help

The Join Help button on the right of the dialog can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian.

## Modifying Database Relations

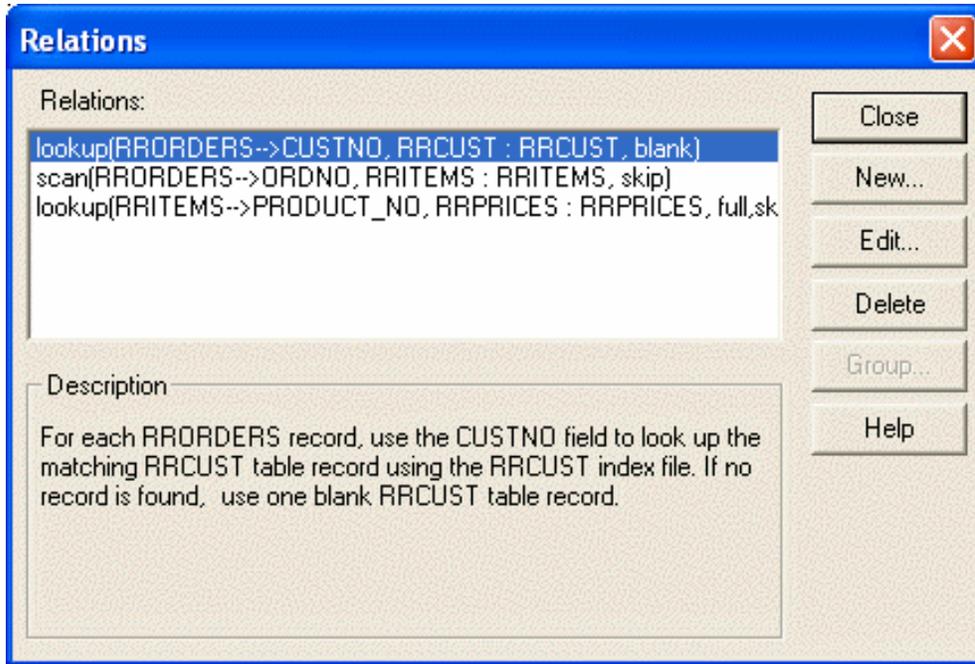
## **Modifying Database Relations**

After you have set one or more database relations, you can modify any of them as necessary to change the relation type, select a different linking field, and so on. You can also delete existing relations.

## Editing a Relation

To edit a relation:

1. Select Database ⇒ Relations to display the Relations dialog (see Figure 6.3).



**Figure 6.3 Database Relations Dialog**

2. Highlight the relation you want to change and select Edit to display the Edit Relation dialog (which is the same as the New Relation dialog).
3. As necessary, select the controlling table, related table, and so on (follow the instructions given in the previous sections). When you are finished editing the relation, select OK.

## Deleting a Relation

To delete a relation:

1. Select Database ⇒ Relations.
2. Highlight the relation you want to remove; then select Delete. If fields will be removed from the report definition as a result of deleting the relation, Report Designer lists those fields.
3. Select OK to delete the relation and remove the fields that are dependent on that relation; select Cancel to retain the relation and the fields.

If the related table controls another relation, Report Designer will not allow you to delete the selected relation. In this case, you must first delete the secondary relation.

## *Case Sensitivity in Database Relations*

## ***Case Sensitivity in Database Relations***

If your database software treats character field links case-sensitively, Report Designer distinguishes between upper and lower case data when relating tables. For example, Report Designer will not recognize a match between an employee name stored as Smith in an employee table and the same employee stored as SMITH in a benefits table. If related tables use upper and lower case inconsistently, create a calculated linking field to convert letters to uppercase and link to an uppercase index.

Assume that you want to relate two tables (EMPLOYEE and BENEFITS) that both contain the LASTNAME field in any combination of upper and lower case letters. To relate the tables, first define a calculated field called UPLAST using the expression UPPER(LASTNAME). Use the UPLAST calculated field to link the Employee and Benefits tables using an index on the employee name in uppercase. The UPPER function will convert the LASTNAME field from the employee table to uppercase letters and find the match in the uppercase index.

**Defining Scan Groups**

## **Defining Scan Groups**

A scan group consists of two or more tables scanned by the same controlling table or by a table related to the controlling table by a lookup relation. After you have set the scan relations that make up the group, you select Group on the Relations dialog box to determine the order in which the tables will be scanned and the action Report Designer will take if no matching records are found in any of the tables in the group.

## Determining Scan Order

To determine the order in which tables in a scan group will be scanned, display the current database relations by selecting Database ⇒ Relations. Next, select Group to display the Scan Group dialog box (see Figure 6.4).

Aliases of the tables in the scan group appear in the Scan Order box; the order of the aliases here initially determines the order in which Report Designer will scan these tables.

To change the scan order, first highlight a table alias. To move the alias up one slot in the list, select "Move Up"; to move it down one slot, select "Move Down." Continue this process until all table aliases for the scan group have been arranged in the desired order.

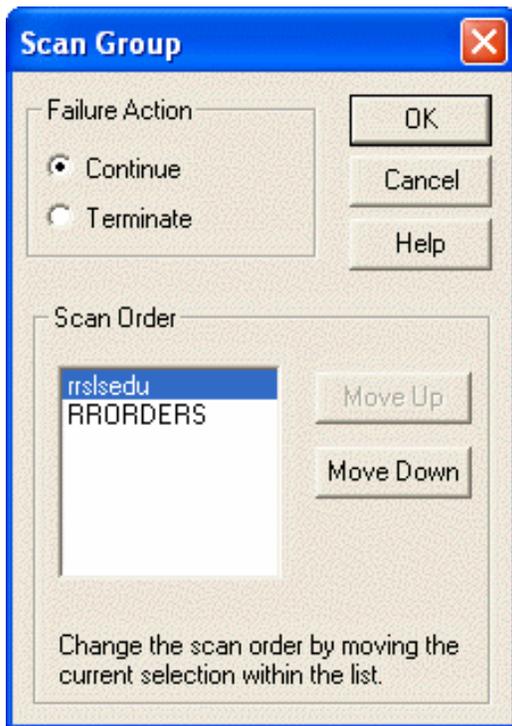


Figure 6.4 Scan Group Dialog Box

## Selecting a Group Failure Action

To tell Report Designer what to do if no matching records are found in any of the tables in a scan group, select either "Terminate" or "Continue" in the Failure Action box. Select Terminate if you want the report to terminate and display an error message when no matching records are found. Select Continue if you want Report Designer to continue under these circumstances. Note that this group failure action supplements rather than replaces the individual failure action specified for each relation.

When you are finished specifying scan order and failure action, select OK to return to the Relations dialog box. Then Select Close.

**Sample Database Relations**

## **Sample Database Relations**

The following sections provide examples of these database relations:

- Relation based on table linking field
- Relation based on calculated linking field
- Relation based on record number link
- Partial relation based on partial character link

## **Table Linking Field**

Assume you are using a database consisting of two tables, RRORDERS.DBF and RRCUST.DBF. The field CUSTNO in the RRORDERS.DBF table contains the same information as the field named CUST\_NO in the RRCUST.DBF table. As a result, you can set a database relation that links these tables and thereby makes all fields in both tables available for use in a report.

To set a relation between RRORDERS and RRCUST, you would use your database software to index RRCUST on CUST\_NO. In Report Designer, you would select RRORDERS as the controlling table, select CUSTNO as the linking field, and select the index file you created.

## Calculated Linking Field

Assume that you have an eight-character field (PRODID) in your controlling table that contains a product identification code. The first four characters of the code represent the product line, and the last four characters represent the product number. A related table is indexed on one field (PRODNO) that contains the four-character product number.

To relate the tables, first define a calculated field, also called PRODNO, with the expression `RIGHT(PRODID,4)`. The expression for this field will extract the last four characters of the PRODID field (those containing the product number). If you select this calculated field as the initial linking field, Report Designer can use it to search for corresponding product numbers using the related table index.

## **Record Number Link**

Assume that the controlling table PARTS.DBF has a numeric field containing the part number for a series of products that are numbered starting with 1, and the related table NAMES.DBF contains a name for every part. If the data in NAMES.DBF is arranged in part number order, with no gaps in numbering, you can use part number as the linking field to NAMES.DBF by selecting "Record Number" as the Link Control (use the Options button on the New/Edit Relation dialog to display the Link Control settings).

As a result, the part number from PARTS.DBF can be used to locate corresponding records in NAMES.DBF.

## Flexlink Indexes

It is possible that table that you want to add to the report may not have an available index whose values will match the selected related from field. For this situation, you can check the FlexLink box. This will tell Report Designer to build a FlexLink index for you. A FlexLink index is an index file with the extension .RRX or .IDX that is created in a \windows\temp subdirectory. After checking the FlexLink box, you will then need to click the Edit Key button. This will bring you to the Define Index Expression dialog so you can create the index expression whose value will be used to match the linking field from the relate from file.

The Define Index Expression dialog is similar to the Calculated Expression box but with some differences. The field list is limited to the fields from the Relate To table and includes the data type and field length along with the field name. The function list is only a subset of all available R&R functions.

Insert a field name by double-clicking on an item in the Fields list; insert a function by double-clicking on an item in the Functions list; insert an operator by selecting the Operator buttons.

Once you have defined an index expression, select OK to return to the Relation dialog. Note that the index will be built when the report is actually processed. If you save a report that uses a FlexLink index, that index will be rebuilt each time the report is opened or printed

## Partial Link

For any database relation that uses a character linking field, you can create a partial match relation that matches data in the initial linking field with part of the data in the index key expression.

For example, assume the related table, PARTS.DBF, contains a field consisting of a subassembly code followed by the actual part number (for example, sss-ppppp, where sss represents the three-character subassembly code). The controlling table, CONTROL.DBF, contains a field with only the subassembly code. If you set a partial relation with a match length of 3 characters, Report Designer can select records based on the partial match between the three-character subassembly code and the first three characters of the part number.

**Specifying Database Scope**

## Specifying Database Scope

You can use the Starting and Ending Scope boxes of the Master Table dialog to select a range of records for Report Designer to read in the master table. By specifying a range of index values or record numbers, you can tell Report Designer to read only selected records in the master table. This method is useful when using a large master table, and it produces a report more quickly than selecting records with a query.

To specify a scope:

1. Select Database ⇒ Master Table or the Master Table button on the Standard Toolbar to display the Master Table Dialog.
2. By default, "Beginning of table" and "End of table" are selected as the starting and ending scope values. To limit the records that Report Designer reads from the master table, select "Start value" and "End value" in the Starting Scope and Ending Scope group boxes.
3. Enter a starting value and an ending value to specify the range of records.
4. If no master index has been selected for the report, you can enter record number scope values. If the report *does* have a master index, the data type of that index determines what scope values you can use:
  - A number for a numeric index;
  - A character value (without quotes) for a character index;
  - A date for a date index.

The range fully includes the end points. In other words, if you enter A as the low value and M as the high value, Report Designer reads the first record in which the value begins with A through the last record in which the value begins with M.

**Hint:**

If you have a character index and want to set a scope that matches only on the initial character, enter that character as the low scope and then for the high scope, enter that same character followed by a ? character.

5. Instead of entering explicit starting and ending values, you can alternatively select the Parameter radio button and then select a Parameter field. This will allow scope values to be dynamically determined at runtime.
6. Select OK. When you run the report, Report Designer retrieves only those records that fall within the range of the specified scope values.

Note that you can leave the Start value blank to have the scope begin with the first value in the index field or leave the End value blank to have the scope extend through the last value in the index field.

## Combining Scope, Master Index, Sorting, Query

You can use a combination of master index and scope to limit the number of records to be sorted when you specify sort fields. Also, when you query on a table that you have limited with a scope, Report Designer selects only records that match the query *and* that lie within the scope.

For example, if your customer table is indexed on LASTNAME, you can quickly focus on a group of records between Davis and Jones by specifying a low scope of Davis and a high scope of Jones. Then any specified sort affects only the records between Davis and Jones. Also, any query you set applies to only the records within the scope. Assume the records that fall within the low and high scope values of Davis and Jones are the following:

Davis  
Drummond  
Eagleton  
Frank  
Frederick  
Grant  
Hall  
Hammond  
Jasper  
Jenkins  
Jones

If you select LASTNAME as the Level 1 Sort field and then select descending order, Report Designer sorts only the records listed above, producing them in the following order:

Jones  
Jenkins  
Jasper  
Hammond  
Hall  
Grant  
Frederick  
Frank  
Eagleton  
Drummond  
Davis

If you then define a query that uses "in the list" with the values Adams, Baker, Hall, and Jones, Report Designer selects only the records for Jones and Hall.

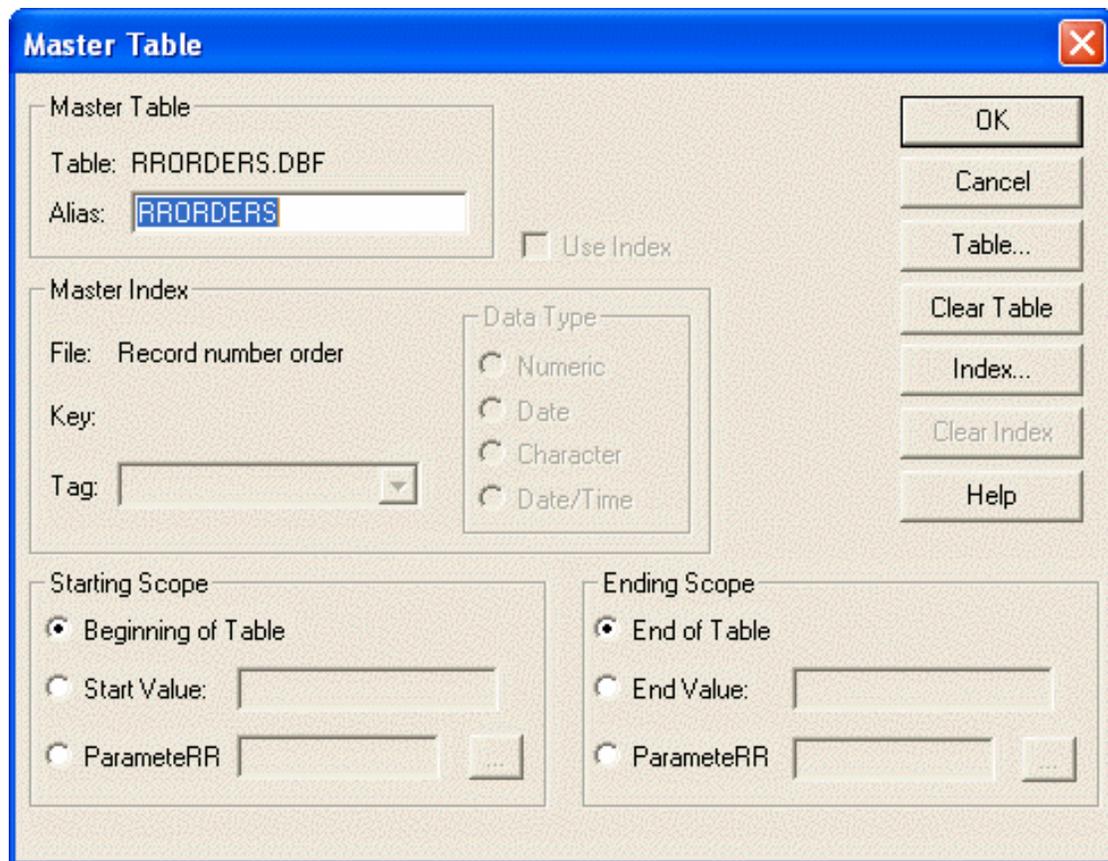
**Changing the Master Table**

## Changing the Master Table

The table that serves as the initial source of data for a report is called the *master table*; you select this table when you first create a report. Using the Database ⇒ Master Table dialog, you can select a different master table for the report.

To replace the current master table, select Database ⇒ Master Table to display the Master Table dialog box. Then follow these steps:

1. Select Table and then either enter or select a table name in the File Name list box (if necessary, change the drive and/or directory to select from a list of tables in a different location).
2. In the Alias edit box enter a master table alias, a name Report Designer uses to uniquely identify the master table. You can accept the default value or enter an alternative alias. You are required to use an alternative alias only if another table or memo file used in the current report has already been assigned the default alias.
3. Select Set Index to choose a master index (or change the currently selected index) in the Master Index group box. Then select OK.



**Figure 6.5 Master Table Dialog Box**

The structure of the new master table should match that of the master table it is replacing. If fields from the old master table are not in the new one, those fields

will be removed from the report. If changing the master table will remove fields from the composite record structure, those fields are listed. Select OK to change to the new table (and remove the listed fields); select Cancel to retain the former table.

**Selecting or Changing a Master Index**

## Selecting or Changing a Master Index

When you first select a master table, Report Designer processes data from that table in record number order — that is, in the order that the data was entered in the table. Although you can use Database ⇒ Sort Order to select a field or fields to control the order in which data is read, in some cases specifying an index eliminates the need for sorting.

When you select a master index, that index's key expression determines the order in which Report Designer processes data from the master table. A report sorted by means of a master index will run faster than one with sort fields selected, since Report Designer does not have to do the sorting. Also, you can use a master index selection in conjunction with scope settings on the Master Table dialog to narrow the range of records that must be read and thereby speed report generation. (Note that selecting a Sort field will override any master index order.)

## Selecting a Master Index

To select a master index file, follow these steps:

1. Select Database ⇒ Master Table to display the Master Table dialog box. If no index is currently selected, "Record number order" appears next to "File:" in the Master Index Group box.
2. Select Set Index. Select an index file from the File Name list box; if necessary, select a different file extension from the "List Files of Type" box to display only files of a particular type (for example, MDX multiple index files). If you have selected a multiple index file, you can also select an index tag from the Tag list box.
3. Verify that Report Designer has selected the appropriate data type for the index you specified; if necessary, change the data type selection. Then Select OK.

## Changing a Master Index Selection

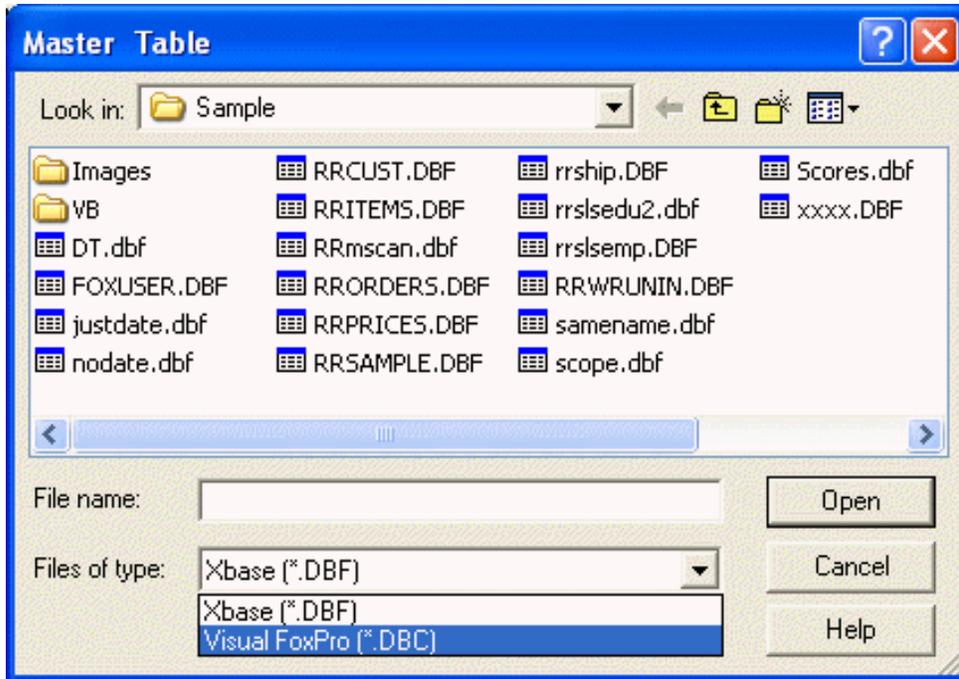
To select a different master index (if one has already been specified) or to clear an index selection, do the following:

1. Select Database ⇒ Master Table. The name of the currently selected master index is displayed in the Master Index group box.
2. To clear the index selection and return to record number order, simply select Clear Index. To select a different index, select Set Index. Then select an index from the File Name list box. If you select a multiple index file, you can also select a tag.
3. If you chose a different index, verify that Report Designer has selected the appropriate data type; if necessary, change the data type selection.
4. When you are finished, select OK.

## Working with DBC Container Files

## Working with DBC Container Files

When you are selecting the master table for a report, the default "Files of type" selection is Xbase (\*.DBF). You can, however, click the arrow on the right and select Visual FoxPro (\*.DBC) to select report tables from a Database Container file.

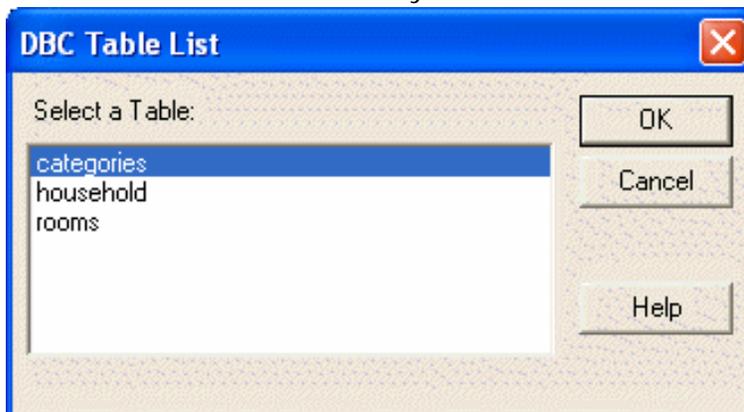


**Figure 6.6 Visual Fox Pro File Type Selection**

Database containers are file structures that contain a collection of database tables and indexes. Tables within DBC containers can use long (up to 128 character) field names.

If your database application uses DBC files, it may be more convenient in R&R to create a DBC-based report, particularly if you want to use the long field name support.

When you select a DBC as the master file, R&R then presents a list of tables contained within that DBC for your selection.

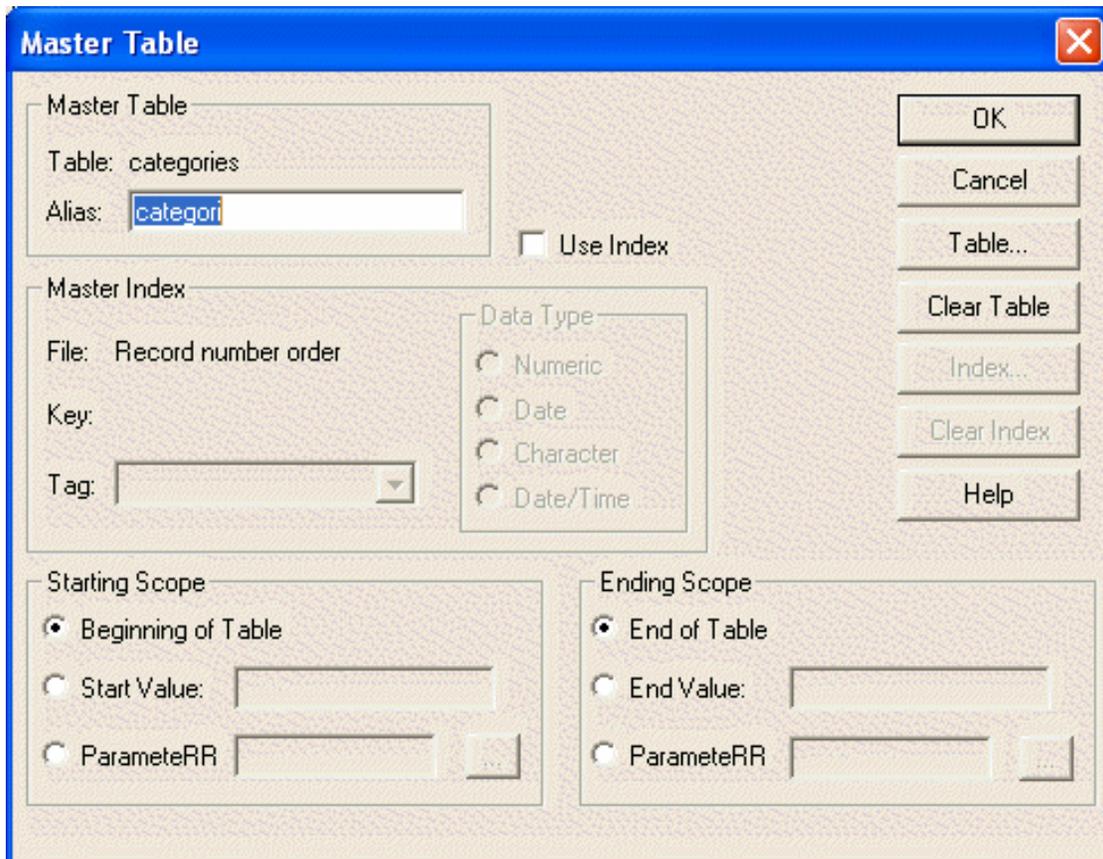


**Figure 6.7 DBC Table List**

The DBC master file list contains only those table names that are defined within

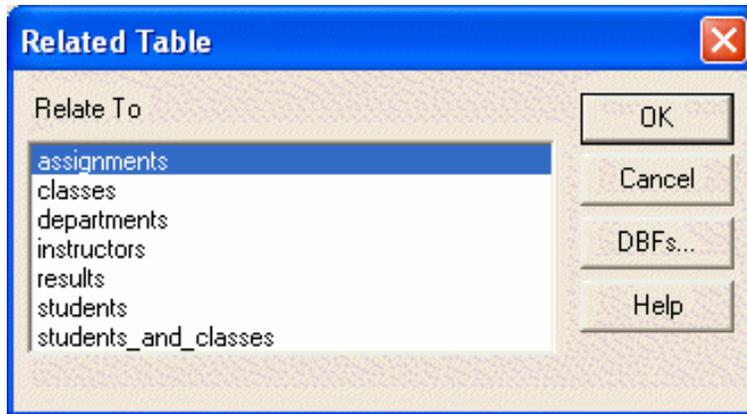
that DBC. Note that the table list does not display complete path names. When you have selected your master table from a DBC, the Index and Clear Index buttons are disabled in the Master Table dialog. Instead there is a Use Index checkbox. When this box is checked, R&R will use the index that was defined for that table within the FoxPro DBC. For compound indexes, you can select any of the available tags.

Scope is available for DBC-based master tables just as it is for a standard DBF-based report.



**Figure 6.8 Master Table Dialog for DBC-Based Report**

When you build a relation using a DBC master table, the Select Related Table dialog displays the listing of tables in the DBC as it did when the master table was selected.



**Figure 6.9 Related Table List for DBC-Based Report**

There is also a button on the Related Table dialog that says DBFs.

Clicking this button will bring you to a Files dialog so that you can select a table that is not located within the DBC structure.

If you do choose from the DBC list, the Select Related Index button will be dimmed and the index that was defined for that table in the DBC will be pre-selected.

All other related file elements will function the same for a DBC-related file as they would for a free table DBF-based relation.

You can edit a report that uses a DBC master file and change it to use a conventional DBF or you can alternatively edit a DBF based master file report to use a DBC master file. You cannot use a DBC as a related file, however.

Note however that if you switch from a DBC to DBF, any long field names that were available for the DBC will be converted to their 10-character equivalents when you switch to using a DBF.

## Chapter 7 Working with Calculated Fields

## ***Introduction (Calculated Fields)***

This chapter explains how to develop and use calculated fields. This information is presented in the following sections:

- Creating a Calculated Field
- Modifying a Calculated Field
- Copying a Calculated Field
- Purging Unused Calculated Fields
- Calculated Field Expression Syntax

Report Designer enables you to create fields called calculated fields whose values are calculated as a report is generated, rather than being stored in the database. After you have defined a calculated field, you can:

- Insert it on a report layout
- Use it as a linking field
- Use it as a sort or group field
- Include it in a report query
- Use it in other calculated or total field expressions

Here are just a few examples of how you can use calculated fields:

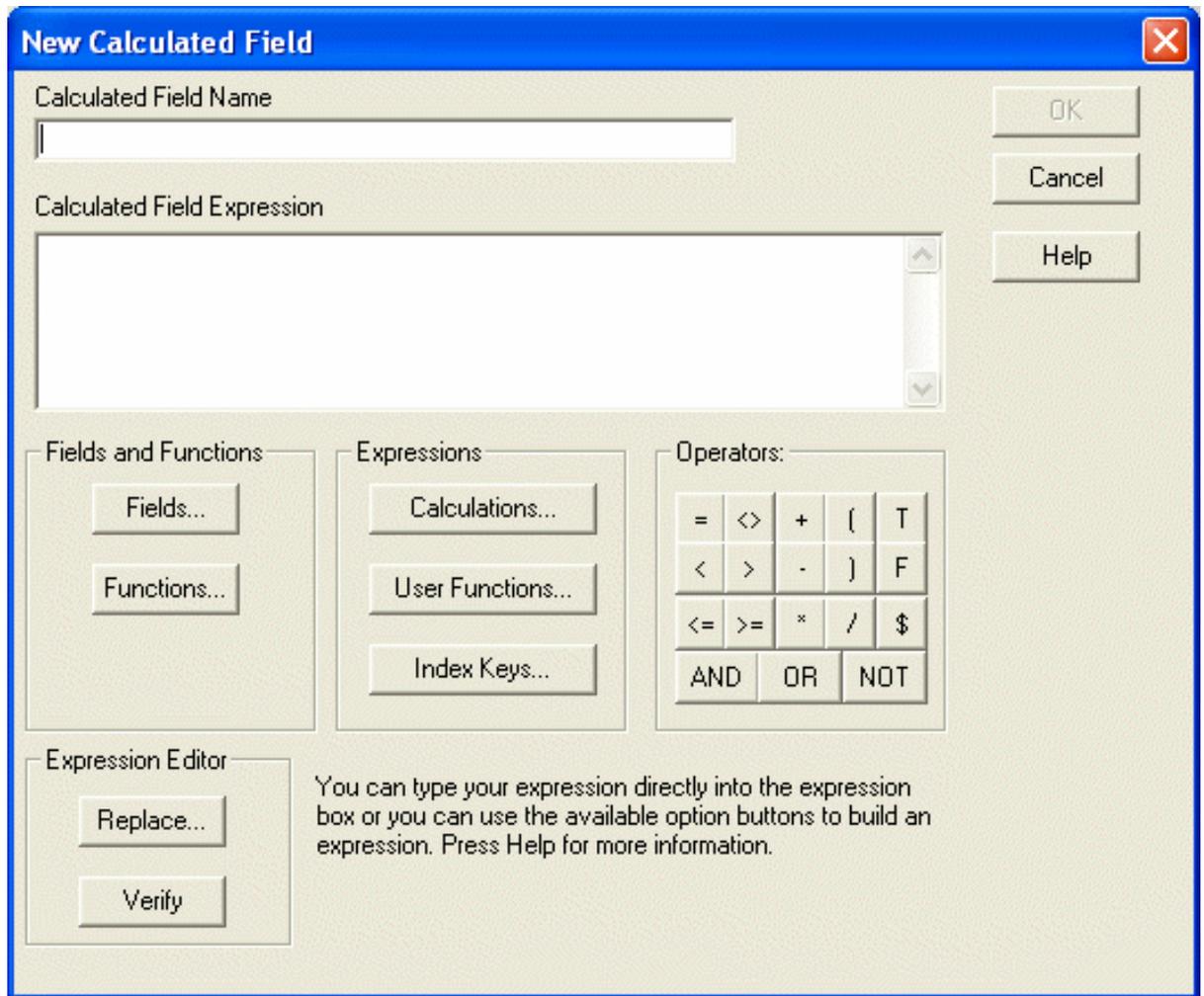
- In an invoice report, you can create a calculated field that multiplies the value in a PRICE field by the value in a QUANTITY field to provide a line item total.
- In a personnel report, you can create a calculated field that concatenates the values in the FIRSTNAME and LASTNAME fields. You can use this field as a linking field to establish a relation with a table that has a combined NAME field.
- In an accounts receivable report, you can create a calculated field that subtracts the value in a DUE DATE field from the value in a TODAY field. You can use this field in a query to print a report of all invoices more than 30 days outstanding.
- In a sales report, you can create a calculated field that computes monthly sales and use that field in creating various total fields to provide summary information for the year.

**Creating a Calculated Field**

## Creating a Calculated Field

To create a new calculated field:

1. Select Calculations ⇒ Calculated Field or click the Calc button on the Standard Toolbar. If no calculated fields have been defined for the current report, the New Calculation dialog appears. If one or more calculated fields have already been defined, select New in the Calculated Fields dialog to display the New Calculation dialog (see Figure 7.1).



**Figure 7.1 New Calculation Dialog Box**

2. In the Calculated Field Name edit box, type a valid R&R field name.
3. In the Expression edit box, define the expression using any combination of the following methods:
  - Type all or part of the expression directly in the Expression edit box.
  - Insert a **field name** by selecting the Fields... button to bring up the field list.
  - Insert a **function** by selecting the Fields... button to bring up the Functions

- list.
- Insert an **operator** by selecting the Operator buttons.
  - Insert an **existing calculated field expression** or the **conditional expression** for an existing conditional total by selecting the Calc Expression button to display the Calc Expression dialog.
  - Insert a **user-defined function** formula by selecting the User Function Formula button to display the User Functions dialog.
  - Insert an **index key** expression by selecting the Index Key button to display the Key Expression Dialog box.
  - Use the **Replace** button to display the Replace calculated expression dialog. This allows you to find and replace text within the current calculated expression.
4. Select the **Verify** button to determine whether the expression syntax is correct. Report Designer displays a message box describing what, if any, syntax errors it found in the expression.
  5. When the expression is correct, select OK. Once the field is created, you can then drag it directly from the Calculated Field dialog to the report layout.

## **Entering a Field Name**

In the "Calculated Field Name" edit box, enter a field name of up to 30 characters. The name can contain letters, numbers, or the underscore character; it must start with a letter. The field name must be unique within the report and cannot contain spaces.

By using a combination of upper and lower case, you can enter calculated field names that are easily distinguishable from the names of table fields.

## *Entering a Field Expression*

## ***Entering a Field Expression***

Enter the expression for a calculated field using either or both of the following methods:

- Type the expression directly in the Expression edit box.
- Use the list menus and buttons to select from available fields, functions, operators, calculated field expressions, key expressions, or user-defined function expressions.

The expression for a calculated field is a formula that determines how the field's value is calculated. For example, the value of a calculated field whose expression is `QUANTITY * PRICE` will be the value in the `QUANTITY` field multiplied by the value in the `PRICE` field.

The syntax of calculated field expressions is similar to the syntax of expressions in Xbase languages. These expressions can contain functions, operators, constants, database fields, memo fields, total fields, and other calculated fields.

Standard Xbase functions useful for reports are provided, as well as many additional functions that are available only in Report Designer. Report Designer also provides standard arithmetic, string, relational, logical, and date operators, as well as use of parentheses. In addition, you can define your own user-defined functions (UDFs) that can be saved and used in calculated fields in any report just like predefined functions.

See the Calculated Field Expression Syntax **Calculated Field Expression Syntax** section of this chapter for information about the components and the structure of calculated expressions.

The following sections describe techniques you can use to construct calculated field expressions.

## ***Typing the Expression***

You can type a calculated field expression by entering the field names, constants, operators, and/or functions that make up the expression directly in the Expression edit box. If the expression contains a predefined or user-defined function, you can type as few as the first four letters of the function (for example, cmon for CMONTH). As you enter the expression, you can format it for better readability by using Ctrl+Tab to indent and Ctrl+Enter to start a new line.

## ***Using the List Menus and Buttons***

You can easily create even a complex calculation by selecting your choices from the Fields and Functions list boxes, the Operators group box, and from the list boxes displayed when you select the Calc Expression, Key Expression, or UDF Expression button. Using this method reduces the amount of typing required; as a result, you can build expressions more quickly and accurately.

### **Selecting Fields**

To insert a field into the expression, use the Fields button to display the Select Field Name dialog, which displays the fields from the currently related tables and currently attached text file (if any), as well as all computed fields created in Report Designer. To place the selected field into the expression, select Insert (or double-click on the name).

### **Using the Select field name dialog**

- Enter one or more characters in the Go To box to **limit** the field list to display only field names beginning with the characters you have entered. Press backspace to clear the box and display all fields.
- An asterisk \* before a field name indicates that the field is currently used within the report.
- Click on a column heading to **sort** the list by that column.
- Click on a sorted column heading to **reverse** the sort order.
- Click and drag on a column header separator bar to **resize** a column.
- Use arrow keys or the scrollbars to scroll through the list.
- **Double-clicking** on a field is the equivalent of pressing the Insert button.

### **Selecting Functions**

To insert a function into the expression, select from the Functions list dialog, which displays a menu containing more than 100 predefined functions, as well as any user-defined functions you have created. To place a function in the expression, select it and choose Insert (or double-click on the name). If the function requires one or more arguments, select or enter them as necessary.

### **Paste Function Arguments**

You can use the "Paste Function Arguments" setting as an aid to providing function arguments. When "Paste Function Arguments" is On (the default), Report Designer inserts symbols representing the function's arguments into the expression. The symbol for the first argument is highlighted; any item you insert or type as an argument (a field or another function, for example) replaces the highlighted argument symbol.

For example, suppose that you have selected the SUBSTR function and inserted it into your calculated field expression. With "Paste Function Arguments" On, the function is inserted as follows:

**SUBSTR(char,num,opt num)**

In this example, the symbols in parentheses after the function name represent the arguments to SUBSTR: "char" represents a required character argument; "num" a required numeric argument, and "opt num" an optional numeric argument. If you select a character field as the first argument, the field name replaces "char" in the expression. You can then supply the other function arguments as needed.

When "Paste Function Arguments" is Off, Report Designer inserts function names without supplying argument symbols. Instead, the function name is inserted followed by open/close parentheses — for example, SUBSTR( ).

### **Selecting Operators**

To insert an operator into the expression, click on the appropriate operator from the Operator group box. See Figures 7.3, 7.4, 7.5, 7.6, and 7.7 in this chapter for explanations of these operators and descriptions of their use in expressions.

### **Copying Other Calculated Expressions**

You can easily copy other calculated field expressions; as a result, in some cases you can simply modify an existing expression rather than starting from scratch. To insert the expression of a calculated field that you have previously defined or the condition expression from a conditional total, select the Calc Expression button. Report Designer displays a list of calculated field names; as you highlight each field name, the field's expression is also shown. Select the calculated field whose expression you want to copy and select OK (or double-click on the field name).

### **Selecting Key Expressions**

To insert the key expression of an index file, select Key Expression. Then select an index file from those listed or enter the name of an index file in the edit box. If necessary, select a different drive and/or directory to select from a list of index files in a different location. If you have selected or entered a multiple index file (such as MDX or CDX), you must also select or enter the name of an index tag. Select OK to insert the key expression.

### **Selecting a UDF Expression**

To insert the expression of a user-defined function (UDF), select User Function Expression. Report Designer displays a list box of UDF names. As you move the cursor from name to name, each UDF's expression displays. Select the UDF expression you want to insert and select OK (or double-click). For more information on UDFs, see Chapter 10, "Using Functions."

*Replacing text within a Calculated Expression*

### ***Replacing text within a Calculated Expression***

You can find and replace text within the current calculated expression. This can be a particularly useful feature if you have created a new calculation by copying the expression of an existing calculation. Select the part of the expression that you wish to replace and then click Replace. Your highlighted text is the default Find What value. You can enter a different string in the Find What box or can select a previous value using the arrow key. In the Replace with box, enter the replacement text. You can then use the buttons at the bottom of the dialog to replace, replace all, find the next occurrence or close/cancel the dialog accepting or ignoring any changes.

## *Verifying Expression Syntax*

## ***Verifying Expression Syntax***

When you have completed your expression, select Verify. If you have entered an expression incorrectly (for example, if you have used an unrecognized field or operator), Report Designer will notify you with an error message. When possible, the cursor will also be positioned at the place in the expression where the error occurred. Edit the existing expression. When the expression is complete and correct, select OK.

**Calculated Field Expression Syntax**

## Calculated Field Expression Syntax

An expression is a formula that is used to compute the value of a calculated field using fields, constants, operators, and functions. For example, the expression `SUBTOTAL*DISCNT` calculates discount by multiplying the value in the subtotal field by that in the discount rate field.

To take another example, the following expression calculates the number of months between the dates in the `PAYDATE` and `INVDATE` fields:

### **MONSBTWN(PAYDATE,INVDATE)**

Calculated field expressions can contain functions, operators, constants, database fields, memo fields, total fields, and other calculated fields. Report Designer provides standard arithmetic, string, relational, logical, and date operators, as well as use of parentheses. In addition, you can define your own user-defined functions (UDFs) that can be saved and used in any report just like predefined functions.

The following sections explain calculated field expressions by:

- Describing the types of expressions;
- Explaining the parts of an expression: fields, constants, operators, and functions;
- Explaining how Report Designer handles errors in evaluating expressions.

## *Types of Expressions*

## ***Types of Expressions***

Expressions are classified by the data type of the results they produce. Based on this categorization, you can develop character, numeric, date, datetime, logical, and memo expressions.

## ***Character Expressions***

A character expression produces characters or character strings. For example, "Dear "+FIRSTNAME-," is a character expression. The character string it produces will be a salutation such as "Dear John,". Note that character strings can also include numbers and punctuation marks.

## ***Numeric Expressions***

A numeric expression produces numbers. For example, 3%TOTAL is a numeric expression. The number it produces will be 3 percent of the value of the TOTAL field. Numeric expressions can also be used as logical expressions; a numeric expression is considered to be true when it has a non-zero value and false when it has a zero value.

## ***Date Expressions***

A date expression produces a date that includes a day, month and year component. For example, ORDERDATE+30 is a date expression. The date it produces will be 30 days later than the date in the ORDERDATE field.

## ***Logical Expressions***

A logical expression produces a logical value of true or false. For example, `BALANCE > 100` is a logical expression. The expression produces a true value if the value in the balance field is greater than 100, a false value if the balance is less than or equal to 100. Logical expressions can also be used as numeric expressions. In this case, the true value is one and the false value is zero.

## ***DateTime Expressions***

A datetime expression produces a datetime result. For example the expression `CTDT("08/24/2002 05:37 pm")` returns the datetime value `08/24/2002 05:37 pm`.

## ***Memo Expressions***

A memo expression produces a memo field. Only expressions that contain memo fields can produce memo fields. For example, you can use the IIF( ) function to return one of two memo fields based on a specified condition.

The following expression means that if the balance equals zero, return the THANKS memo field; otherwise, return the SENDCASH memo field:

**IIF(BALANCE=0,THANKS,SENCASH)**

*Parts of an Expression*

## ***Parts of an Expression***

Expressions are made up of one or more of the following:

- Fields
- Constants
- Operators
- Functions
- Wildcards

For example, in the expression `SUBTOTAL*DISCNT`, `SUBTOTAL` and `DISCNT` are fields and `*` is the multiplication operator. In the expression `ADDDAYS(INVDATE,30)`, `ADDDAYS` is a function that adds a given number of days to a date, `INVDATE` is a field, and `30` is a constant. Each of these components is explained in more detail in the following sections.

## ***Fields***

Expressions can include data fields of any type (character, numeric, logical, date, datetime, memo), total fields, parameter fields and other calculated fields. For example, in the expression `SUBTOTAL*DISCNT`, the `SUBTOTAL` field might be a total field that sums line item totals.

The expression for a calculated field can even contain the calculated field itself. For example, you can create a calculated field called `RUNTOTAL` that keeps a running total of the `AMOUNT` field by using the expression `RUNTOTAL+AMOUNT`. The name of the calculated field is used in the expression that defines it.

### **Field Names with Table Aliases**

If several tables contain fields with the same name, the field name used in an expression must be preceded by a table alias. For example, if your report uses a customer table and a product table that both have a field called `NAME`, the `NAME` field must be preceded by a table alias that identifies the table it belongs to. If `RRCUST` and `RRPROD` are the table aliases, you would enter either `RRCUST >NAME` or `RRPROD >NAME` in the expression.

To ensure that appropriate aliases are used, you can select field names from the Fields list box (rather than typing the field names).

### **Field Names with Special Characters**

If an expression contains the name of a field that includes one of the special characters listed below (possible in the case of memo fields from text files), you must precede the character with a backslash to indicate that the character is part of the field name. For example, to include the `EMP#` field in an expression, you must type `EMP\#`.

Include a backslash before each of the following characters if it appears in a field name:

`+ - / * ^ % ( ) , = # < > $ ! " ' [ (space)`

If you insert a field whose name includes any special characters that could be interpreted as operators in the expression (for example `%` or `>`), Report Designer will automatically insert a backslash before the special character to indicate that the character is part of the field name.

## **Constants**

A constant is a value you specify as part of an expression. For example, if the expression for a field that calculates interest is balance times interest rate, the figure that represents the interest rate can be a constant. In the expression `BALANCE*.08`, `.08` is the interest rate constant.

Report Designer recognizes five types of constants:

- Numeric constants
- Character constants
- Logical constants
- Date constants
- DateTime Constants

### **Numeric Constants**

A numeric constant is a number that may contain a decimal point and may be preceded by a plus or minus sign. For example, `3.1415927` can be used as a constant in expressions that require the value of pi to seven decimal places.

### **Character Constants**

A character constant is any character or string of characters in the ANSI character set, enclosed in double quotes, single quotes, or square brackets. For example, the expression `"Dear "+FIRSTNAME-" ,"` will return a value like `"Dear John,"`.

Note that if you use a backslash, question mark, or asterisk in a character value that is the right-hand element in a comparison, you must precede the special character with a backslash to tell Report Designer to treat the character literally. For example, use `FIELD = "\*"` to test for records in which `FIELD` contains only an asterisk. Without the backslash, Report Designer will treat the asterisk as a wildcard character.

### **Logical Constants**

A logical constant is a true or false value; for example, `.T.` for true and `.F.` for false. Upper or lower case may be used. Valid logical constants are `.T.`, `.F.`, `True`, `False`, `On`, `Off`, `Yes`, `No`. For example, the following expression will return a true value if the value in the `CHILDREN` field is greater than 0, and a false value if it is less than or equal to 0:

**`IIF(CHILDREN>0, .T. , .F. )`**

### **Date Constants**

You can produce date constants using the following format:

**`{ <date-value> }`**

For example, the following expression adds 30 days to the literal date enclosed in curly braces:

**`ADDDAYS({06/17/2002},30)`**

You can also use the `CTOD( )` (character to date) function, which converts character strings into dates, to produce date constants. For example, in the following expression, the `CTOD( )` function turns the two strings in quotation marks into date constants, which are then subtracted to calculate the number of days between the two dates. For more information on `CTOD`, refer to Chapter 9, "Using Functions."

### **CTOD("3/17/2002")-CTOD("1/1/2002")**

Note that although you can enter a date constant using only a 2-digit year, R&R will evaluate the two digits as being within the current century at the time the expression is created and will automatically expand the two digits to four digit. For example, in 2001, an entry of {01/01/96} becomes {01/01/2096} when the expression is saved.

### **DateTime Constants**

You can produce datetime constants using the following format:

**{ <date-value> <time-value> }**

for example the constant {01/01/2005 12:00:00 PM} would evaluate to the date time constant of January first 2005 at noon.

## Operators

Operators are symbols that perform operations within an expression. For example, in the expression `SUBTOTAL*DISCNT`, the asterisk is a symbol that performs the operation of multiplication.

Report Designer provides five types of operators:

- Arithmetic
- Date/DateTime
- Character (string)
- Relational
- Logical

### Arithmetic Operators

Report Designer provides the arithmetic operators shown in Figure 7.3.

| Operator | Description                         |
|----------|-------------------------------------|
| +        | Addition                            |
| -        | Subtraction                         |
| /        | Division                            |
| *        | Multiplication                      |
| %        | Percentage                          |
| ^ or **  | Exponentiation                      |
| ( and )  | Open/close parenthesis for grouping |

**Figure 7.3 Arithmetic Operators**

The addition, subtraction, division, and multiplication operators are used in calculated expressions just as they are used in algebraic expressions. The percentage operator is used as if it were "percent of," as in the expression  $10 \% 25 = 2.5$ . The numbers on either side of the percent sign are multiplied together and divided by 100.

The exponentiation operator, which raises a quantity to a power, is placed after the quantity and before the power, as in the following expression for calculating the balance of a compound interest account:

**BALANCE\*(1+INTEREST)^PERIODS**

The parenthesis operators are used to group operations, indicating the order in which they will be performed or evaluated. Without parentheses, arithmetic expressions are evaluated in the following order:

1. Unary plus and minus (positive and negative signs)
2. Exponentiation
3. Multiplication, Division, and Percentage
4. Addition and Subtraction

For example, the expression  $1+4/2$  results in 3 rather than 2.5 because division is performed before addition. If an expression contains several operators that have the same precedence, the operations are performed left to right. For example, in the expression  $1+4/2*6/3$ , the division and multiplication operations are performed left to right before the addition operation is performed. The first operation is  $4/2$ , resulting in 2; the second multiplies 2 by 6, resulting in 12; the third operation divides 12 by 3, resulting in 4; the last operation adds 1 to 4, resulting in 5.

By using parentheses, you can deviate from the standard order of evaluation. Report Designer performs operations within parentheses first. For example, the result of  $1+4/2$  is 3, but the result of  $(1+4)/2$  is 2.5 because Report Designer performs the operation in parentheses first.

If parentheses are nested or embedded, as in the expression  $3*((1+4)/2)$ , the operation in the most deeply embedded parentheses is performed first. In this case, the first operation is  $1+4$ , the second is  $5/2$ , and the third is  $3*2.5$ .

### Date/DateTime Operators

Report Designer provides the date/datetime operators shown in Figure 7.4.

These date operators are supplemented by a number of predefined date functions such as `ADDDAYS()`, `ADDMONS()`, and `ADDWKS()` that are explained in Chapter 9, "Using Functions."

| Operator | Description  |
|----------|--|
| +        | Addition of days to a date. For example, <code>ORDERDATE+30</code>   |
| -        | Subtraction of days from a date or subtraction of one date from another. For example, <code>DUEDATE-CURDATE</code> |
| ( and )  | Open/close parenthesis for grouping  |

**Figure 7.4 Date Operators**

### Character Operators

Report Designer provides the string operators shown in Figure 7.5 to be used with character data.

| Operator | Description  |
|----------|--|
| +        | Concatenation, the joining of two character strings into one. For example, <code>FIRSTNAME+LASTNAME</code>                         |
| -        | Concatenation after removing trailing spaces from the string before the operator. For example, <code>FIRSTNAME-" "+LASTNAME</code> |
| ( and )  | Open/close parenthesis for grouping  |

**Figure 7.5 Character (String) Operators**

Note that both + and - "add" strings together. The only difference between the two operators is that - removes the trailing spaces from the string that precedes it. For example, if `FIRSTNAME` is John and `LASTNAME` is Jones (assuming both fields are 10 characters):

|                                     |   |            |
|-------------------------------------|---|------------|
| <code>FIRSTNAME+LASTNAME</code>     | = | John Jones |
| <code>FIRSTNAME-LASTNAME</code>     | = | JohnJones  |
| <code>FIRSTNAME-" "+LASTNAME</code> | = | John Jones |

The last expression adds a string consisting of one space to the first name field, after the - operator removes trailing spaces.

### Relational Operators

Report Designer provides the relational operators shown in Figure 7.6. Use these operators to compare numeric, date, or character data.

| Operator | Description           |
|----------|-----------------------|
| =        | Equal to              |
| # or < > | Not equal to          |
| <        | Less than             |
| <=       | Less than or equal to |
| >        | Greater than          |

|         |  |
|---------|--|
| > =     | Greater than or equal to   |
| \$      | Substring comparison; returns True if term to the left of the \$ is identical to or contained in term to the right of the \$ or False if not |
| ( and ) | Open/close parenthesis for grouping  |

**Figure 7.6 Relational Operators**

### Logical Operators

Report Designer provides the logical operators shown in Figure 7.7 These operators produce a true or false value.

| Operator   | Description                         |
|------------|-------------------------------------|
| .NOT., NOT | Logical not                         |
| .AND., AND | Logical and                         |
| .OR., OR   | Logical or                          |
| ( and )    | Open/close parenthesis for grouping |

**Figure 7.7 Logical Operators**

Report Designer evaluates the .NOT. logical operator before it evaluates .AND. and .OR., which have equal precedence. In expressions containing both .AND. and .OR., Report Designer evaluates the operators from left to right, according to their order in the expression.

For example, in the following expression the .OR. operator is evaluated before the .AND. operator:

```
DEPT = "Sales" .OR. DEPT = "Mkting" .AND. JOBCODE = "Mgr"
```

In evaluating this expression, Report Designer first checks to see whether employees meet either of the first two conditions. If an employee meets either condition, Report Designer then applies the last logical condition to determine whether the employee's job code is "Mgr". As a result, the expression is true for all employees who are managers in either the Sales or Marketing department.

### Mixed Operator Types

When you insert more than one type of operator in a calculation, Report Designer performs operations in the following order:

1. Arithmetic, Date, and Character operations
2. Relational operations
3. Logical operations

For example, Report Designer evaluates the expression  $3*4<8$  OR  $4>3+2$  as false, because the arithmetic operators (\* and +) are performed first, the relational operators (< and >) are performed second, and the logical comparison (.OR.) is performed last. The expression is evaluated as if it were  $((12<8).OR.(4>5))$ .

In the expression  $BALANCE>100.AND.DAYS>30$ , Report Designer evaluates the relational operators (>) first. Both conditions must be true for the expression to be true; that is, the balance must be greater than 100 and the number of days must be greater than 30.

In the expression  $CTOD("7/1/2002")<DATE+30$ , Report Designer adds  $DATE+30$  first and then compares the result to the date returned by the  $CTOD()$  (character to date) function. Therefore, the expression is true only when  $DATE+30$  results in a date that is later than 7/1/2002.

## ***Functions***

Functions perform special operations such as converting data from one data type to another, calculating the elapsed time between dates, changing number formats, and conditionally returning values.

A single function can serve as a calculated field expression, or several functions can be included within a single expression. For example, to include the system date in a report, you can create a calculated field called SYSDATE with the expression `DATE( )`. When included in a report, this field will provide the system date when the report is generated.

An expression can also consist of a number of functions that can be nested or embedded within each other. For example, the expression `CMONTH( DATE( ) ) + ", " + STR( YEAR( DATE( ) ), 4)` contains four functions. The `DATE( )` function returns the system date in the format 11/04/2002. The `CMONTH( )` function returns the name of the month of the date supplied by `DATE( )`. The `YEAR( )` function returns the four-digit year of the date supplied by `DATE( )`. The `STR( )` function converts this numeric year value to a four-character string, so that it can be concatenated with the name of the month string and the character constant ", ". On 11/04/2002, the value returned by the expression is November, 2002.

Report Designer provides over 100 predefined functions, as well as the ability to create and save user-defined functions. For information on creating your own functions, see Chapter 10, "Using Functions."

## Wildcard Characters

You can use wildcards for pattern matching in calculated field expressions that compare character strings and dates. For example, the expression `NAME="HEN*"` will match any string starting with HEN, including names such as Henrietta, Henry, and Henderson. The expression `DATE={12/*/2002}` will match any date in December of 2002.

Figure 7.8 lists the wildcard characters used to define patterns.

| Character | Meaning  |
|-----------|--|
| ?         | In a character expression, matches any single character in the same position in the field.   |
| *         | In a character expression, matches any group of characters (including no characters). In a date expression, matches any value in that part of the date (e.g. 01/*/2002). |
| @         | In a date expression, matches any value that corresponds to that part of the system date (e.g. @/@/2002).  |

**Figure 7.8 Wildcards in Expressions**

You can use wildcards in calculated fields that use equality or inequality operators (for example, `NAME="HEN*"`) or functions (for example, `CTOD("@/*/2002")`). In relational expressions, use wildcard characters for pattern matching in the right side of the expression; characters in the left side of the expression are treated as literals.

For example, `STATE="C?"` finds a match when STATE contains CA, because Report Designer treats the question mark on the right side of the relational operator as a wildcard. However, `"C?"=STATE` will evaluate to false and no match will be found, because Report Designer treats the question mark on the left side of the relational operator as a literal.

To use a wildcard character as a literal in the right side of the expression, precede it with a backslash. For example, use `FIELD="\*"` to test for records in which FIELD contains only an asterisk.

In calculated field expressions that use the functions `CASE()` and `INLIST()`, you can use wildcard characters with the items that you want to test against; wildcard characters used as test values will be treated as literals. In the following examples, the function `INLIST()` uses the first argument as the test value, and compares it with each value in the list. When a match is found, `INLIST()` returns the number corresponding to the position of the matching value in the list. When no match is found, `INLIST()` returns 0.

`INLIST("AB","XX","A?")` returns 2

`INLIST("A?","XX","AB")` returns 0

You can also compare fields that contain wildcard characters as data values. For example, if `FIELD1` contains the string "AB" and `FIELD2` contains the string "A?", Report Designer will find the match when you use the calculated field expression `FIELD1=FIELD2`.

*Error Conditions in Evaluating Expressions*

### ***Error Conditions in Evaluating Expressions***

If Report Designer encounters an error in evaluating a calculated field expression, it displays asterisks as the error value in the field and in any fields that refer to the calculated field. For example, if Report Designer tries to evaluate a date expression that adds a specified number of days to an empty date field, it will display \*\*/\*\*/\*\* as the result, since it cannot produce a proper date.

To take another example, if Report Designer tries to evaluate a numeric expression that requires it to divide by zero, it will display asterisks as the result, since division by zero is an undefined operation. If this calculated field were totaled, the total value would also display as asterisks.

The standard error value sorts as the last value in an ascending sort or the first value in a descending sort.

## ***Customizing Error Values***

You can create your own error values for specific expressions by using the IIF and ERROR functions. If you know that an expression may result in an error, you can specify the error value that will display. For example, the expression (AVERAGE=INVAMT/QUANTITY), which divides total invoice amount by quantity ordered, will result in an error when the quantity ordered is 0. To print 0 instead of the standard error value of asterisks, you can use the following expression.

**IIF(ERROR(AVERAGE),0,AVERAGE)**

If evaluation of the AVERAGE field results in an error, then ERROR(AVERAGE) will be true, leading the IIF function to return 0. If evaluation of the AVERAGE field does not result in an error, ERROR(AVERAGE) will be false, leading the IIF function to return the result of the AVERAGE expression.

To print a string instead of a number as an error value, you might use an expression like:

**IIF(ERROR(AVERAGE),"N/A",STR(AVERAGE))**

### ***Field Width Errors***

Asterisks in a calculated numeric field or total field may also indicate the field width is not large enough to accommodate the result. Report Designer estimates the number of digits required for each calculated and total field based on the fields and functions used in the expression. You may need to adjust this width using the Width tab on the Properties tabbed dialog, especially if you have edited the expression since the initial field width estimate was established. See Chapter 4, "Working with Fields," for information on changing field width.

*Calculation Field Comments and Dictionary Entries*

### ***Adding a Calculated Field Comment***

You can enter a brief comment (up to 100 characters) to serve as a "plain English" explanation of a calculated field. To do so, select Calculations ⇒ Calculated Field, highlight the field name, and select Comment to display the Field Comment dialog. Enter the explanation in the Comment box and then select OK. When a calculated field has a comment attached to it, the text of that comment is displayed in the Status Bar when the field is highlighted.

You can also enter or edit a field comment using the Comment tab on the Properties tabbed dialog (select the field and press F9).

## ***Adding Calculations to the Data Dictionary***

R&R allows you to add certain calculations to the Data Dictionary so that they will be available for use in other reports. Only those fields that contain fields from a single table along with any operators or R&R functions are available for addition to the data dictionary. To add a calculated field to the dictionary, select Calculations ⇒ Calculated Field, and then highlight the field name. If the field is eligible for dictionary addition, the Add to Dict button will be available for selection. If the field already exists in the dictionary, you will get a Duplicate Entry error box. If the field is successfully added, you will be returned to the Calculated Field dialog without any displayed message.

## Modifying a Calculated Field

## Modifying a Calculated Field

You can use either of the following methods to open the Edit Calculation dialog box to modify a calculated field:

- Either right-click on the field and select Expression or select the field and press F2.
- Select Calculations ⇒ Calculated Field and select the field to edit from the list box. Then select Edit.

The Edit Calculation dialog is the same as the New Calculation dialog, except that it shows the selected field's name and displays its expression in the Expression edit box.

## Modifying the Calculated Field Expression

To edit an existing calculated field:

1. Select Calculations ⇒ Calculated Field to display the Calculated Fields dialog.
2. In the Fields list, select the name of the calculated field you want to edit.
3. Select the Edit button to display the Edit Calculation dialog.
4. In the Calculated Field Name edit box, edit the field name if you want to change it.
5. In the Expression edit box, position the cursor where you want to make a change. Edit the expression using any combination of the following methods:
  - Edit all or part of the expression by typing your changes directly in the Expression edit box.
  - Insert a **field name** by selecting the Fields button and then selecting a field from the field list.
  - Insert a **function** by selecting the Functions button and then selecting a function from the field list.
  - Insert an **operator** by selecting the Operator buttons.
  - Insert an **existing calculated field expression** or a **condition expression** for an existing conditional total by selecting the Calc Expression button to display the Calc Expression dialog.
  - Insert a **user-defined function** formula by selecting the User Function Formula button to display the User Functions dialog.
  - Insert an **Index key** expression by selecting the Index Keys button to display the index selection dialog.
  - Use the **Replace** button to find and replace text within the expression.
6. Select the Verify button to determine whether the expression syntax is correct. If Report Designer finds a syntax error in the expression, it displays a message box describing the error.
7. Select OK to confirm the changes or select the Cancel button to close the dialog box without making any changes to the calculated field.

If the calculated field's data type changes as the result of editing and the field is used in another calculated field expression, Report Designer displays a list of calculated fields that will be affected by your change. The fields on this list will either change their data types or become impossible to evaluate as a result of your change.

At this point, you can select Cancel to cancel the change or OK to make the change. Selecting OK will cause the affected fields that Report Designer cannot evaluate to be flagged with question marks in the Field Menu. If the flagged fields are used in your report, you will have to edit their expressions before you can print or view the report.

If the field you are editing appears in a query, is totaled, or is a calculated linking field, you will not be allowed to change the data type of its result.

**NOTE** Report Designer estimates the widths of calculated fields and does not automatically reset a field's width when it has been edited. Therefore, after editing a calculated field, you may need to adjust its width using the Width tab on the Properties tabbed dialog (select the field and press F9). For instructions on changing field width, see Chapter 4, "Working with Fields."

**Copying a Calculated field**

## **Copying a Calculated Field**

In the Calculated Fields dialog, you can select a field and then use the Copy button to create a new calculation whose name will be blank and whose expression will be the same as the original field.

**Deleting a calculated field**

## Deleting a Calculated Field

To delete a calculated field:

1. Select Calculations ⇒ Calculated Field to display the Calculated Fields dialog.
2. In the Fields list, select the name of the calculated field you want to delete.
3. Select the Delete button.

If the field you are trying to delete is totaled or used in another calculation, Report Designer lists all calculated and/or total fields that will be affected by the deletion. At this point, you can select Cancel to retain the field or OK to delete it. Selecting OK will cause the affected fields to be deleted. You cannot delete calculated fields used as linking fields without first deleting the table relations that use them.

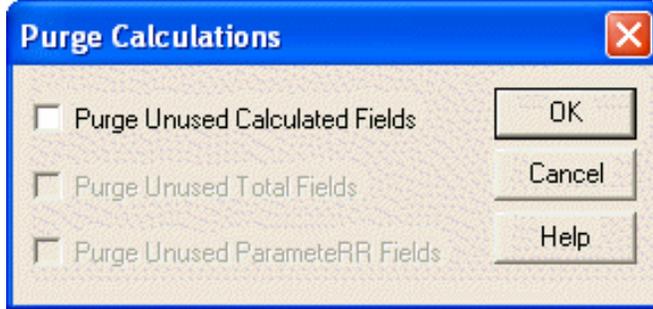
**Purging Unused Calculated Fields**

## Purging Unused Calculated Fields

To remove all unused calculated fields from your report definition:

1. Select Calculations ⇒ Purge Calculations.

The Purge Calculations dialog box appears (see Figure 7.2).



**Figure 7.2 Purge Calculations Dialog**

2. Click the Purge Unused Calculated Fields check box (an X appears in the box).
3. Select OK.
4. Report Designer lists the fields that will be removed from the report definition and prompts you to confirm.
5. Select OK to remove the listed fields or Cancel to return to the Purge Calculations dialog without removing the fields.

## Chapter 8 Working with Total Fields

## ***Introduction (Working with Total Fields)***

Total fields are those fields that contain summary information such as subtotal and total figures. The value of a total field is calculated by Report Designer according to the total options you select. You can create total fields, insert them in reports, and manipulate them just as you do data and text fields.

This chapter explains how to create and use total fields in reports. This information is presented in the following sections:

- Creating and Editing Totals
- Customizing Totals
- Copying Total Fields
- Purging Unused Total Fields
- Using Total Fields in Reports
- Using Totals in Calculations
- Sorting and Querying on Totals

## Creating and Editing Totals

## Creating and Editing Totals

You can define summary information such as totals and subtotals for any field in the composite record structure. Once you define a total field, you can insert it in your report layout or use it as part of a calculated field or another total field.

You can modify existing total fields by using any of the following methods to open the Edit Total dialog:

- Select the field and press F2;
- Right-click on the field and select Expression;
- Select Calculations ⇒ Total Field (or click the Totals button) and select the name of the field to be edited from the list and then press the Edit button.

You can also use the Multi Edit and Edit Reset buttons in the Total Fields dialog to modify existing totals.

*Procedures for Creating Totals*

## Procedures for Creating Totals

Briefly, the procedure you follow to create and use total fields includes these steps:

Select Calculations ⇒ Total Field (or click the Totals button). You can also create a total by selecting a field on the report layout, right clicking and selecting Total from the list.

If no totals have yet been defined for the current report, the New Total dialog appears. If one or more totals have already been defined, select New in the Total Fields dialog to display the New Total dialog (see Figure 8.1).

**New Total**

Name | Target/Type | Reset | Accumulation | Processing | Condition

Field Name

The maximum length for a total field name is 30 characters. Spaces and special symbols except for the underscore character ( `_` ) are not allowed. The first character of the name cannot be a digit (0-9).

Choosing a naming convention for totals can be helpful. You may wish to include the reset level, the field being totaled, and the field type, such as `GTAmtSoldSum` for the grand sum of the field `AmtSold`.

Comment

When a field has a comment attached to it, the comment is displayed in the Status Bar when the field is selected.

Expression

OK Cancel Help

### Figure 8.1 New Total Dialog Box

In the Field **Name** box on the Name tab, enter a field name of up to 30 characters.

The name can contain letters, numbers, or the underscore character; it must start with a letter. The field name must be unique in the current report.

You can also add an optional 100 character **comment** for the total on the name tab to serve as a "plain English" explanation of a total field.

On the target/type tab, select the total **type** radio button to select from the available choices of Count, Sum, Average, Minimum, Maximum, Standard Deviation, and Variance. Figure 8.2 explains each of the total types.

To select the **Field to be totaled**, click the field selection button [...] to display the select target field dialog where you select the field whose values will be totaled.

On the **Reset** tab, select when to reset the total: at the end of the report (Grand), at the end of each page, or after the last record in a numbered group (for any one of 8 groups).

Optionally select the **Accumulation** tab to change the accumulation frequency. The default accumulation frequency is Every composite, which is appropriate for most totals

Optionally select the **Processing** tab. The default processing mode is Running which is appropriate for most totals.

Optionally select the **Condition** tab to make this total a *conditional total*. On the Total Condition dialog enter an expression (referred to as a *condition expression*) that specifies the circumstances in which Report Designer will calculate this total (see the Entering a Condition Expression section of this chapter for more information about conditional totals).

Select OK. Insert the field on your report (Note that you can drag the field to the report layout from the Total Fields Dialog) or use it in another total or calculated field.

The following sections explain each of these steps in detail.

### ***Entering a Field Name***

In the Name edit box, enter a field name of up to 30 characters. The name can contain letters, numbers, or the underscore character; it must start with a letter. The field name must be unique.

By using a combination of upper and lower case, you can enter total field names that are easily distinguishable from the names of table fields.

## Selecting a Total Type

Select a total type from the Type tab. The available choices are: Count, Sum, Average, Minimum, Maximum, Standard Deviation, or Variance (see Figure 8.2 for an explanation of these total types).

| Select        | To Produce   |
|---------------|--|
| Count         | Count of the records that contain data in the field. Records that contain no data in the selected field (that is, the field is blank or contains a zero formatted with "Show Zero" turned off) are not included in the count.  |
| Sum           | Sum of the values in a numeric or logical field for all records containing data. (For logical fields, True = 1; False = 0).  |
| Average       | Average (mean) of the values in a numeric or logical field for all records that contain data. Records in which the field is blank or contains a zero formatted with "Show Zero" turned off are not included in the average.  |
| Minimum       | Lowest value for a numeric field, false for a logical field if any records contain false values, earliest date for a date field, first value in alphabetical order for a character field. Only records containing data are considered.   |
| Maximum       | Highest value for a numeric field, true for a logical field if any records contain true values, latest date for a date field, last value in alphabetical order for a character field. Only records that contain data are considered.   |
| Std Deviation | For numeric fields, the square root of the variance. Standard Deviation is calculated using the following formula, where $n$ is the total number of values, $vi$ is the $i$ th value, and $avg$ is the average of all values:<br>$\sqrt{\frac{\sum (x_i - avg)^2}{n}}$   |
| Variance      | For numeric fields, the average of NUMBER2 minus (average of NUMBER)2, where NUMBER is a numeric field and the average is computed based on the number of records totaled (not including records with blanks or zeros formatted with "Show Zero" turned off). See the formula illustrated in the explanation of Standard Deviation. Both variance and deviation measure the degree to which individual field values vary from the average of all values totaled. |

Figure 8.2 Total Choices

### ***Selecting a Field to Total***

Along with selecting a total type on the target/type tab, you must also select a field to which you can apply the method of totaling you have selected. If you have selected Sum, Average, Deviation, or Variance, Report Designer lists only numeric and logical fields.

The following table lists total types that are available for each field data type.

| <b>Data Type of Field Being Totaled</b> | <b>Valid Total Types</b>                                   |
|---|--|
| Numeric                                 | Count, Sum, Average, Minimum, Maximum, Deviation, Variance |
| Character                               | Count, Minimum, Maximum                                    |
| Date/DateTime                           | Count, Minimum, Maximum                                    |
| Logical                                 | Count, Sum, Average, Minimum, Maximum, Variance, Deviation |
| Memo                                    | None   |

**Figure 8.3 Valid Total Types**

### **Selecting a Total Reset Level**

Next, select a total reset level on the Reset tab (see Figure 8.4). Your choice determines when Report Designer resets the value of the total field to zero. Selecting a group field as the reset level will produce group subtotals; selecting a Page Total will produce page subtotals; selecting a Grand Total will produce grand totals for the entire report.

For example, if STATE is your first group field, you can select STATE (Group1) radio button on the Reset tab to calculate total sales by state. In this case, Report Designer produces a subtotal of sales and resets this subtotal to zero whenever a new state group begins.

| <b>Select</b>        | <b>To Produce a</b>                    |
|----------------------|--|
| Grand Total          | Total for the entire report            |
| Page Total           | Page total for each page in the report |
| Numbered Group Field | Subtotal for each new group            |

**Figure 8.4 Total Reset Options**

## *Creating Auto Totals for Multiple Fields*

## ***Creating Auto Totals for Multiple Fields***

You can select multiple fields on the layout and have Report Designer automatically create totals for those fields and insert the totals on a new band line.

To create totals for multiple fields:

1. Highlight all of the fields you want Report Designer to create totals for (Ctrl-click on each field).
2. Select Calculations ⇒ Auto Total to display the Auto Total dialog.
3. On the Auto Total dialog, select a total type and reset level for the totals to be created. Note that only total types valid for all selected fields are available for selection.
4. When you are finished defining the totals, select OK. Report Designer assigns a name to each of the total fields in the batch. The name is in the form **Totalnnnnn**, where **nnnnn** is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch. (If necessary, you can change the field names individually later using Calculations ⇒ Total Field Edit.)

Report Designer creates the totals and inserts them in a band appropriate for the reset level you specified (Summary band for Grand totals, Page Footer for Page totals, and Group Footer for Group totals).

## *Editing a Total Field*

## Editing a Total Field

To edit a total field that has been inserted on the layout, first either select the field and press F2 or right-click on the field and select Expression to display the Edit Total dialog (this dialog is the same as the New Total dialog, except that it shows the name and settings for the total currently being edited).

To edit a total field that is not on the layout, first select Calculations ⇒ Total Field or the Totals button on the Standard Toolbar. On the Total Fields dialog (see Figure 8.5), select the field to be edited and then the Edit button to display the Edit Total dialog.

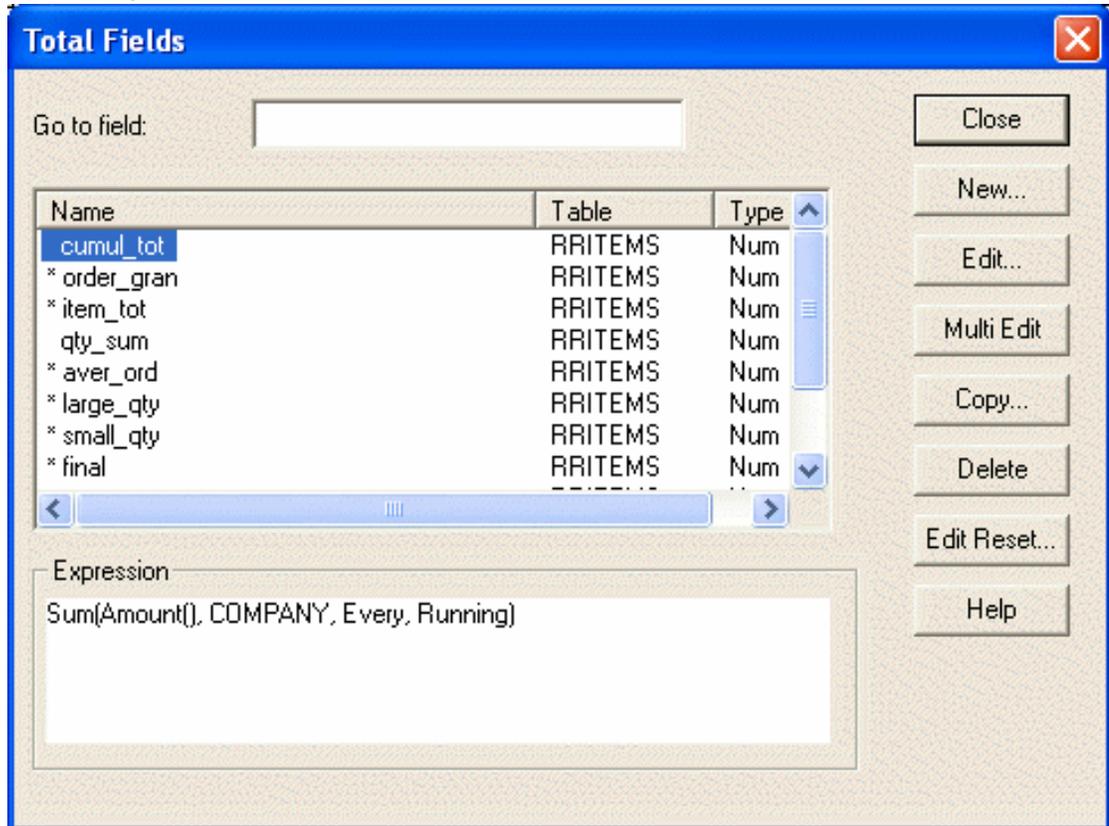


Figure 8.5 Total Fields Dialog Box

After you have opened the Edit Total dialog, follow these steps to edit the total field:

On the **Name** tab you can change the name or add/change the comment for the total.

On the **Target/Type** tab you change the field to be totaled, the total type

On the **Reset** tab you can change the reset level.

On the **Accumulation** tab you can change the accumulation frequency.

On the **Processing** tab you can select a processing option (Running or Pre-processed)

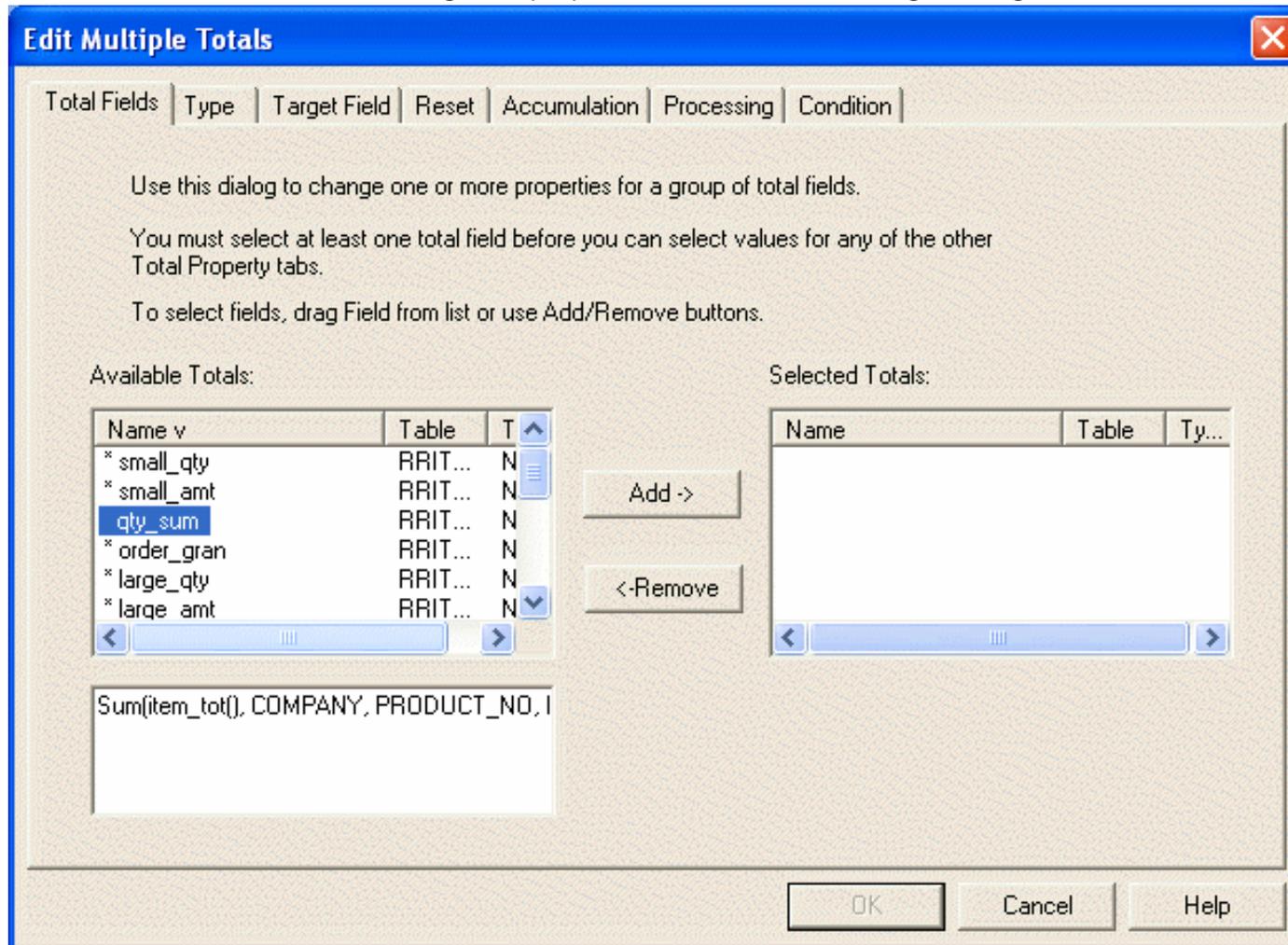
On the **Condition** tab you can change or enter a condition expression.

When you have made all necessary changes to the total field, select OK on the Edit Total dialog; then select Close.

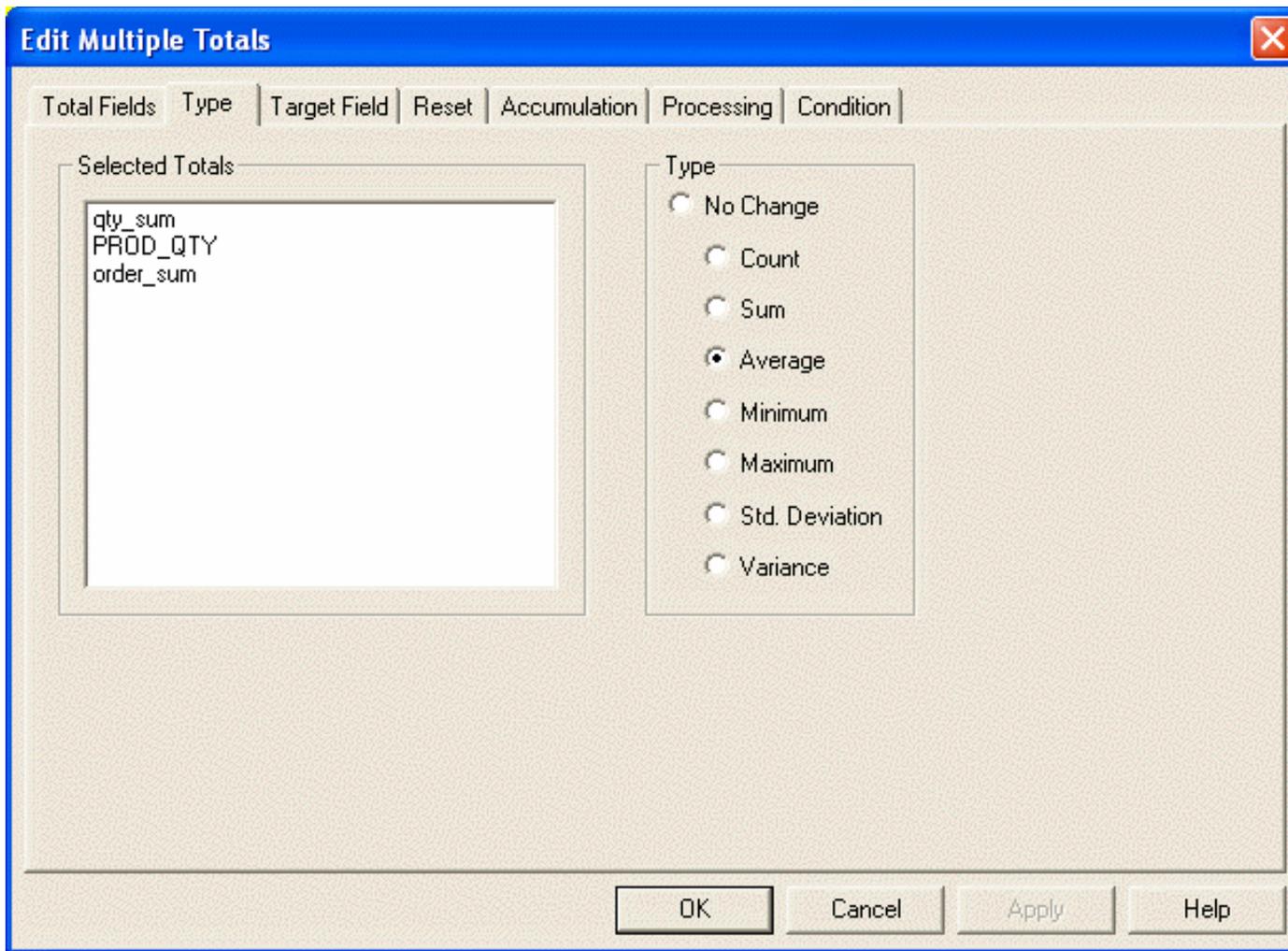
## *Editing Multiple Totals*

## Multi Editing Totals

In the Total Field dialog, the Multi Edit button allows you to select several total fields and then make the same edit changes to each one. Multi Edit has the same tabbed format as is available for creating or editing a single totals. The only difference is that in place of the name tab there is a selection dialog where you can select one or more totals and change the properties of each within a single dialog.

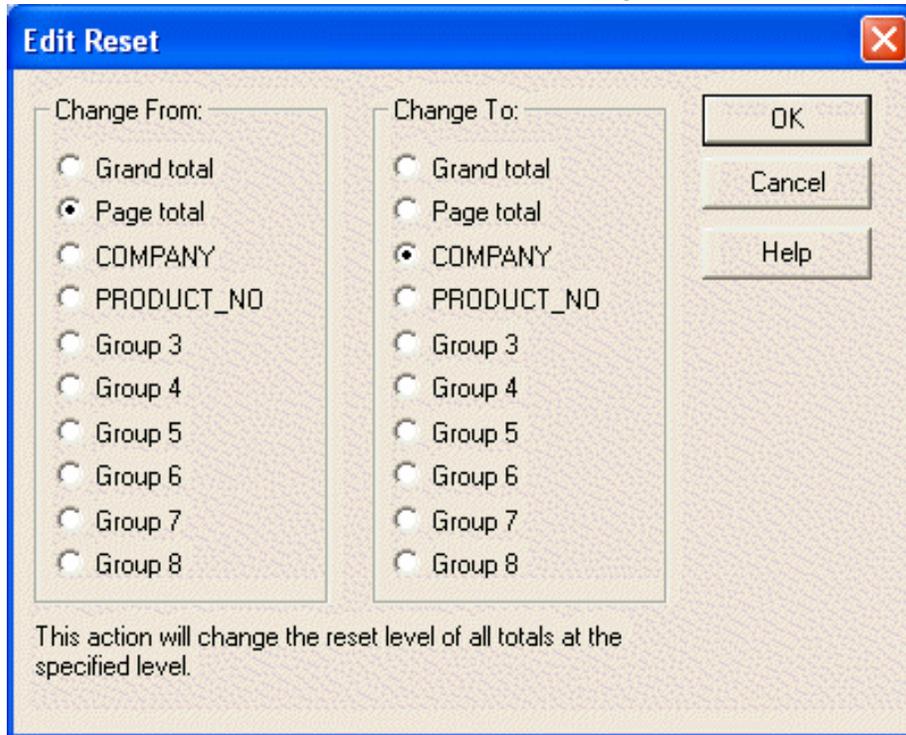


For example you could select a Group1, Group2 and Grand Total that sum the numeric field QTY SOLD and change the sum to be an average.



## Using the Edit Reset Button

To change the reset level of all fields that reset at a particular level, you can select the Edit Reset button on the Total Fields dialog.



For example, if you select "Page total" in the Change From box and "COMPANY" in the Change To box on the Edit Reset dialog, all fields previously defined to reset at the end of each page would instead reset when the value of the COMPANY field changed.

*Copying a Total Field*

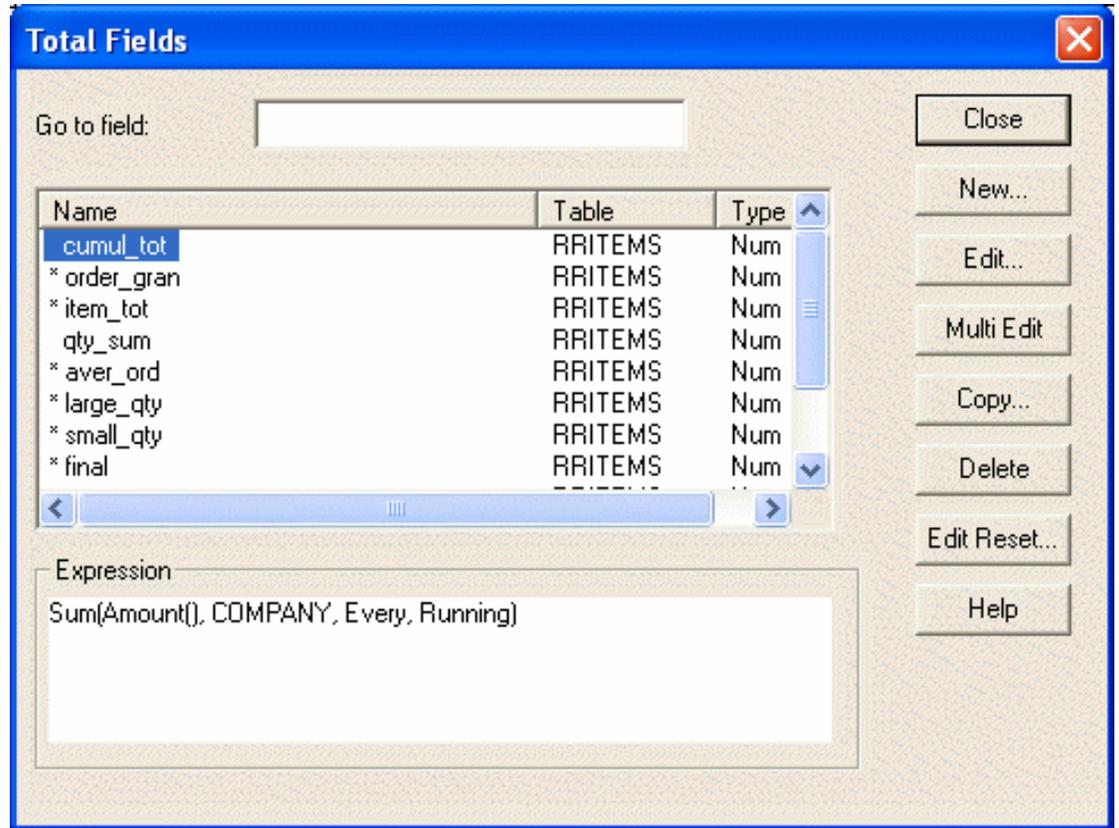
### ***Copying a Total Field***

In the Total Fields dialog, you can select a field and then use the Copy button to create a new total whose name will be blank and whose type, target field, reset, processing, and condition settings will be the same as the original field. You can then assign a name, make any other required changes and then press OK to save this new total.

## *Deleting a Total Field*

## Deleting a Total Field

1. Select Calculations ⇒ Total Field to display the Total Fields dialog



2. In the Fields list, select the name of the total field you want to delete.
3. Select Delete. If the total field you selected is used in any calculated fields or other total fields, these fields will be deleted as well. In this case, Report Designer shows you a list of all the fields that will be deleted and asks you to confirm or cancel the deletions. Note that you cannot delete any total field that is used as a linking field.
4. Select Close.
5. If you delete a total that is used in a query, you will have to edit the query.

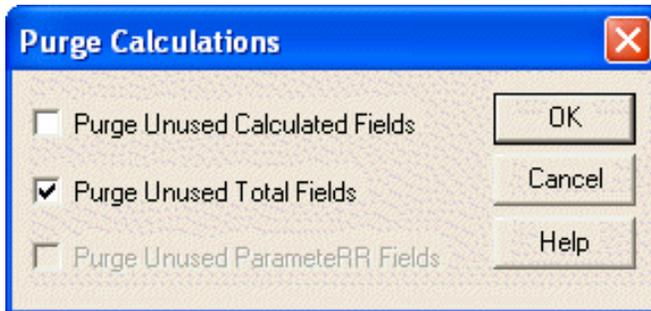
*Purging Unused Total Field*

## Purging Unused Total Fields

To remove all unused Total fields from your report definition:

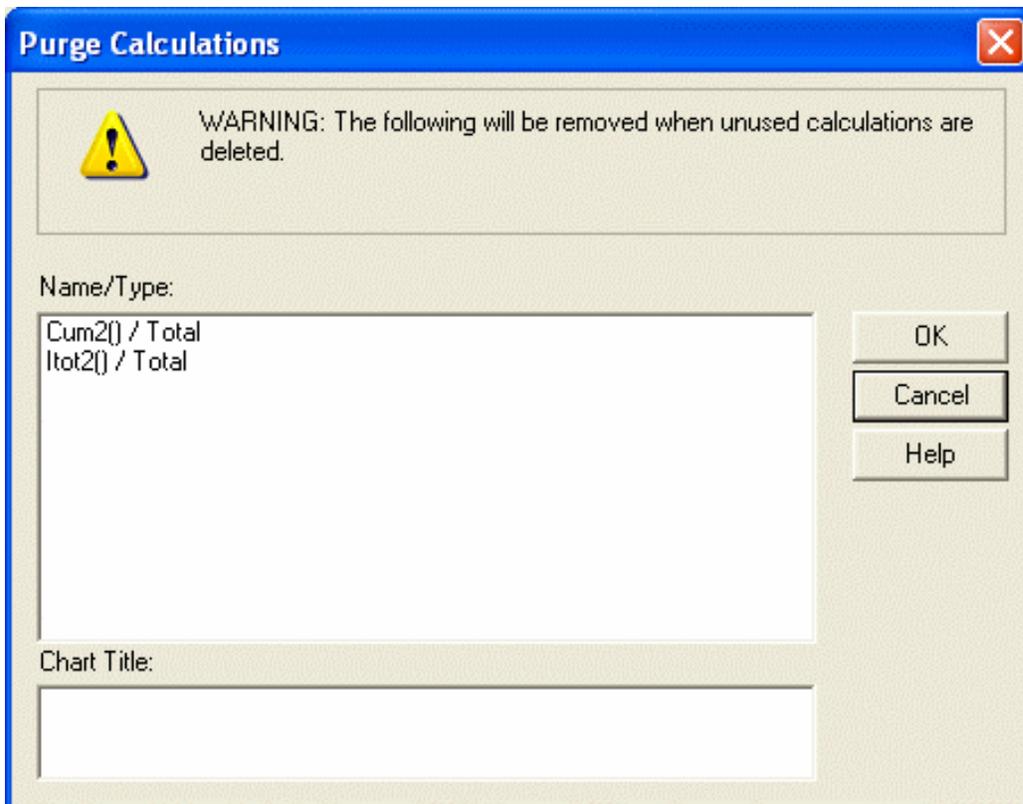
1. Select Calculations ⇒ Purge Calculations.

The Purge Calculations dialog box appears (see Figure 8.6).



**Figure 8.6 Purge Calculations Dialog**

2. Click the Purge Unused Total Fields check box Select OK.
3. Report Designer lists the fields that will be removed from the report definition and prompts you to confirm.



4. Select OK to remove the listed fields or Cancel to return to the Purge Calculations dialog without removing the fields.

**Optional Total Selections**

## **Customizing Totals**

When you create a total field, Report Designer automatically adopts a default method of accumulating the total value and a default mode of total processing. This default behavior is appropriate for most total values. The following sections explain how to change total accumulation frequency and total processing and when these changes might be required in a report.

*Specifying Accumulation Frequency*

## ***Specifying a Total Accumulation Frequency***

When you create a total field, Report Designer automatically sets the accumulation frequency of the total according to the default rules defined in the next section. This accumulation frequency determines how often Report Designer adds to the total as the report is processed.

The accumulation frequency automatically set by Report Designer is appropriate for most commonly generated totals. However, the Accumulation setting (accessed by selecting Accumulation tab on the New/Edit Total dialog) gives you the flexibility to override the automatic frequency to handle special cases.

## Changing the Total Accumulation Frequency

Figure 8.7 illustrates a situation in which you might want to change the total accumulation frequency. Suppose you want two different totals: a count of distinct products and a count of sales transactions. Counting the Product field will give you the total number of transactions. Using the Automatic method of total accumulation described in the next section, Report Designer will add to the product count every time it reads a record, resulting in a count of five.

To get the first total, a count of distinct products sold, you can use the Accumulation setting to change the accumulation frequency of the Product count field. If PRODUCT is the first group field, you would set the accumulation frequency to 1)PRODUCT. Using this method of accumulation frequency, Report Designer will add to the product count every time the value in the Product group field changes, resulting in a count of two.

| Product     | Quantity | Date       |
|-------------|----------|------------|
| PC Com      | 10       | 01/02/2005 |
| PC Com      | 20       | 01/02/2005 |
| PC Com      | 5        | 01/25/2005 |
| PC Graphics | 25       | 01/02/2005 |
| PC Graphics | 10       | 01/30/2005 |

**Figure 8.7 Sample Report**

To manually adjust a total field's accumulation frequency, select the Accumulation tab of Field Total dialog box and then select a frequency radio button from the available Accumulation values.

You can change the accumulation frequency to any of the following:

- Automatic — accumulates total as described in the next section
- Every composite — accumulates total once per composite record
- Group 1 through 8 — accumulates total once per selected group
- Once per page — accumulates total once per page

You can see what accumulation frequency is assigned to any total field inserted on the report by looking at the Expression that displays in the Total Fields dialog box or in Status Bar when the field is highlighted.

For example, the following Expression indicates that the total field provides a grand count of the PRODUCT field accumulated every time the value of the PRODUCT field changes:

```
Count(PRODUCT,Grand,PRODUCT,Running)
```

## Default Accumulation Frequency Rules

The frequency with which Report Designer accumulates any "Automatic" total is determined by the scan level associated with the total, where scan levels are defined as follows:

- Level 1 (the highest scan level) — the level of the master table and any tables in a lookup relation to the master table.
- Level 2 — the level of any table scanned by a table at level one and any table(s) in a lookup relation with this scanned table.
- Levels 3 through 99 (the lowest scan level) — levels defined as above, with the scan level of any table being one lower (that is, one number higher) than that of the table that scans it.

Report Designer adds to the value of a total field when it reads a new record from a table at the field's scan level, where the scan level associated with a field is defined as the scan level of the table containing the field being totaled. The report shown in Figure 8.8 illustrates this principle.

The report is a three-table report based on a scan from a customer table (scan level 1) to an orders table (scan level 2) and another scan from the orders table to an items table (scan level 3). The report contains grand counts of customer number (from the customer table), order number (from the order table), and number of items ordered (from the items table).

The customer number count in this report is at the first (highest) scan level and is therefore accumulated whenever a new record is read from the customer table. The order number count is at the second scan level and is therefore accumulated whenever a new record is read from the orders table. The item count is at the third (lowest) scan level and is therefore accumulated whenever a new record is read from the items table. (Note that totals at the lowest scan level accumulate most frequently, with each composite record.)

| Grand Customer Number | Grand Customer Count | Order Number | Grand Order Count | Item # | Grand Item Count |
|-----------------------|----------------------|--------------|-------------------|--------|------------------|
| 10001                 | 1                    | 32201        | 1                 | 903    | 1                |
| 10001                 | 1                    | 32201        | 1                 | 901    | 2                |
| 10001                 | 1                    | 32209        | 2                 | 910    | 3                |
| 10001                 | 1                    | 32209        | 2                 | 901    | 4                |
| 10001                 | 1                    | 32210        | 3                 | 903    | 5                |
| 10001                 | 1                    | 32210        | 3                 | 906    | 6                |
| 10003                 | 2                    | 32202        | 4                 | 901    | 7                |
| 10003                 | 2                    | 32202        | 4                 | 907    | 8                |

**Figure 8.8 Default Total Accumulation Frequency**

These default rules for total accumulation apply to all total fields except for those that total other totals. These fields accumulate when the field being totaled resets.

*Selecting a Processing Option*

## **Selecting a Processing Option**

By default, Report Designer calculates the value of a total progressively as it reads each record that contributes to the total. This default processing enables you to see the running value of the total at any point in the report. For example, you can create an invoice with a running total of line amounts by putting an invoice group total field on a Record line in the report.

However, you can change this processing mode so that the total value is pre-processed — that is, the value is computed before the report records are output. This pre-processing mode enables you to have access to the final value of the total earlier than it would ordinarily be calculated. As a result, you can place such a total field anywhere in the report, even at the beginning. Any total field except those listed in the **Pre-Processing Restrictions** section in this chapter can be designated as pre-processed.

In order to change the method of total processing for a given total field, select the Processing tab from the New/Edit Total dialog and then select a processing method:

- Running — the default method of total processing, in which a total is calculated progressively as each record contributing to the total is read.
- Pre-processed — A method of calculating the value of a total field by performing a preliminary read-through of the data to accumulate totals designated as pre-processed.

You can see what processing mode is assigned to any total field by looking at the Expression that displays in the Total Fields dialog box or the Field Properties window. For example, the following Expression indicates that the field provides a pre-processed grand count of the CUST\_NO field:

```
Count(CUST_NO,Grand,Auto,Pre-processed)
```

## When to Use Pre-Processed Totals

You should specify that a total be pre-processed when you want to:

- Place a grand total field in the Title band or a group total in a Group Header band of a report
- Create a calculated field such as a "percent-of-total" field that compares a value in each record to a final value based on all records in a group or report
- Use a total field to sort a report
- Use a total field in a Query

For example, the report excerpt in Figure 8.9 illustrates the use of pre-processed totals in Group Headers, sorting, and calculated fields. This report contains two total fields that have been designated as pre-processed. The first field, PRODCNT, counts the number of orders for each product. This field is pre-processed so that it can appear in the Group Header ("There are PRODCNT orders for PRODUCT.").

The second field, PRODSUM, sums the number of units ordered for each product. This field is pre-processed so that it can appear in the Group Header ("A total of PRODSUM units were ordered."), be used to sort the report in descending order based on total number of units sold, and be used in the calculated field expression that produces the figures in the "Percent of Units Ordered" column on the report.

| <b>WEEKLY PRODUCT ORDER SUMMARY</b>   |                 |                                 |  |
|---|-----------------|---------------------------------|--|
| <b>There are 10 orders for PC Database. A total of 315 units were ordered.</b>  |                 |                                 |  |
| <u>Order Number</u>   | <u>Quantity</u> | <u>Percent of Units Ordered</u> |  |
| 32205   | 50              | 15.9%                           |  |
| 32202   | 50              | 15.9%                           |  |
| 32207   | 45              | 14.3%                           |  |
| 32210   | 45              | 14.3%                           |  |
| 32201   | 30              | 9.5%                            |  |
| 32211   | 25              | 7.9%                            |  |
| 32216   | 25              | 7.9%                            |  |
| 32208   | 20              | 6.3%                            |  |
| 32206   | 15              | 4.8%                            |  |
| 32214   | 10              | 3.2%                            |  |
| <b>There are 6 orders for PC Spreadsheet. A total of 90 units were ordered.</b> |                 |                                 |  |
| <u>Order Number</u>   | <u>Quantity</u> | <u>Percent of Units Ordered</u> |  |
| 32205   | 30              | 33.3%                           |  |
| 32212   | 15              | 16.7%                           |  |
| 32206   | 15              | 16.7%                           |  |
| 32210   | 10              | 11.1%                           |  |
| 32203   | 10              | 11.1%                           |  |
| 32202   | 10              | 11.1%                           |  |

**Figure 8.9 Sample Report Using Pre-Processed Totals**

Note that defining pre-processed totals affects the performance of your report, since Report Designer must read through records twice: once to calculate pre-processed totals and once to perform other calculations (if any) and generate the report.

## ***Pre-Processing Restrictions***

Pre-processed totals are accumulated in a single preliminary pass through the data that, for reasons of performance, does not involve page formatting.

For this reason, the following types of total fields *cannot* be designated as pre-processed:

- **Pagination-related totals** — These totals include page totals, totals whose accumulation frequency has been set to once per page, and totals involving calculated fields that use the PAGENO( ) function. This restriction results from the exclusion of page formatting from the preliminary total evaluation process.
- **Totals of certain pre-processed totals** — These totals include any total-of-total fields where the total-of-total accumulates more frequently than the field being totaled resets (for example, a grand total, accumulating once per composite, of a pre-processed group one subtotal). This restriction results from the fact that pre-processed totals are evaluated in a single extra pass. For totals such as these to be pre-processed, two extra passes would be required: one for the first pre-processed total and another for the field that totals it.
- **Totals that reset or accumulate on group fields that are themselves pre-processed totals** (or calculated fields whose expressions include pre-processed totals). This restriction is also a result of the single pass used to accumulate pre-processed totals.

## *Entering a Condition Expression*

## ***Entering a Condition Expression***

For any total field, you can specify a *conditional expression* that controls the circumstances in which Report Designer will calculate that total. To do so, you select the Condition tab on the New/Edit Total dialog and enter a valid expression to control the total field. Syntax for a condition expression is the same as that for calculated field expressions.

To specify a conditional total, follow these steps:

1. On the New/Edit Total dialog, select the Condition tab.
2. Press the Edit button to display the Conditional Expression dialog.
3. Enter the condition expression. You can build the expression by selecting from fields, operators, expressions, and UDFs.
4. When the expression is complete, select Verify to ensure that the syntax is correct; then select OK. The condition expression is displayed in the Condition box.

For example, suppose you have a report that summarizes product sales. The report includes a QUANTITY field containing the number of items for each order. You can create a conditional total that provides the total number of items ordered for each product number. To create such a conditional total for items with product number 901, you would first create a total named Tot901 (for example) that is a Grand Sum of the QUANTITY field. You would then select Condition and enter the following condition expression:

```
PRODUCT_NO = "901"
```

You could then place the TOT901 field in the report's Summary area to provide a grand total of items ordered for that product code. You could create similar conditional total fields for all remaining product numbers.

To see whether a condition has been attached to a total field, look at the Expression description that displays in the Status Bar when the field is highlighted. If a conditional expression is attached to the field, the description includes the word Conditional and the condition expression is displayed.

## *Adding a Total Field Comment*

### ***Adding a Total Field Comment***

You can enter a brief comment (up to 100 characters) to serve as a "plain English" explanation of a total field. To do so, select Calculations ⇒ Total Field, highlight the field name, and select Edit. On the Name tab of the edit total dialog there is a Comment box where you can enter /edit the comment. When a total field has a comment attached to it, that comment is displayed in the Status Bar when the field is highlighted.

You can also enter or edit a field comment using the Comment tab on the Field Properties tabbed dialog (select the field and press F9 or right mouse click and select Properties from the list).

**Using Total Fields in Reports**

## Using Total Fields in Reports

After you define a total field, you can insert it on the report layout just like you insert any other field. Where you place a total field on your layout usually depends on the reset level you have selected.

To insert a total field, double-click on the layout, select Insert Field, or press F11. Select from the list of available fields.

From the Calculations->Total Fields dialog, you can drag a field name from field list directly to the report layout.

Since Report Designer calculates totals cumulatively as it reads each record that contributes to the total, the total field's final value is not available until the last record being totaled has been read (unless you have defined the field as a pre-processed total).

For this reason, you typically place total fields on lines that correspond to their reset levels as follows:

- Place a group total on a Group Footer line of the same level as the total's reset level (for example, put a total that resets on ORDNO on a Group Footer line associated with the ORDNO field).
- Place a page total on a Page Footer line.
- Place a grand total on a Summary line.

Each of these placement options is explained in more detail in the following sections, along with the option of placing a total field so that you can see the progressive accumulation of its value.

Note that the Processing setting (accessed by selecting the Processing tab on the Field Total dialog box) allows you to create pre-processed totals that make a field's "final" value available for use earlier than it would ordinarily be calculated.

After you have inserted a total field, when the field is highlighted the Status Bar displays a description of the field using the following syntax:

**type (field, reset, accumulation, processing,[conditional])**

In this total description, "type" indicates the total type (for example, Sum); "field" is the name of the field being totaled; "reset" indicates when the total is reset to zero; "accumulation" indicates the frequency with which the total is added to; "processing" indicates when the total value is computed — before records are output (Pre-processed) or progressively as records are read (Running); and "conditional" (if present) indicates that a condition expression has been attached to the total.

## Inserting Group Totals

A group total field is typically placed on a Group Footer line defined at the same level as the field's reset level. For example, if you have selected a group field as the reset level for a total, you will usually place the total on a Group Footer line associated with the same field.

Figure 8.10 shows a report layout that contains a total of the AMOUNT field. The group field selected as the reset level for the total is CUST\_NO. Each line marked 1GF-CUST\_NO is a Group Footer line associated with CUST\_NO. The second of these lines contains the total field selected to reset each time the value of CUST\_NO changes.

| Page Header | Customer       | Item | Quantity        | Amount       |
|-------------|----------------|------|-----------------|--------------|
| Record      | XXXXXXXXXXXXXX | XXX  | 999             | (\$999.99)   |
| 1GF-CUST_NO |                |      | Customer Total: | (\$9,999.99) |

Level 1  
Group Total

**Figure 8.10 Report Layout for Group Total**

The layout in Figure 8.10 produces the report excerpt in Figure 8.11.

| Customer        | Item | Quantity | Amount   |
|-----------------|------|----------|----------|
| Joyce Adams     | 903  | 36       | \$216.00 |
| 901             | 24   |          | \$96.00  |
| Customer Total: |      |          | \$312.00 |
| Fred Anderson   | 910  | 18       | \$162.00 |
| 902             | 12   |          | \$60.00  |
| 901             | 36   |          | \$144.00 |
| Customer Total: |      |          | \$366.00 |

**Figure 8.11 Report with Group Totals**

A total is produced for each new group of records, that is, every time the value of the CUST\_NO field changes.

## Inserting Page Totals

A page total field is typically placed in the Page Footer band so that it will print at the end of each page of a report. For example, Figure 8.12 shows the placement of the page sum of AMOUNT. Note that page totals of group totals include only groups that end on the page.

|             | 0 | 1                 | 2           | 3               | 4             | 5            |
|-------------|---|-------------------|-------------|-----------------|---------------|--------------|
| Page Header |   | <u>Customer</u>   | <u>Item</u> | <u>Quantity</u> | <u>Amount</u> |              |
| Record      |   | <XXXXXXXXXXXXXXXX | <XX         | 999             | (\$999.99)    |              |
|             |   |                   |             | Customer-Total: | (\$9,999.99)  |              |
| TGF-CUST ID |   |                   |             |                 |               |              |
| Page Footer |   | Page: 9999        |             | Page-Total:     | (\$9,999.99)  | ← Page Total |

**Figure 8.12 Report Layout for Page Total**

The layout in Figure 8.12 produces the report excerpt shown in Figure 8.13.

| Customer    | Item | Quantity | Amount                 |
|-------------|------|----------|------------------------|
| Joyce Adams | 903  | 36       | \$216.00               |
|             | 901  | 24       | \$96.00                |
| Page 1      |      |          | Page Total: \$2,135.00 |

**Figure 8.13 Report with Page Total**

## Inserting Grand Totals

A grand total field is typically placed at the end of a report, in the Summary band. For example, Figure 8.14 shows the placement of the grand sum of the AMOUNT field.

|             | 0               | 1    | 2                        | 3             | 4 | 5           |
|-------------|-----------------|------|--------------------------|---------------|---|-------------|
| Page Header | Customer        | Item | Quantity                 | Amount        |   |             |
| Record      | <XXXXXXXXXXXXXX | <XX  | 999                      | (\$999.99)    |   |             |
|             |                 |      | Customer Total:          | (\$9,999.99)  |   |             |
| 1GE-CUST ID |                 |      | Total for All Customers: | (\$99,999.99) |   | Grand Total |
| Summary     |                 |      |                          |               |   |             |

**Figure 8.14 Report Layout for Grand Total**

The layout in Figure 8.14 produces the report excerpt in Figure 8.15.

| Customer                 | Item | Quantity | Amount     |
|--------------------------|------|----------|------------|
| Joyce Adams              | 903  | 36       | \$216.00   |
| 901                      | 24   |          | \$96.00    |
| Wanda Warner             | 910  | 18       | \$162.00   |
| 902                      | 12   |          | \$60.00    |
| 901                      | 36   |          | \$144.00   |
| Total for All Customers: |      |          | \$9,366.00 |

**Figure 8.15 Report with Grand Total**

## Displaying Progressive Accumulation

You can also place total fields on lines where they will display the progressive accumulation of the total value as records, groups, or pages are processed. For example, you might create a total field with Grand Total as the reset level and place it on any Group Footer or Record line (placing it on a Record line will give you the maximum amount of detail). For example, Figure 8.16 shows the placement of a Grand Total field that accumulates the amount owed.

|             |   |                  |                   |                   |   |   |              |
|-------------|---|------------------|-------------------|-------------------|---|---|--------------|
|             | 0 | 1                | 2                 | 3                 | 4 | 5 |              |
| Page Header | 0 | <b>Customer</b>  | <b>Amount Due</b> | <b>Total Owed</b> |   |   |              |
| Record      | 0 | XXXXXXXXXXXXXXXX | (\$999.99)        | (\$9,999.99)      | ← |   | <b>Total</b> |

**Figure 8.16 Report Layout for Progressive Total**

The report layout shown in Figure 8.16 produces the report excerpt shown in Figure 8.17. Note that placing the total field on a Record line displays the progressive accumulation of the Grand Total as each record is printed.

| Customer      | Amount Due | Total Owed |
|---------------|------------|------------|
| Joyce Adams   | \$162      | \$162      |
|               | \$60       | \$222      |
|               | \$144      | \$366      |
| Fred Anderson | \$138      | \$504      |
|               | \$117      | \$621      |
|               | \$108      | \$729      |

**Figure 8.17 Report with Progressive Total**

**Using Totals in Calculations**

## Using Totals in Calculations

After you have created a total field, you can use it in calculated field expressions or create other totals based on it. For example, if you have created a total field, ORDERTOT, that sums the line items on an invoice, you could create a calculated field to compute a 5 percent sales tax. You could also create a Grand sum of the ORDERTOT field to calculate the value of all invoices generated as the report was run.

The sales tax calculation based on the ORDERTOT field would typically be placed in the ORDERNO Group Footer or, if each invoice were a separate page, in a Page Footer line.

If you want to perform calculations on the final value of a total field before this value would normally be calculated (for example, put the total amount of an invoice, along with its sales tax, in the invoice Group Header), change the Processing setting (accessed by selecting Options on the Total Field dialog box) to designate the total as a pre-processed total.

**Sorting and Querying on Totals**

## **Sorting and Querying on Totals**

In many cases, you can sort and query on total fields. The following sections explain how to use totals in sorting and querying and identify restrictions that Report Designer imposes in using totals in sorts and queries.

## Sorting on Totals

You can sort on any total field that has been designated as pre-processed using the Processing tab on the New/Edit Total dialog. For example, to produce a report listing products in order of the total number of orders, you would first create a pre-processed order total field. Then, you would select the Sort button to specify the order total field as the first sort field. See Figure 8.9 for an example.

You can also sort on calculated fields whose expressions include pre-processed totals, unless the expressions also include table fields. For example, you can sort on a calculated field whose expression uses a pre-processed customer total field and a pre-processed order total field (e.g.  $ORD\_TOT/CUST\_TOT$ ). However, you cannot sort on a calculated field that figures a percent-of-total by dividing a table field by a pre-processed total (e.g.  $ITEMCOST/ORD\_TOT$ ).

See Chapter 11, "Sorting and Grouping Data," for more information on sorting on pre-processed totals.

## Querying on Totals

When you query on a total field (or on a calculated field whose expression includes a total field), records that do not satisfy the conditions established by the query will not contribute to the total. For this reason, total field queries may not select the records you expect unless you designate the total fields as pre-processed. For example, to print only those invoices for amounts over \$1,000, make the invoice total pre-processed and define a query that selects all records in which the value in this total field is greater than 1,000.

Due to the nature of Report Designer's total processing, two restrictions apply to queries that use totals (see Chapter 12, "Creating Queries," for more information about querying on total fields):

- You can query on a pre-processed total only if no other pre-processed total is defined at a higher (more inclusive) reset level. For example, you cannot query on a pre-processed group total if the report contains pre-processed grand totals.
- You cannot query on running totals if your report contains any pre-processed totals.

## Chapter 9 Working with Parameter Fields

## ***Introduction (Working with Parameter Fields)***

This chapter explains how to develop and use Parameter fields. This information is presented in the following sections:

- Creating a Basic Parameter Field
- Using the Parameter Field Dialog
- Using the Parameter Value Entry Screen
- Copying Parameter fields
- Modifying a Parameter Field
- Purging Unused Parameter Fields

### **Overview**

---

Report Designer includes a field type called a Parameter field. Parameter fields are an extension of R&R calculated fields and are designed to provide users of reports with an internally generated dialog to control the entry and validation of report data. A Parameter Value Entry dialog will appear just before any report is printed, exported or previewed both in the Report Designer and within Runtime so that the report user can easily make any required changes.

Parameter fields are available for use in a report just as would an R&R calculated field. They can be used in other calculations and even totals and essentially behave in the same way as an equivalent calculated field constant. Like calculated fields, parameter fields return a specific data type. So if a date Parameter field asks the user to enter a date and 12/31/2004 is input, this would be the equivalent of a calculated field with expression { 12/31/2004 }.

Beginning in Version 11, a new list type of parameter is also available. List parameter allow you to define a list of available values for a parameter. When the report is executed, users can then select a value from a list of choices to use as the current value in the report.

Since the report data is not evaluated until after parameters are input, parameter fields can be used on the report layout, in calculated field expressions or as part of a query so that the dynamic parameter values will drive the report results. You can also use parameter fields for master file scope settings.

### **Parameter Usage Examples**

---

Here are a few examples of how you can use Parameter fields.

Probably the most typical use of a parameter field would be as a comparison value in a query. For example you might create two date parameter fields named StartDate and EndDate and then set up a query where OrderDate (a date field in your database) is greater than or equal to StartDate and OrderDate is less than or equal to EndDate.

When the report is run, the user will be prompted to enter the StartDate and EndDate Values. Once the user OK's these entries, the query will be processed and only those OrderDate records that are within the date range will be selected.

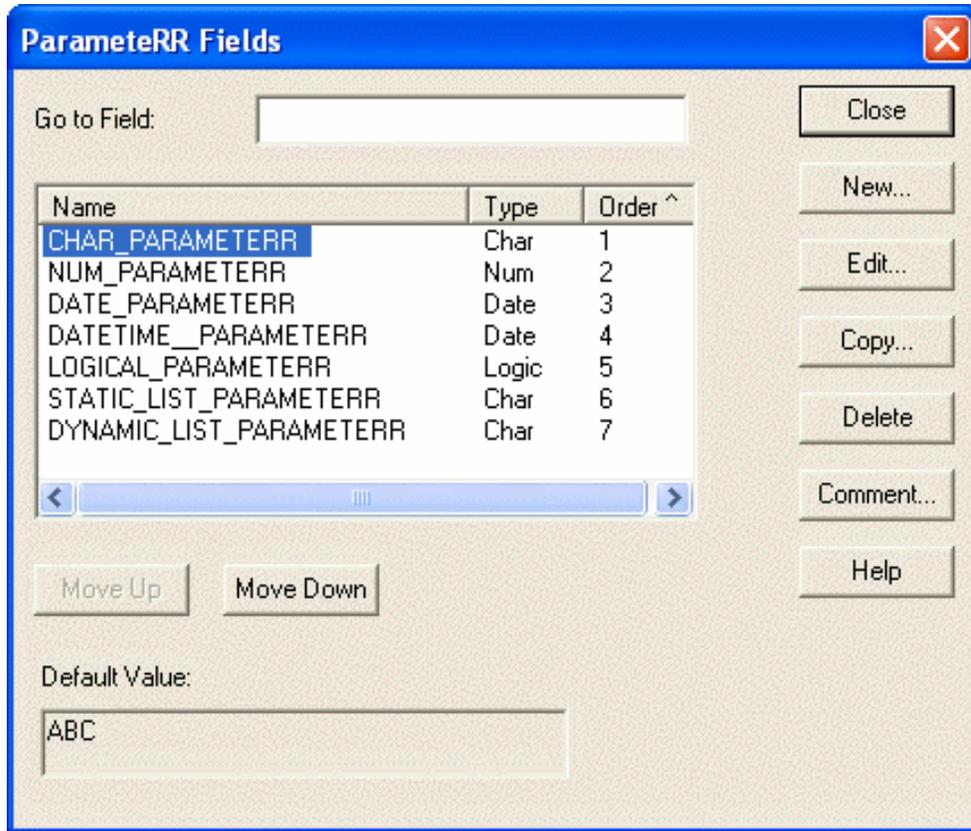
Another use of Parameter fields might be to control the sort order of a report. For example you might have an Employee List report that you might want to sort by just last name or by Department and then last name. You could set up a

character parameter field that would prompt the user to enter either NAME or DEPT and then could use a calculated field that depends on the Parameter field as the sort field for the Report. Several of the reports that are included in the Report Librarian™ use this technique.

Parameter fields can also be used to print information such the name of the user running the report or a title entry for the start of the report. You could also have band lines within the report whose print condition depends on a parameter field entry. For example you could ask the user to select whether they want to see detail or summary information and then have the record band lines of the report only print if the selection was detail.

## Using the ParameteRR Field Dialog

The ParameteRR Fields dialog lists all available ParameteRR fields in the current report.



**Figure 9.1. Parameter Field Dialog**

The **Go to Field** box allows you to enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered. Press backspace to clear the box and display all fields.

The field list displays the **Name**, and data type and numbered runtime display order for each parameteRR field.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Click on a sorted column heading to **reverse** the sort order.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

You can select a field name and then **drag** it from the list onto the report layout.

The **default value** box shows the current default value for the selected field.

The **Move Up** and **Move Down** buttons you can control the order that ParameteRRs will appear in the ParameteRR Value Entry screen when the report is executed.

Selecting the **Close** button closes this dialog.

The **New** button brings you to the New Parameter field dialog.

The **Edit** button brings up the Edit Parameter field dialog for the currently selected field. You can also edit a Parameter field by selecting it on the report layout screen and the pressing F2.

The **Copy** button allows you to create a new parameter having the same properties as the currently selected parameter field.

The **Delete** Button deletes the currently selected parameter field without giving a confirmation prompt.

The **Comment** Button allows you to enter a brief comment (up to 100 characters) to serve as a "plain English" explanation of a parameter field. Enter the explanation in the Comment box and then select OK. When a parameter field has a comment attached to it, the text of that comment is displayed in the Status Bar when the field is highlighted. You can also enter or edit a field comment using the Comment tab on the Properties tabbed dialog (select the field and press F9).

**Creating a ParameteRR field**

## **Creating a ParameteRR field**

To create a new ParameteRR field:

Select Calculations->ParameteRR Field or click the ParameteRR button on the Standard Toolbar.

You can also create a new parameteRR as a copy of an existing parameteRR. To do this, select the parameteRR you wish to copy from the list and then select the Copy button. This will bring you to the Copy of ParameteRR field dialog where you can then make any changes, assign a field name and then OK to save the copied parameteRR.

**The New ParameteRR field dialog has 4 available tabs.**

**Name**

**Value**

**Presentation**

**Validation or List Validation**

**The available settings for each of these tabs will be described below.**

## Parameter Name Tab Settings

The Parameter name tab allows you to define the name and optional display caption of a parameter field.

### **Name**

---

You must type a unique valid R&R field name in the Field Name edit box. A parameter field name can be up to 30 characters in length. It can contain letters, numbers, or the underscore character; it must start with a letter. The field name must not be the same as any database or other R&R computed field in this report and cannot contain spaces.

### **Display Caption**

---

The optional display caption will be used in place of the Parameter's field name in the field list section of the Parameter Value entry dialog. Note that you can use freely use spaces and punctuation. So you could name a Parameter field STARTDATE but could use a display caption of Starting Date.

If you leave this box blank, R&R will use the parameter field name when prompting for a value in the Parameter value entry screen.

## Parameter Value Tab Settings

The parameter value tab sets the data type of the parameter field, its default value, options regarding its runtime behavior and whether it will use a validation list to set its available values.

### Data Type

---

In the Data Type list box, you must select a data type for the parameter. The available choices are:

- Character
- Numeric
- Date
- Date/Time
- Logical

### Default Value

---

Based on the data type selection, you then enter a default value for the field. The default value will be used as the value of the field within the report unless it is updated via the Parameter value entry screen when the report is executed.

#### Character Default

A character default is any character or string of characters in the ANSI character set. You may leave this box empty to supply a blank string.

#### Numeric Default

A numeric constant is a number that may contain a decimal point and may be preceded by minus sign. For example, 3.1415927 can be used as a constant in expressions that require the value of pi to seven decimal places. To set a blank numeric default, you must enter a 0 as the default and then format the field to not display zero.

#### Date Default

A date default may be entered in the current windows short date format using / separators such as 11/11/2005 or may be selected using the calendar button to bring up a calendar control. Use the arrows in the calendar header to scroll by month. Click on the year in the header to use the year spin control. Select a date from the calendar by clicking on the day.

R&R supports dates in the range Mar 1, 1600 to Dec 31, 2999.

#### Datetime Default

A date time default is entered just as for a date but with the additional selection of a time component. You must provide a date before adjusting the time. When you create a new date time default the time portion defaults to the current system time. You can manually enter any part of the time or can select a time part (use the right and left arrows to select each of the time components) and then use the

spin controls to change the selected time part.

### **Logical Default**

A logical constant is a true or false value that is selected via a radio button.

### **Options Checkboxes**

---

#### ***Replace Default with Runtime Input Value***

If this box is checked, the saved ParameteRR default value will be replaced with the user input value that is entered via the ParameteRR Value Entry dialog. This setting will only take effect if the report is being run within the report designer.

Note that if the current value is replaced with an input value and you want that change to be preserved for future R&R sessions, you will need to save the report prior to exiting the designer. By default this box is un-checked when a new parameteRR field is created.

#### ***Prompt at Runtime***

When this box is checked (and the parameteRR field is actually used in within the report), this ParameteRR field will appear in the ParameteRR Value Entry dialog that is presented prior to report output. If it is unchecked, it will not appear in the input dialog and will instead take it's default value automatically. By default this box is checked when a new parameteRR field is created.

### **List Options Checkbox**

---

#### ***Define Validation List***

Check this box to define a list of available parameteRR values in place of setting a default value. When this box is checked, the default section of this tab is cleared. When define validation list is checked, Static and Dynamic radio buttons are enabled so that you can select the type of list validation that you wish to use.

#### ***Static***

Select the static radio button when you want to manually create a list of available values and set a default value for the parameteRR field. When the report is executed, the user can then select a value from this list.

#### ***Dynamic***

Select the dynamic radio button when you want to use a field from an existing database table to look up the parameteRR value by browsing the records of the lookup table. When the report is executed, the user can then select a value from the table or alternatively can manually enter a value.

Note that the validation list checkbox is disabled when the selected data type for the parameteRR is logical since a logical field already has only 2 available values.

## Parameter Presentation Tab Settings

The presentation tab sets the format of a parameter field when it is presented in the Parameter Value entry screen and the appearance of the field when placed on the report layout. It also allows you to define the instructions that will be presented to the user when this parameter is displayed in the Parameter value entry screen at runtime.

### Display Format

---

Format controls the presentation format of a parameter field when it is presented in the Parameter Value entry screen and the appearance of the field when placed on the report layout.

The appearance of the display format box is dependent on the data type that was selected on the Value tab. The initial format choice will be based on the entry that was made for the default value. Use the Edit button to make changes to the displayed format.

### Character Field Format

For character fields, a character width is set in number of characters.

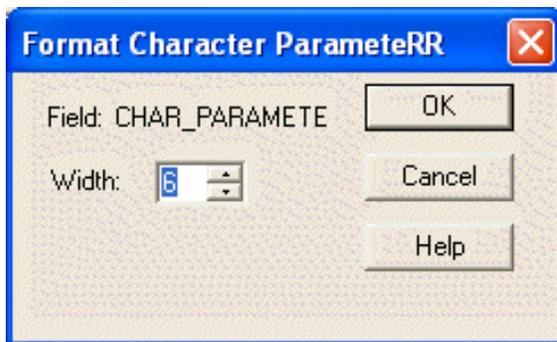


Figure 9.2. Format Character Parameter Dialog

### Numeric Field Format

For numeric fields you can choose the number of integer and decimal places to display. It also provides the same Numeric display formats that are available for all numeric fields.

These are Fixed, Scientific, Currency, Comma, General, Percent. You can also select whether leading zeros should be displayed.

For numeric fields, Parameter Value entry is not limited to the width set here however any number that is entered that is greater than the width will display as \*\*\*'s in the Present Value parameter display box at runtime.

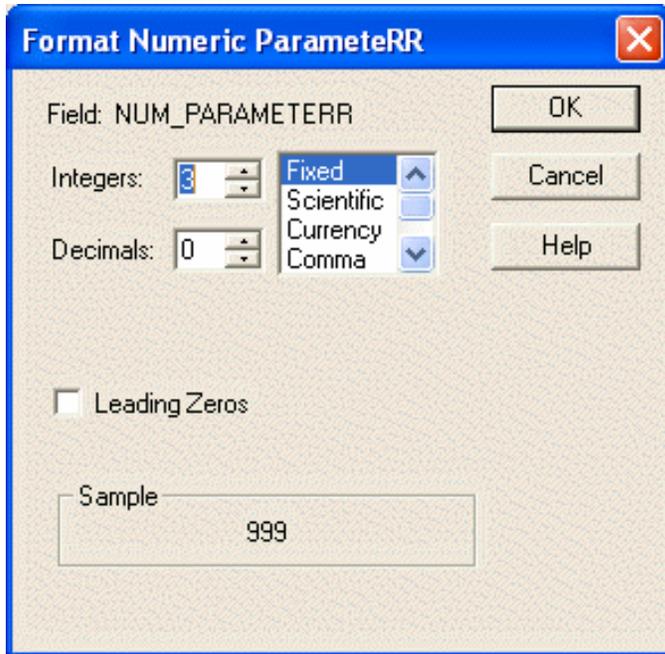


Figure 9.3. Format Numeric ParameterRR Dialog

#### Date and Date/Time Field Format

Date and Date/Time fields can be set to any of the available date formats.

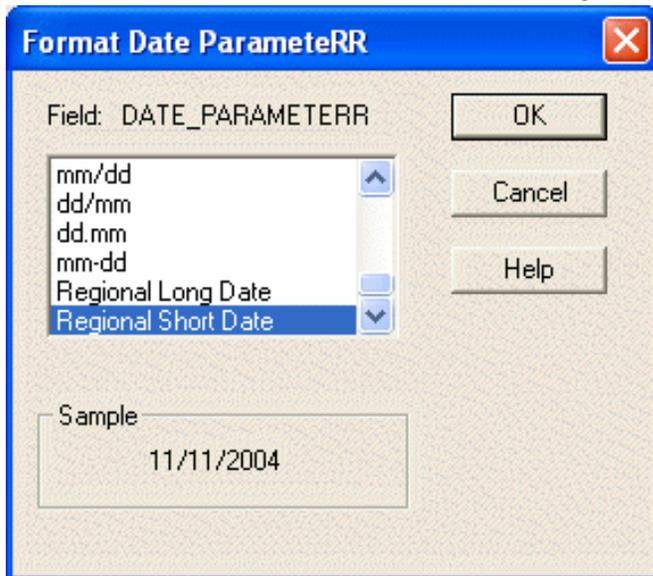
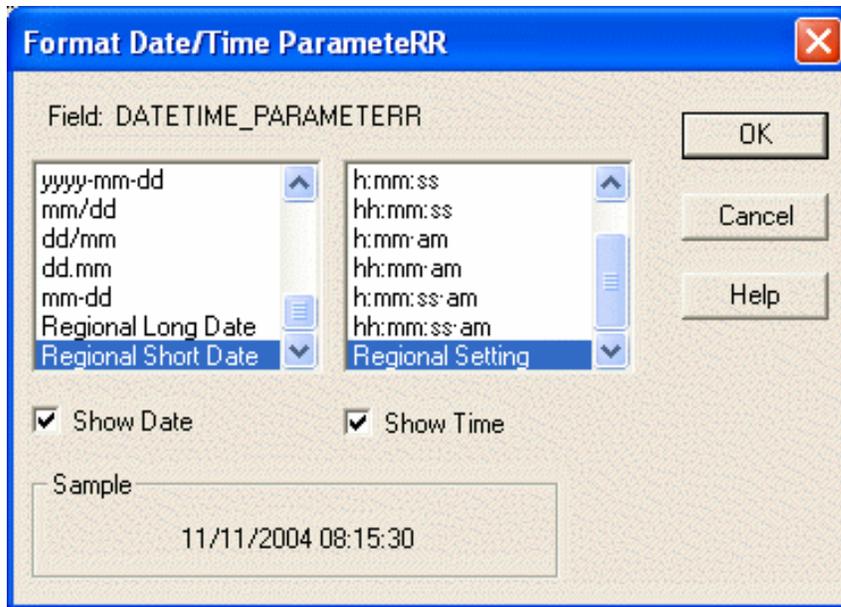


Figure 9.4. Format Date ParameterRR Dialog



**Figure 9.5. Format Date/Time ParameteRR Dialog**

### **Logical Field Format**

The edit format button is not functional for logical fields. Instead, the default logical values for True and False that have been set in Options Default Settings will be presented as radio button choices in the Parameter Value Entry screen.

### **Instructions**

---

The optional instructions text box is available for all data types and is the text that will be displayed in the instructions box on the ParameteRR Value Entry screen. This field can contain multiple lines of text. You can use CTL+ENTER to begin a new line.

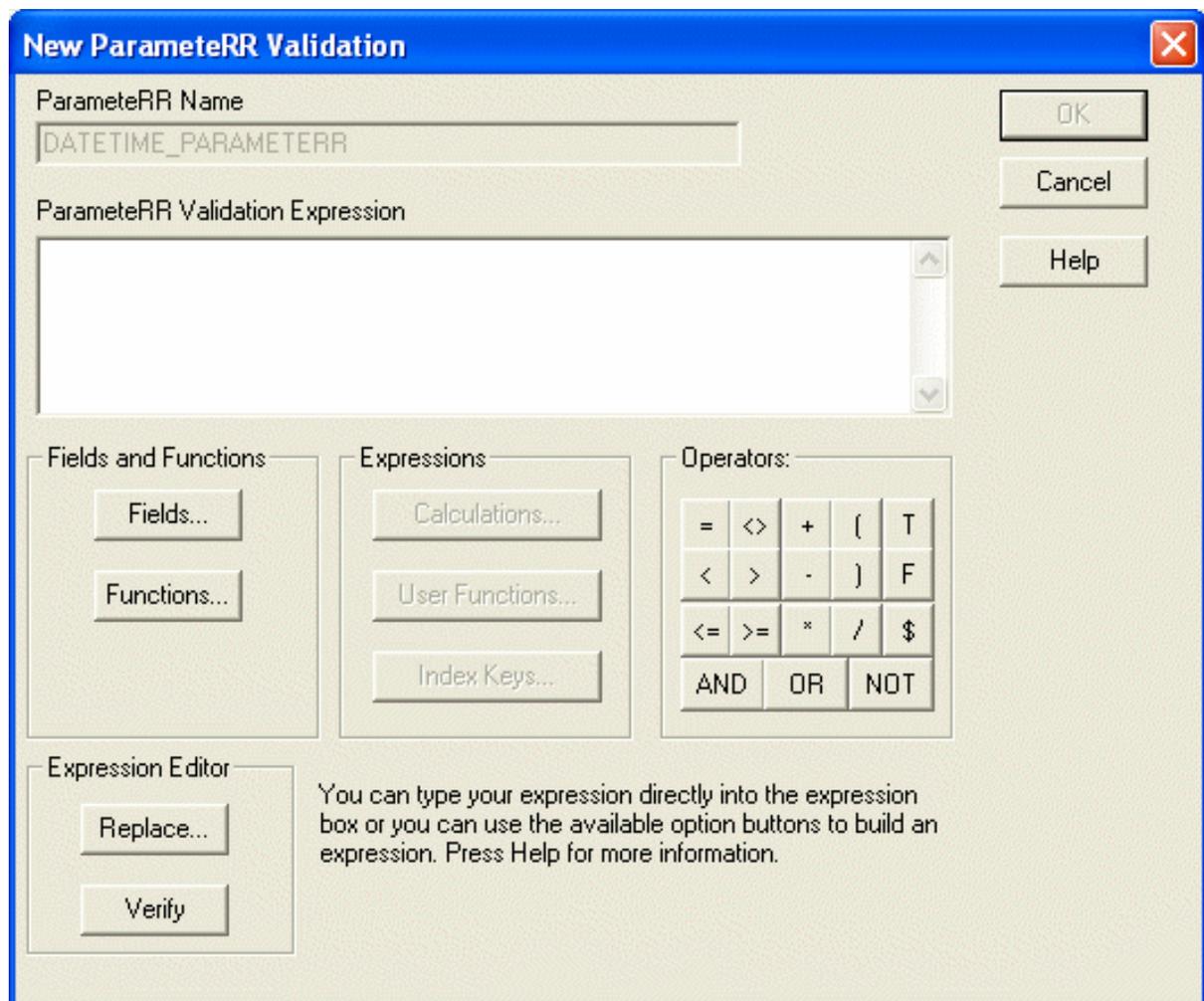
## Parameter Validation Tab Options

The validation tab allows you set a validation expression for non-list parameter's that will control the range of values that a user may enter at runtime. At Parameter Value Entry, this expression will be evaluated using the input value and if it does not evaluate to a true condition, the user will receive an error message and will not be allowed to proceed with report execution until a valid value is entered.

### Validation Expression

A validation expression is an optional property for a Parameter field. The validation expression is used to control the range of values that a user may enter for this field at runtime. At Parameter Value Entry, this expression will be evaluated using the input value and if it does not evaluate to a true condition, the user will receive an error message and will not be allowed to proceed with report execution.

When you click the Edit button for validation, you will be presented with an Edit Parameter Validation dialog that is similar to that for an R&R calculated field.



**New Parameter Validation**

Parameter Name  
DATETIME\_PARAMETER

Parameter Validation Expression

Fields and Functions  
Fields...  
Functions...

Expressions  
Calculations...  
User Functions...  
Index Keys...

Operators:  
= <> + ( T  
< > - ) F  
<= >= \* / \$  
AND OR NOT

Expression Editor  
Replace...  
Verify

You can type your expression directly into the expression box or you can use the available option buttons to build an expression. Press Help for more information.

## Figure 9.6. Edit Parameter Validation Dialog

The main differences are:

- The available field list only includes Parameter field names.
- You cannot use R&R or database field names in the expression. This is because parameter fields must be evaluated before report execution and are really whole report rather than record dependent.
- The expression must evaluate to a logical true or false value or you will receive the following error: Validate Expression must be logical type.

Here are some examples that show Parameter validation expressions and their meaning.

### Examples:

`Inlist(PARAM1, "Curly","Larry","Moe")`

*User must enter either Curly Larry or Moe in text box for character parameter PARAM1*

`PARAM2 <> 5`

*User cannot enter 5 as the numeric value for numeric parameter PARAM2*

`Inrange(PARAM3({ 12/01/2005},{ 12/31/2005}))`

*Date must be in December 2005 for date parameter PARAM3*

Once you have entered your expression, OK will evaluate the expression and then return you to the Edit Parameter dialog and the validation expression will be displayed.

The Delete button for Validation will allow you to delete any Validation expression.

### Optional Error Message

---

The optional error string edit box is available for all data types and is the text that will be presented to the user in a dialog box when a user's Parameter field entry at runtime results in an error.

This field can contain multiple lines of text. You can use CTL+ENTER to begin a new line.

Here is an example of an error box that would appear if a user entered a value of less than 100 when the validation expression was:

`NUM_PARAMETER > 100`

And the error message was set to You must enter a number that is greater than 100!

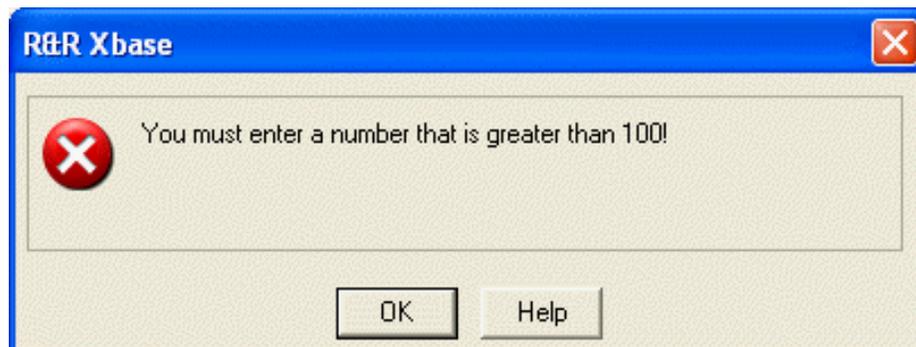


Figure 9.7. Custom Error Dialog



## Static Parameter List Validation Tab

If the Define Validation list box is checked on the Value tab and the Static radio button is selected, the validation tab allows you to manually define the list of available values for the Parameter field.

The items in the validation list will be presented in the Parameter value entry box when the report is executed. The list will be shown in the order set in this dialog and the default item will be initial selected value.

The validation list dialog has two sections. The upper section displays the current list and action buttons to modify the list. The lower section is used to add or edit a selected value.

When you create a new validation list, the only available button is the New button that allows you to add an item to the list.

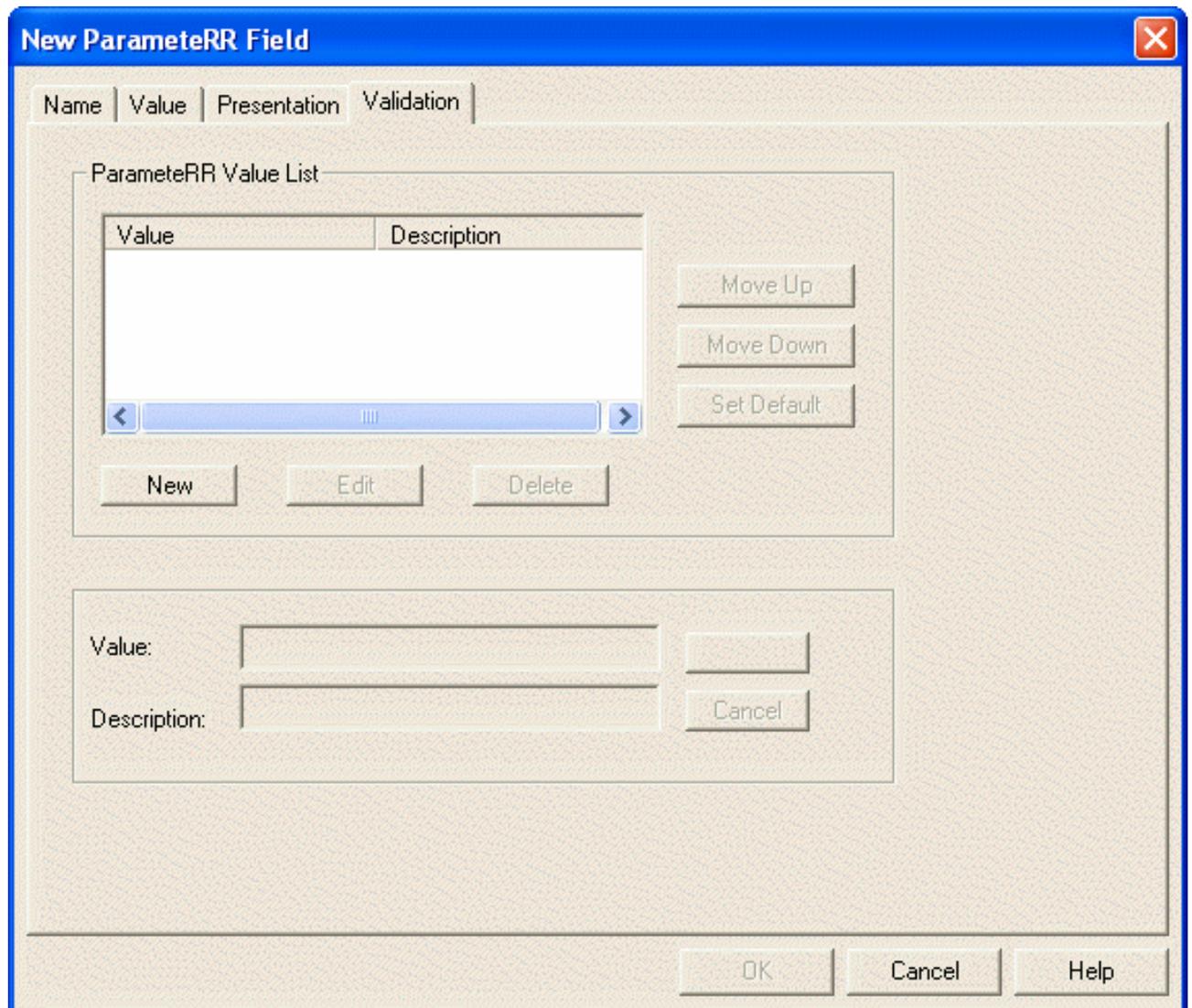


Figure 9.8. New parameter validation list

When you click the New button, the New List item section is enabled. In value box you enter a list item. The format of this entry depends on the data type of the parameter field. It uses the same format as is available for entering a parameter default value.

The description box allows you to enter descriptive text for each list value. This description will be displayed when the parameter selection list is displayed when the report is executed.

Use the Add button to add the current item to the list.

Once the list contains an item, the Edit and Delete buttons are enabled. These allow you to edit or delete the selected list item. The Move Up and Move Down buttons at the side of the list allow you to change the order in which the list items are displayed. The Default button allows you to Set/Reset an item as the default selection. When an item is set as the default, a checkmark appears before its value in the value list.

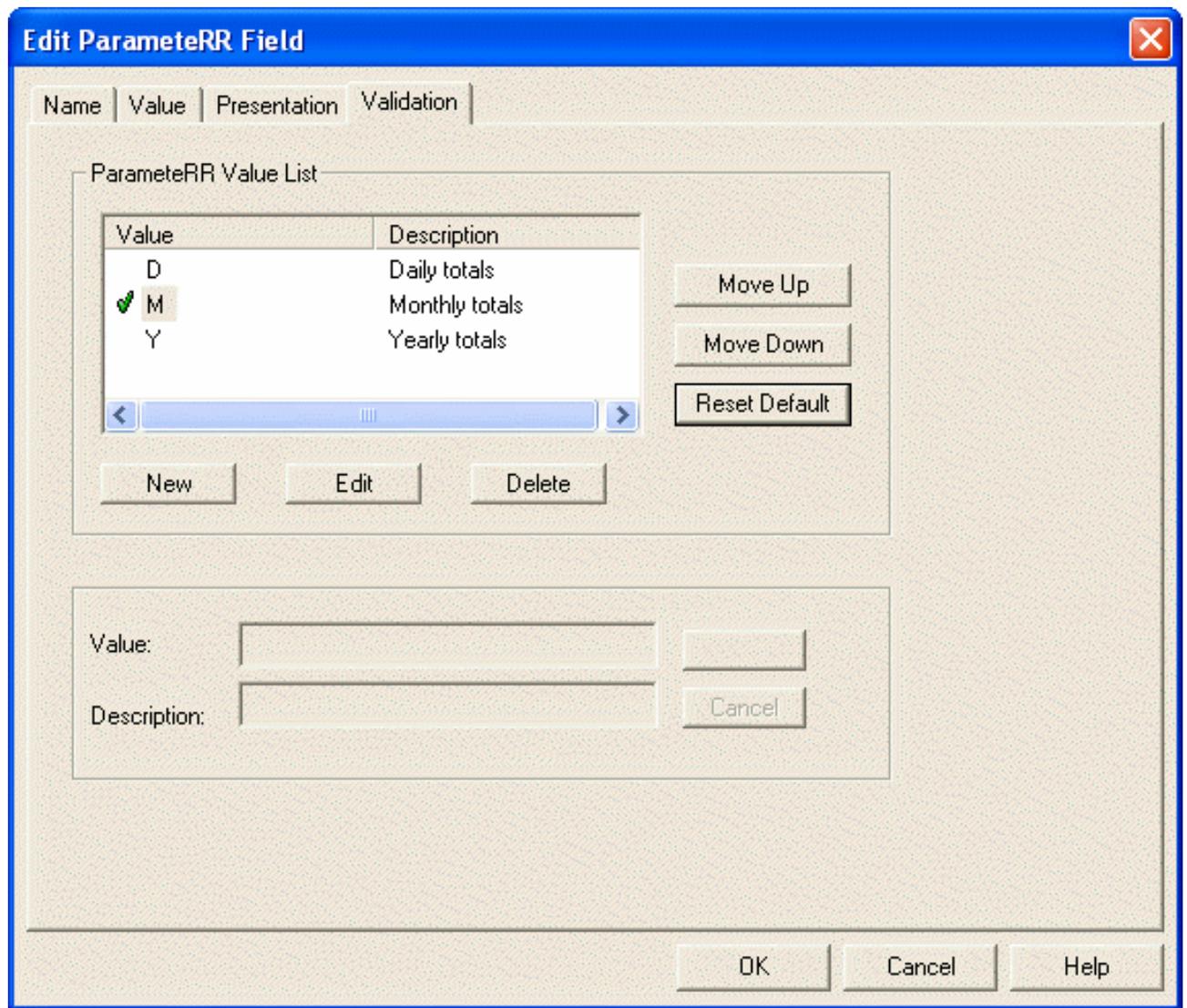
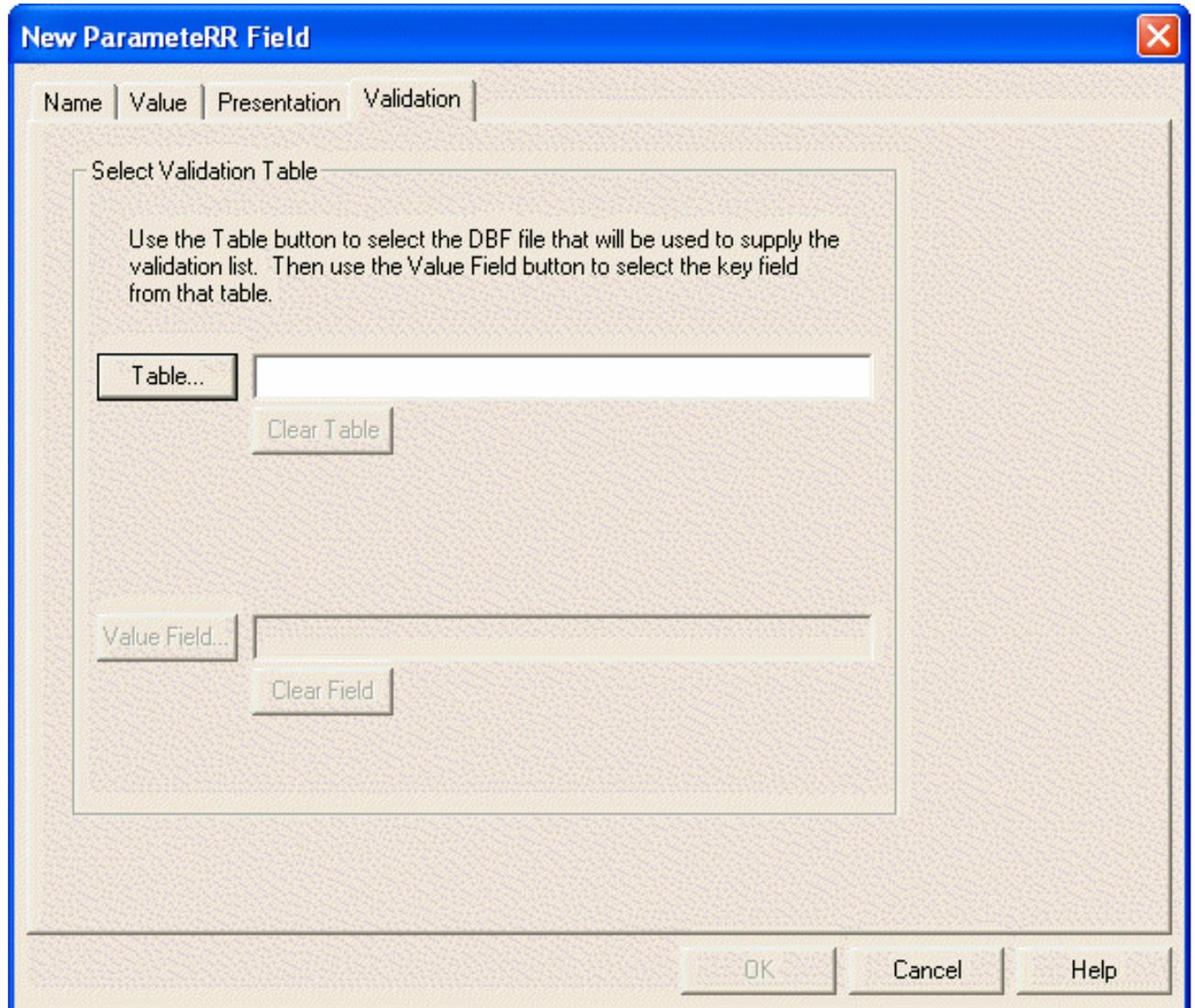


Figure 9.9. Parameter validation list with default selection

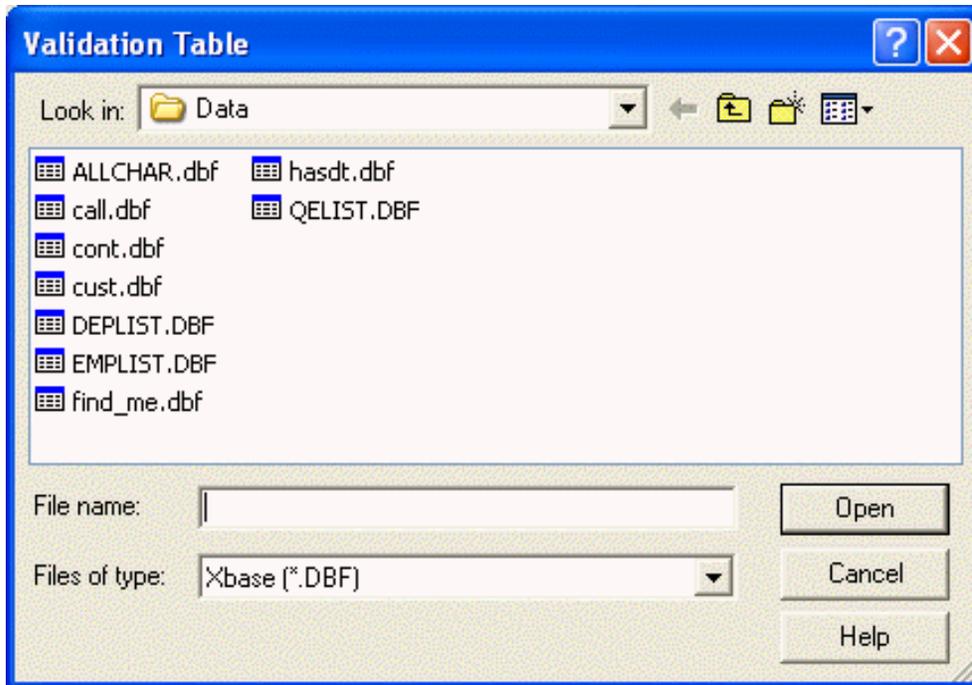
## Dynamic Parameter List Validation Tab

If the Define Validation list box is checked on the Value tab and the Dynamic radio button is selected, the validation tab allows you to select a Lookup table and then a key field from that table.

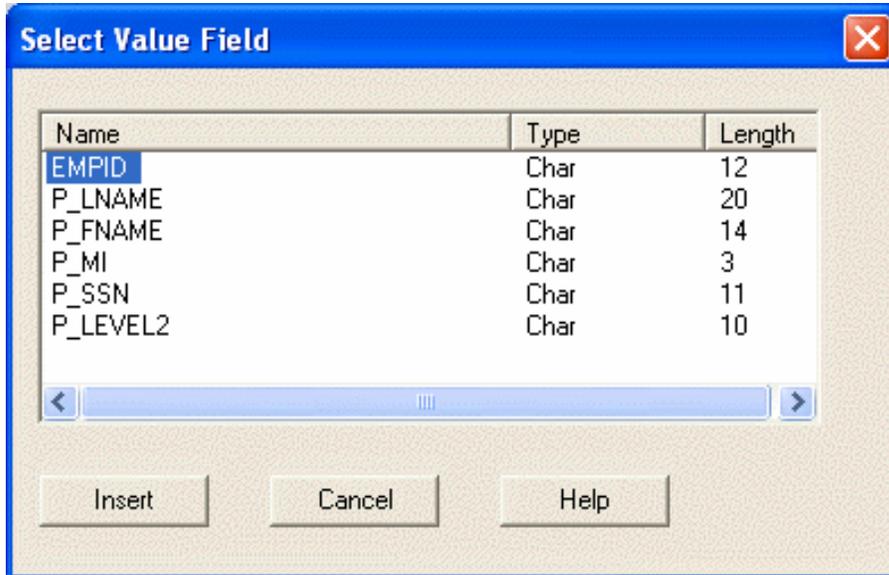


The screenshot shows the 'New Parameter Field' dialog box with the 'Validation' tab selected. The dialog has a title bar with a close button (X) in the top right corner. Below the title bar are four tabs: 'Name', 'Value', 'Presentation', and 'Validation'. The 'Validation' tab is active. Inside the dialog, there is a section titled 'Select Validation Table' with the following text: 'Use the Table button to select the DBF file that will be used to supply the validation list. Then use the Value Field button to select the key field from that table.' Below this text are two rows of controls. The first row has a 'Table...' button, a text input field, and a 'Clear Table' button. The second row has a 'Value Field...' button, a text input field, and a 'Clear Field' button. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

When you select the Table button, R&R presents a validation table selection dialog where you can select the lookup table for the parameter. The default directory is set in Options->File Settings Lookup.



Once a table is selected, the Value Field button will be available. When you select the value field button, R&R presents a Select value field dialog where you can select from a list of available fields whose data type matches the data type for the current parameter.



The Clear Field and Clear Table buttons allow you to re-set your selections. Selecting Clear Table will automatically clear any selected field.

When a dynamic parameter is used in report execution, a lookup button will be presented in the Parameter value entry dialog when the dynamic parameter is selected. The user can then manually enter a value for the field or can select the

Lookup button to the right of the entry box.

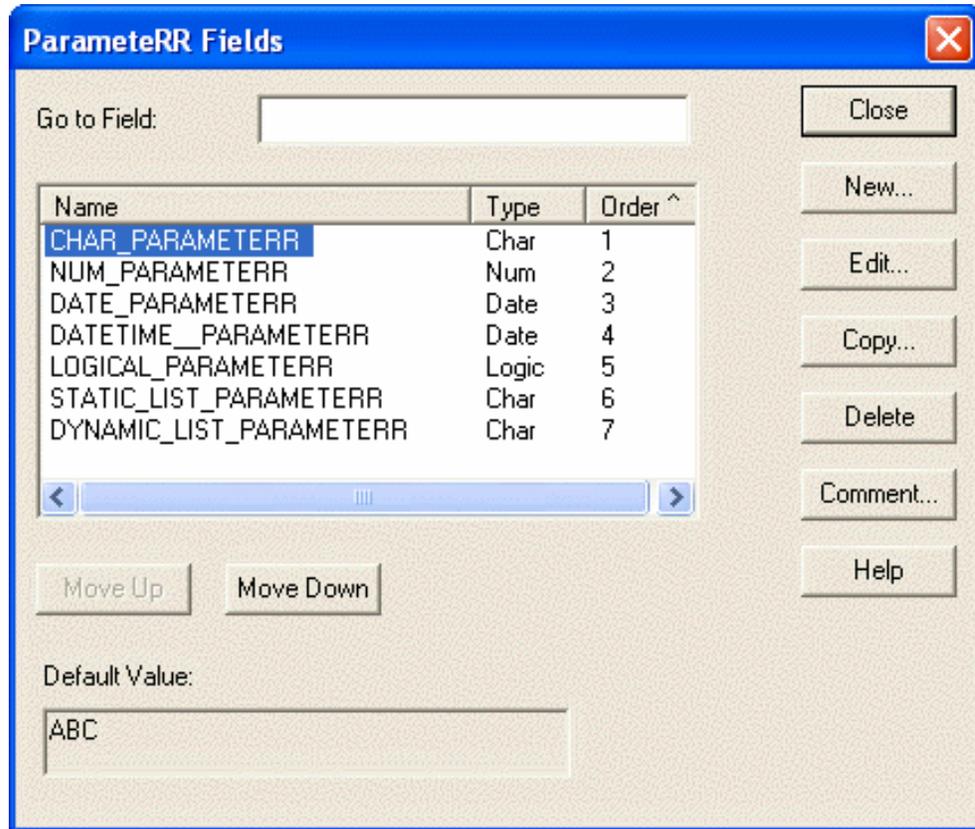
When the lookup button is used, a lookup table dialog will be presented that will allow the user to select a value from the table list.

R&R stores the path and name of the lookup table as well as the lookup field name along with the report. Verification of the lookup table is done when the parameterRR field is created and again each time the report is executed and the Lookup button is pressed in the ParameterRR value entry screen. When the lookup button is pressed, R&R searches for the parameterRR table in the saved location first. If the file is not found, R&R then searches in the default lookup folder that is defined in the RRW.INI and if that fails, finally it searches the current report folder. If the lookup table is not found, the report can still be executed since the user can either leave the field blank or manually enter a value.

Using the Parameter value entry screen

## Using the ParameteRR Value Entry Screen

When you select File Print, File Print Preview, File Export or Database View Result Set from the Main Menu or select their corresponding toolbar buttons, if any ParameteRR fields have been defined and used in the report, a ParameteRR Value Entry dialog box will be presented. This dialog will list each ParameteRR field (whose Prompt at runtime box was enabled) in the order set in the Calculations->ParameteRR Fields menu. You can then edit the values of any of the displayed values.

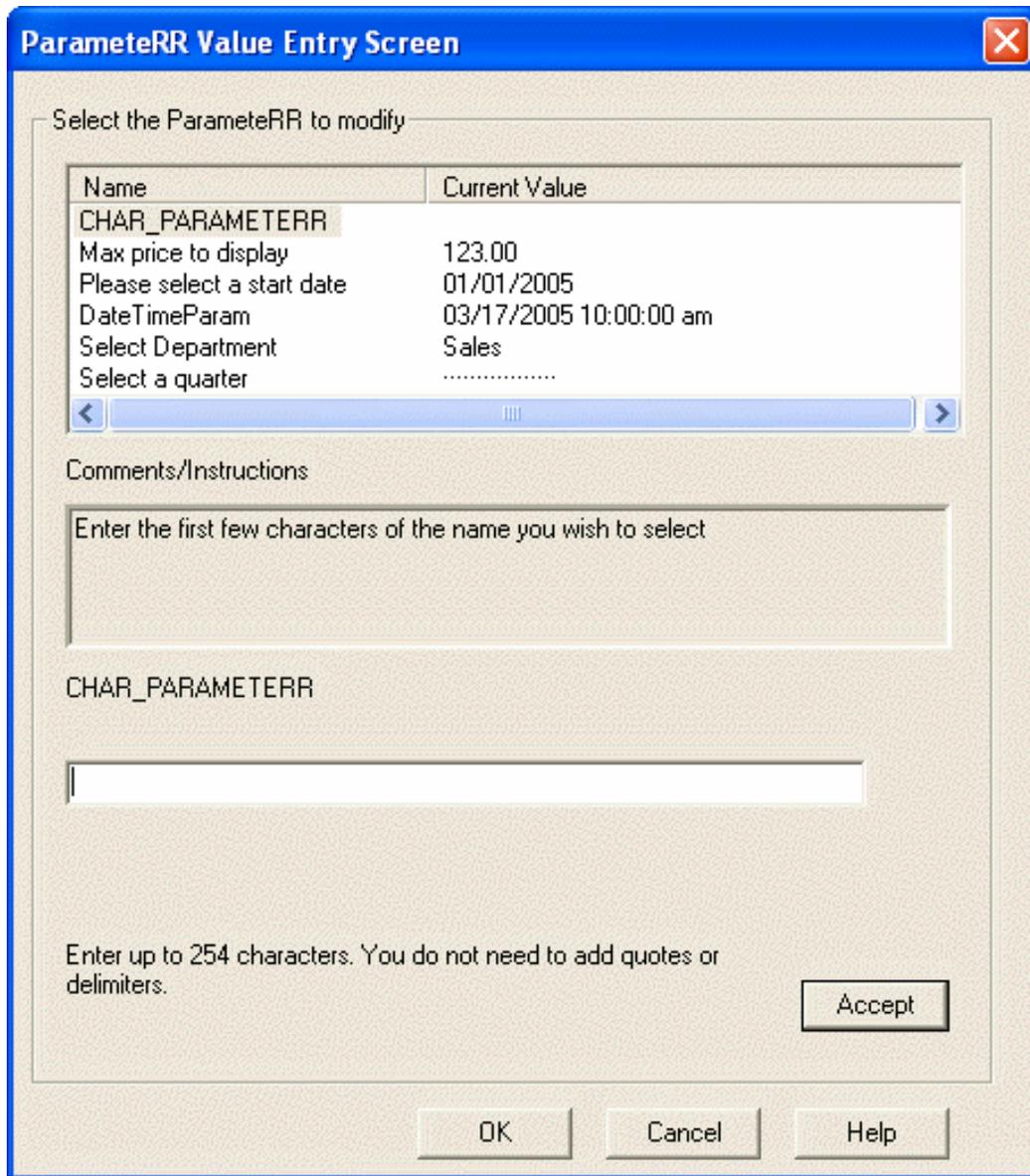


**Figure 9.11. Example ParameteRR Fields Dialog**

Selecting File->Print, File->Print Preview, File->Export or Database->View Result Set from the Main Menu in this Example report will bring you to the following Parameter Value Entry screen.

To accept all of the current default values for the listed parameteRR fields, you can press OK and the report will execute. Pressing Cancel gives a Report Canceled dialog and returns you to the Report Layout.

Typically one or more of the listed parameteRR's will be changed prior to clicking OK to run the report.



**Figure 9.12. Example Parameter Value Entry dialog**

### **The Parameter List**

The Parameter Value Entry screen consists a list box at the top of the screen. In the left column are the Display Caption values for each parameter that is used in the report and designated with a Prompt at Runtime checkbox enabled. If a display caption has not been defined, then the actual parameter field name will be used. The right column contains the current formatted value of each parameter. You can select a Parameter to modify by mouse clicking in the list box.

### **Comments/Instructions for the Selected Parameter**

The middle section of the screen displays the comments/instructions area showing the optional Instructions property from the Parameter definition.

## Update the Selected Parameter

---

The area at the bottom of the screen allows you to edit the currently selected parameter. The format of this area will depend on the data type of the parameter and whether the parameter uses a validation list.

Pressing the Accept button or the Enter key replaces the current Value with the newly entered value and moves the cursor to the next field in the list. You can also manually cursor to a different field to accept the change to the current field. Once any changes are complete, you can press OK and the report will execute.

### Modifying a character value

For a character value you do not need to add any explicit delimiters such as quotes. R&R will assume that what you enter is an actual string.

Mary Sarah O'Hanlon

### Modifying a numeric value

For a numeric value you enter only signs, decimals and digits. The formatted value for your entry will appear as the current value in the parameter list box.

-123.45

### Modifying a date or datetime value

#### Date entry

You can enter a date value by typing it in to the value box using the current Windows short date format such as MM/DD/YYYY.

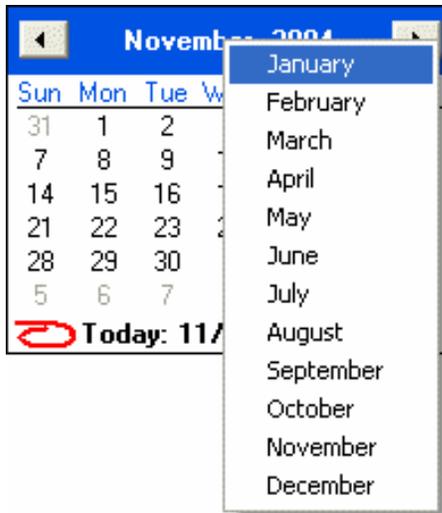
12/31/2004

Alternatively you can select a date by clicking the calendar control button that is next to the value box. This will display a calendar that will initially default to the current system date.



Click on a day to select it.

To scroll by month, use the left and right arrow keys on the calendar header or click on the month name to display the month list.



To scroll by year, click on the year in the header to display spin controls to the right of the year.



### Time Entry

You can enter a time value by typing it in to the value box using the current Windows time format such as HH:MM:SS AM. A new time entry will initially default to the current system time.



You can also use the spin control to adjust the time. Click the control arrows to initially adjust the hours.

To then adjust any of the other components, use the left and right arrows to select the component and then use the spin arrows to scroll through the available choices.



### Selecting a logical value

For a logical value selection is made using True/False radio buttons.

True  
 False

### Selecting a static list value

A static list parameter will be displayed as a scrollable list of values and descriptions. The currently selected value will have a checkmark in the select box that appears before each listed value. To select a different value, click the mouse in the checkbox for that item.

| Value                                 | Description |
|---------------------------------------|-------------|
| <input type="checkbox"/> D            | Daily       |
| <input checked="" type="checkbox"/> W | Weekly      |
| <input type="checkbox"/> M            | Monthly     |

### Selecting a dynamic list value

A dynamic list parameter will be displayed with an entry box and a Lookup button to the right of the entry box.

Press Lookup for a list of employees

.....

You can manually type in a value for the parameter or you can use the Lookup button to display a lookup dialog where you can select a value from the list.

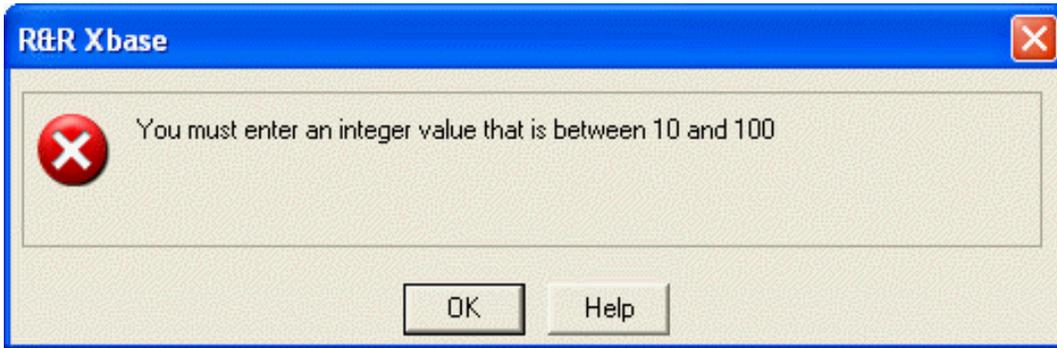


When a parameter is defined, a validation condition can be set to control the range of values that can be used for that field. For example you could have a numeric parameter where an integer between 10 and 100 is required. If you try to enter the value 500 for this parameter, an error dialog will be displayed.

This error dialog will either be a generic message:



or it may be a custom error message that was designed specifically for this parameter.



You must correct any errors for report execution to proceed.

Pressing the **Cancel** button at any time from the Parameter value entry screen gives a Report Canceled dialog and returns you to the Report Layout.

## **Parameter Time Out**

If the Parameter value entry screen is open for two minutes when the report is run via runtime (rather than from within the Report Designer) and there is no user interaction, we now display a brief notice box saying that the screen will close unless the OK button is selected.

If OK is not selected, the report is run using the current parameter default values.

**Copying ParameteRR fields**

## **Copying a ParameteRR field**

In the ParameteRR Fields dialog, you can select a field and then use the Copy button to create a new parameteRR whose name will be blank and whose settings will be the same as the original field.

## Modifying a Parameter field

## Modifying a ParameteRR Field

You can use either of the following methods to open the Edit ParameteRR dialog box to modify a ParameteRR field:

- Either right-click on the parameteRR field on the report layout and select Expression or select the field and press F2.
- Select Calculations->ParameteRR Field or use the ParameteRRs button on the standard tool to display the ParamteRR fields dialog. Then select the field to edit from the list box and press the Edit Button.

The Edit ParameteRR dialog is the same as the New ParameteRR dialog, except that it shows the selected field's name and displays its data type and default value and any other optional properties that had been previously set.

Once the Edit ParameteRR dialog is displayed, you can then change any of its property values. See the sections above for details on entering values for each of the required and optional parameteRR properties.

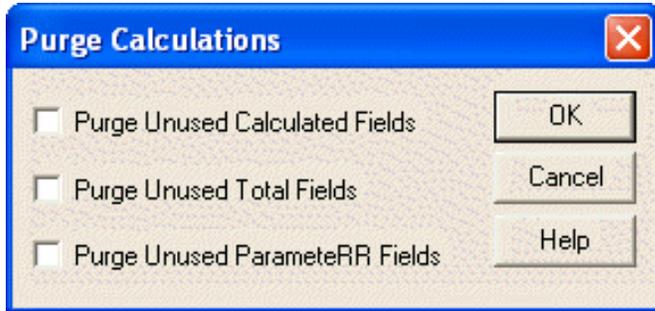
Press OK to accept the changes or Cancel to exit without accepting any changes.

**Purging Unused Parameter fields**

## Purging Unused Parameter Fields

To remove all unused calculated fields from your report definition:  
Select Calculations Purge Calculations.

The Purge Calculations dialog box appears (see Figure 9.8).



**Figure 9.10. Purge Calculations Dialog**

Click the Purge Unused Parameter Fields check box (a checkmark then appears in the box).

Select OK.

Report Designer lists the fields that will be removed from the report definition and prompts you to confirm.

Select OK to remove the listed fields or Cancel to return to the Purge Calculations dialog without removing the fields.

## Chapter 10 Using Functions

## ***Introduction (Using Functions)***

Report Designer offers over 100 predefined functions you can use in calculated expressions. A predefined function is a formula that performs a specified operation such as returning the system date or converting a number to a character string. Full explanations of all predefined functions are provided in the Alphabetical List of Functions section of this chapter.

When you use predefined function in an expression, you must supply its name (which can be abbreviated to just the first 4 characters of the name) followed by an opening parenthesis, any required function arguments, and then a closing parenthesis. The number and data type of required arguments depends upon the function definition. You can combine fields functions and operators to create an infinite variety of calculated expressions that require no special programming knowledge.

You can also define and save your own user-defined functions (UDFs) that can be used in any report just like predefined functions. For information about UDFs, see the **Using User-Defined Functions** section of this chapter.

## Alphabetical List of Functions

## Alphabetical List of Functions

Figure 10.1 lists and briefly describes the functions, using the following abbreviations to indicate the input and output data type of each. Note that the *N* data type accommodates any numeric value.

| Abbreviation | Refers To  |
|--------------|--|
| A            | A table alias  |
| C            | A character expression                               |
| D            | A date expression                                    |
| DT           | A datetime or time expression                        |
| I            | An item (numeric, character, date, memo, or logical) |
| L            | A logical expression                                 |
| N            | A numeric expression                                 |
| T            | A time expression                                    |

Brackets around the abbreviation for an input argument (for example [A]) indicate that the argument is optional.

| Function | Description                                | Input Data Type        | Output Type |
|----------|--|------------------------|-------------|
| ABS      | Returns absolute value                     | N                      | N           |
| ADDDAYS  | Adds number of days to date                | D,N                    | D           |
| ADDMONS  | Adds number of months to date              | D, N                   | D           |
| ADDWKS   | Adds number of weeks to date               | D, N                   | D           |
| ADDYRS   | Adds number of years to date               | D, N                   | D           |
| AGED     | Determines aged status of date             | D,N,N                  | L           |
| ASC      | Converts character to numeric code         | C                      | N           |
| AT       | Searches substring                         | C, C, [L]              | N           |
| BLANKNUM | Returns an empty numeric value             | none                   | N           |
| CAPFIRST | Converts first letter to upper case        | C,[C]                  | C           |
| CASE     | Returns result based on value of item      | I,I,[I,...]<br>default | I           |
| CDLL     | Enables calling of a DLL-based function    | C, C, C                | C           |
| CDOW     | Converts day of date to character          | D                      | C           |
| CHR      | Converts numeric code to character         | N                      | C           |
| CLOOKUP  | Returns character value from another table | I,C,C,C,[C]            | C           |
| CMONTH   | Converts month of date to character        | D                      | C           |
| COPY     | Returns number of copy currently printing  | none                   | N           |
| CTDT     | Converts character value to datetime       | C                      | DT          |
| CTOD     | Converts character to date                 | C                      | D           |
| CTOS     | Converts character interval to seconds     | C                      | DT          |
| CTOT     | Converts character value to time           | C                      | DT          |
| DATE     | Returns system date                        | none                   | D           |
| DAY      | Returns day-of-month number                | D                      | N           |

**Figure 10.1 Function Descriptions (Continued on Next Page)**

|  |  | Input Data | Output |
|--|--|------------|--------|
|--|--|------------|--------|

| Function        | Description                                   | Type        | Type |
|-----------------|---|-------------|------|
| <b>DAYSBTWN</b> | Calculates number of days between dates       | D, D        | N    |
| <b>DBF</b>      | Returns full path and name of table           | [A]         | C    |
| <b>DELETED</b>  | Identifies deleted record                     | A           | L    |
| <b>DLOOKUP</b>  | Returns date value from another table         | I,C,C,C,[C] | D    |
| <b>DOW</b>      | Calculates day-of-week number                 | D           | N    |
| <b>DQTR</b>     | Calculates date of first day of quarter       | D           | D    |
| <b>DTEADD</b>   | Adds specified interval to datetime           | I,N,DT      | DT   |
| <b>DTEDIFF</b>  | Calculates difference between datetime values | I,DT,DT     | N    |
| <b>DTEPART</b>  | Returns specified interval as an integer      | I,DT        | N    |
| <b>DTLOOKUP</b> | Returns datetime value from another table     | I,C,C,C,[C] | DT   |
| <b>DTOC</b>     | Converts date to character string             | D, [N]      | C    |
| <b>DTTOC</b>    | Converts datetime to character string         | DT          | C    |
| <b>ERROR</b>    | Returns true if item has error value          | I           | L    |
| <b>EXP</b>      | Calculates the value of e**n                  | N           | N    |
| <b>FLIP</b>     | Swaps words before and after a character      | D, [N]      | L    |
| <b>FUTURE</b>   | Determines whether date is in the future      | C, C        | C    |

Figure 10.1 Function Descriptions (Continued on Next Page)

| Function        | Description                                 | Input Data Type | Output Type |
|-----------------|---|-----------------|-------------|
| <b>HALF</b>     | Returns calendar half-year of date          | D               | N           |
| <b>HISCOPE</b>  | Returns high scope value                    | none            | C           |
| <b>IIF</b>      | Selects one of two expressions              | I, I, I         | I           |
| <b>INLIST</b>   | Looks up value in list of values            | I, [I,...]      | N           |
| <b>INRANGE</b>  | Determines if value is within range         | I, I, I         | L           |
| <b>INT</b>      | Discards digits to right of decimal         | N               | N           |
| <b>ISALPHA</b>  | Determines if first character is a letter   | C               | L           |
| <b>ISBLANK</b>  | Determines if value is blank                | I               | L           |
| <b>ISLOWER</b>  | Determines if first character is lower case | C               | L           |
| <b>ISUPPER</b>  | Determines if first character is upper case | C               | L           |
| <b>LASTPAGE</b> | Returns total number of pages in report     | none            | N           |

|         |   |             |   |
|---------|---|-------------|---|
| LEFT    | Selects substring starting at left          | C, N        | C |
| LEN     | Calculates length of string or field        | C           | N |
| LIBNAME | Returns full path of current report library | none        | C |
| LLOOKUP | Returns logical value from another table    | I,C,C,C,[C] | L |
| LOG     | Returns natural logarithm                   | N           | N |
| LOSCOPE | Returns low scope value                     | none        | C |
| LOWER   | Converts upper to lower case                | C           | C |
| LTRIM   | Removes leading blanks                      | C           | C |
| LUPDATE | Returns date of last table update           | A           | D |
| MAX     | Returns higher of two values                | N, N        | N |
| MIN     | Returns lower of two values                 | N, N        | N |
| MOD     | Returns the remainder of division           | N, N        | N |
| MONLEN  | Returns number of days in month             | D           | N |

Figure 10.1 Function Descriptions (Continued on Next Page)

| Function  | Description   | Input Data Type | Output Type |
|-----------|---|-----------------|-------------|
| MONSBTWN  | Calculates months between two dates                               | D, D            | N           |
| MONTH     | Returns month-of-year number                                      | D               | N           |
| NDOW      | Returns date of next specified DOW                                | D,N             | D           |
| NLOOKUP   | Returns numeric value from another table                          | I,C,C,C,[C]     | N           |
| NOW       | Returns the date and time the report was started.                 | none            | DT          |
| OVER      | Determines whether date is past specified number of days          | D,N             | L           |
| PAGENO    | Returns current report page number                                | none            | N           |
| PAST      | Determines whether date is in the past                            | D,[N]           | L           |
| PDOW      | Returns date of previous specified DOW                            | D,N             | D           |
| PERCOMP   | Correctly evaluates calculations in certain multiple-scan reports |                 |             |
| PREVIOUS  | Returns value in previous composite record                        | I               | I           |
| QTR       | Calculates calendar quarter                                       | D               | N           |
| QUERY     | Returns current query expression                                  | none            | C           |
| RECCOUNT  | Returns record count of table                                     | A               | N           |
| RECNO     | Returns composite record number                                   | [A]             | N           |
| REPLICATE | Repeats character expression                                      | C, N            | C           |

|                   |  |      |   |
|-------------------|--|------|---|
| <b>REPNAME</b>    | Returns name of current report                             | [N]  | C |
| <b>REPORTPAGE</b> | Returns consecutive physical page # based on entire report | none | N |
| <b>RIGHT</b>      | Selects substring ending at right                          | C, N | C |

Figure 10.1 Function Descriptions (Cont'd)

| Function         | Description                                    | Input Data Type | Output Type |
|------------------|--|-----------------|-------------|
| <b>RIPARAM</b>   | Returns value of runtime parameter             | C               | C           |
| <b>ROUND</b>     | Rounds off number                              | N, N            | N           |
| <b>RRUNIN</b>    | Returns 1 or control table record # in Runtime | none            | N           |
| <b>RTRIM</b>     | Removes trailing blanks                        | C               | C           |
| <b>SCANNING</b>  | Returns true if scanning selected table        | A               | L           |
| <b>SOUNDEX</b>   | Returns value of string based on sound         | C, [C]          | C           |
| <b>SPACE</b>     | Produces a string of blank spaces              | N               | C           |
| <b>SPELLNUM</b>  | Spells a number                                | N               | C           |
| <b>SQRT</b>      | Calculates square root                         | N               | N           |
| <b>STOC</b>      | Converts seconds to character string           | DT              | C           |
| <b>STR</b>       | Converts number to character                   | N, [N], [N]     | C           |
| <b>STRCOUNT</b>  | Returns number of occurrences of substring     | C,C,[L]         | N           |
| <b>STRREP</b>    | Replaces one substring with another            | C,C,C [L]       | C           |
| <b>STRSEARCH</b> | Returns starting position of nth substring     | C,C,N,[L]       | N           |
| <b>STUFF</b>     | Replaces part of string with new string        | C, N, N, C      | C           |
| <b>SUBDAYS</b>   | Subtracts number of days from date             | D, N            | D           |
| <b>SUBMONS</b>   | Subtracts number of months from date           | D, N            | D           |
| <b>SUBSTR</b>    | Selects substring                              | C, N, [N]       | C           |
| <b>SUBWKS</b>    | Subtracts # of weeks from date                 | D, N            | D           |
| <b>SUBYRS</b>    | Subtracts # of years from date                 | D, N            | D           |

Figure 10.1 Function Descriptions (Cont'd)

| Function         | Description                      | Input Data Type | Output Type |
|------------------|----------------------------------|-----------------|-------------|
| <b>TIME</b>      | Returns system time              | none            | C           |
| <b>TODATE</b>    | Converts datetime to date        | DT              | D           |
| <b>TOTIME</b>    | Converts datetime to time        | DT              | T           |
| <b>TRANSFORM</b> | Returns formatted character data | C or N, C       | C           |
| <b>TRIM</b>      | Removes trailing blanks          | C               | C           |

|         |  |           |   |
|---------|--|-----------|---|
| TTOC    | Converts time to character                     | DT or T   | C |
| TTOS    | Converts a time value to seconds               | DT        | N |
| UDFNAME | Returns pathname of UDF library                | none      | C |
| UPPER   | Converts lower to upper case                   | C         | C |
| VAL     | Converts character string to number            | C         | N |
| WDCOUNT | Returns number of words in string              | C, [C]    | N |
| WEEK    | Calculates week-of-month for date              | D         | N |
| WKSBTWN | Calculates weeks between two dates             | D, D      | N |
| WORD    | Returns <i>n</i> th word of a character string | C, N, [C] | C |
| YEAR    | Returns year number of date                    | D         | N |
| YRSBTWN | Calculates years between two dates             | D, D      | N |

**Figure 10.1 Function Descriptions (Cont'd)**

**ABS**

Returns the absolute value of a numeric expression. The result is a positive number.

**Syntax:**

ABS(N), where **N** is any numeric expression.

**Example:**

To calculate the absolute value of the difference between two numeric fields NUM1 and NUM2, create the field:

ABS(NUM1 – NUM2)

If the value of NUM1 is 50 and the value of NUM2 is 100, then the value of ABS(NUM1 – NUM2) is 50.

### **ADDDAYS**

Calculates a date by adding a number of days to a date. Note that you can also add dates by using the + operator.

#### ***Syntax:***

ADDDAYS(D,N) where **D** is a date expression and **N** is a numeric expression representing a number of days.

#### ***Example:***

To calculate the date a payment is due by adding the payment terms (NET) to the date the product was ordered (ORDERDATE), create the field:

ADDDAYS(ORDERDATE,NET)

If the value of NET is 30 and ORDERDATE is 4-1-2001, then the value of ADDDAYS(ORDERDATE,NET) is 5-1-2001.

**ADDMONS**

Calculates a date by adding a number of months to date.

**Syntax:**

ADDMONS(D,N) where **D** is a date expression and **N** is a numeric expression representing a number of months.

**Example:**

To calculate the date of the final payment of a loan by adding the number of months (TERMS) to the starting date of the loan (LOANINIT), create the field:  
ADDMONS(LOANINIT,TERMS)

If the value of LOANINIT is 01/10/2001 and the value of TERMS is 48, then ADDMONS returns 01/10/2005.

### **ADDWKS**

Calculates a date by adding a number of weeks to a date.

#### ***Syntax:***

ADDWKS(D,N) where **D** is a date expression and **N** is a numeric expression representing a number of weeks.

#### ***Example:***

To calculate a date for a return visit to the doctor by adding the number of weeks to the current appointment date (CURDATE), create the field:

ADDWKS(CURDATE,6)

If the value of CURDATE is 01/10/2001, then ADDWKS returns a value of 02/21/2001.

**ADDYRS**

Calculates a date by adding a number of years to a date.

**Syntax:**

ADDYRS(D,N) where **D** is a date expression and **N** is a numeric expression representing a number of years.

**Example:**

To calculate a follow-up date for an inoculation by adding the number of years of immunity (IMMUNYRS) to the most recent inoculation date (INOCDATE), create the field:

ADDYRS(INOCDATE,IMMUNYRS)

If the value of INOCDATE is 04/01/2000 and IMMUNYRS is 7, then this calculated field yields 04/01/2007.

**AGED**

Returns logical True if date is aged between specified values.

**Syntax:**

AGED(D,N1,N2) where **D** is a date expression and **N1** and **N2** are numeric expressions representing numbers of days.

**Example:**

To print an overdue notice if a payment is between 30 and 60 days after the order date, use the following expression:

```
IIF(AGED(ORD_DATE,30,60), "Payment is now overdue.  
Please remit now to avoid a late penalty.", "")
```

**ASC**

Converts the first character of a string of characters to its numeric value. This function is the opposite of CHR.

**Syntax:**

ASC(C) where **C** is a character expression.

**Example:**

To convert the first character of a product code (PRODCODE) to its numeric value, create the field:

ASC(PRODCODE)

If the value of PRODCODE is ABC, then ASC returns the numeric value of the letter A, which is 65 (decimal).

## **AT**

Searches for a substring within a character expression and returns the number of the starting position of the substring within the character expression or 0 if the substring is not found.

### ***Syntax:***

AT(C1,C2,L) where **C1** is the substring character expression and **C2** is the character expression within which the substring is to be located. The optional logical argument **L** controls the case sensitivity of the function. When **L** is true, the function is case sensitive; when it is false, the function is case insensitive. When this argument is not provided, the function uses the case sensitivity setting in the RRW.SRT file (see Chapter 5, "Setting Defaults," for information about configuring Report Designer's case sensitivity).

### ***Example:***

The following expression returns 11 since 'substring' starts at the 11th character in 'this is a substring':

```
AT('substring','this is a substring')
```

**BLANKNUM**

Generates an empty numeric value.

**Syntax**

BLANKNUM( ), no arguments. This function will return a blank numeric value only in the following cases: a) if it is the sole function in a calculation; b) if it is used as either the second or third argument to the IIF( ) function. (If used in any other way in a formula, this function will return 0.)

**Example:**

Suppose you have a report that consists of survey questions that require a response of A, B, C, or D in a field named RESPONSE. Create the following field to assign the values 1 through 4 to A through D and to assign any other response a blank value:

```
IIF(RESPONSE="A",1,IIF(RESPONSE="B",2,  
IIF(RESPONSE="C",3,IIF(RESPONSE="D",4,BLANKNUM( )))))
```

When you create an average based on this field, Report Designer will ignore blank values.

**CAPFIRST**

Converts the first character of each word in a character string to upper case and any other character to lower case. A word is a group of contiguous characters followed by a space, a hyphen, or any user-designated characters.

**Syntax:**

CAPFIRST(C1,C2) where **C1** is a character expression and **C2** is an optional character expression that specifies the word break character(s), the character(s) marking word separations. If **C2** is absent, Report Designer uses the space and hyphen characters to determine word breaks. If you supply **C2**, Report Designer uses only **C2** to determine word breaks (see WDCOUNT for an example).

**Example:**

The expression: CAPFIRST("tHiS iS aN exAMple.") returns: This Is An Example.

## **CASE**

Returns a result based on the value of an item. You can use CASE instead of a nested IIF expression to return results conditionally when there is more than one condition.

### ***Syntax:***

CASE(I, value-1, result-1, ..., value-n, result-n, default) where all values must be of the same data type as **I** (item); and all results must be of the same data type, which may be different from the data type of the item. If **item** is equal to **value-1**, the function returns **result-1**; if equal to **value-n**, it returns **result-n**, and so on. If **item** is not equal to any listed value, the function returns **default**. This function selects only on the basis of equality. Memo fields may be used as results, but not as test values.

### ***Example:***

To assign different strings based on the value of PRODCODE, create the field:

```
CASE(PRODCODE, "101", "Desk chair", "102",  
"Printer stand", "103", "File cabinet", "")
```

This CASE expression is simpler than but equivalent to the following nested IIF expression:

```
IIF(PRODCODE = "101", "Desk chair",  
IIF(PRODCODE = "102", "Printer stand",  
IIF(PRODCODE = "103", "File cabinet", "")))
```

## **CDLL**

Enables calling of a DLL-based function from within an Report Designer report. You might use CDLL( ) when you want to write a DLL-based function to perform an operation that the pre-defined functions don't support, such as a trigonometric operation. CDLL( ) also gives you access to functions that are used by other elements of your application, since DLLs are available to all parts of a Windows application.

### **Syntax:**

CDLL(string1,string2,string3) where **string1** is the name of the DLL that contains the function, **string2** is the name of the function, and **string3** is an argument being passed to the DLL function.

### **Example:**

For example, the calculated field expression:

```
CDLL("CONVERTS.DLL","MILES_KILO",STR(DISTANCE))
```

uses the STR function to convert the value of DISTANCE into a character string and passes the string value to the MILES\_KILO function in CONVERTS.DLL, which converts the distance in miles to kilometers.

CDLL( ) expects a boolean return value from the called DLL function: true to indicate the function executed successfully; false to indicate an error. If the DLL returns a false value, CDLL( ) returns an error string. If the DLL function executes successfully, it should overwrite its input string with the output string to be returned by the CDLL( ) function. Report Designer passes the input and output strings using an 8000-byte buffer. (For more information about CDLL( ), see the *Developing Applications* manual.) Note that DLL function names are case sensitive. Note that you can conserve program resources by preloading the DLL that you are referencing in the CDLL function by starting the Report Designer with the /D<DLL NAME> switch.

### ***CDOW***

Returns the name of the day of the week of a given date.

#### ***Syntax:***

CDOW(D) where **D** is a date expression.

#### ***Example:***

To print or display the day of the week for a field INITDATE, create the field:

CDOW(INITDATE)

If the value of the INITDATE field is 03/17/2001, then CDOW yields "Saturday".

**CHR**

Converts a numeric value to one character based on the character set of the font applied to the field; that is, constitutes a change in data type from numeric to character. You can use CHR to print or display a character for which there is no keyboard representation (for example, the bullet character). This function is the opposite of ASC.

**Syntax:**

CHR(N) where **N** is an integer from 1 to 255.

**Example:**

CHR(212) returns the trademark symbol (™) when the Symbol font is applied to the field.

## **CLOOKUP**

Returns the value of a character field from another table. When you want a single character value from another table, you can create a calculated field using CLOOKUP( ) instead of setting a database relation.

### **Syntax:**

CLOOKUP(I,C1,C2,C3,[C4]) where **I** is the field you want to use as the linking field to the lookup table's index key. **C1** is the name of the character field whose value you want to retrieve from the lookup table, **C2** is the lookup table name, **C3** is the name of the lookup index file, and **C4** is an optional tag for a CDX, MDX, or WDX index. The index key must be an exact, full match to the linking field.

### **Example:**

To get the value of the COMPANY field from the RRCUST table using CUST\_NO as the linking field, create a calculated field whose expression is:

```
CLOOKUP(CUST_NO,"COMPANY","C:\RR\RRCUST.DBF","C:\RR\RRCUST.CDX","CUST")
```

Note that the table and index names must have full path names unless they are in the same directory as the master table. If the index file has the default extension specified in your Report Designer configuration, you do not need to include the extension.

**CMONTH**

Returns the name of the month of a given date.

**Syntax:**

CMONTH(D) where **D** is a date expression.

**Example:**

To print or display the name of the month for a field INITDATE, create the field:

CMONTH(INITDATE)

If the value in the INITDATE field is 04/01/2001, then CMONTH yields April.

***COPY***

Returns number of the report copy currently being printed.

***Syntax:***

COPY( ), no arguments.

***Example:***

If you are printing 12 copies of a report, you can include the number of each report copy in a Footer line. Create a calculated field that contains the COPY( ) function and insert the field on the Footer line:

----- Copy ## of 12 -----

For the third copy, this line produces:

----- Copy 3 of 12 -----

**CTDT**

Converts a date or datetime character expression to a datetime value.

**Syntax:**

CTDT(**C**) where **C** is a character expression representing a date or datetime. The expression must be entered in the format specified by the Windows International date setting, using spaces, hyphens ( - ), slashes (/), or periods ( . ) as separator characters. Report Designer's date range is 03/01/1600 through 12/31/2999.

**Example:**

CTDT("12/20/2000") returns a datetime value of 12/20/2000 12:00:00 am (when the Windows date format is set to "Short"). Note that a 2-digit year entry will be automatically expanded to a 4-digit year in the current century.

**CTOD**

Converts a date entered or stored as a character expression to date data type. If applied to an invalid date string, CTOD produces the error value. You can substitute a wildcard of \* or @ for the month, day, and/or year. Since wildcard dates are used only for selection purposes (that is, in queries), Report Designer will display them as asterisks if you insert them on the report layout.

**Syntax:**

CTOD(C) where **C** is a character expression representing a date. The expression must be entered in the format specified by the Windows Regional date setting, using spaces, hyphens ( ), slashes(/), or periods (.) as separator characters. Report Designer's date range is 03/01/1600 through 12/31/2999. Note that a 2-digit year entry will be automatically expanded to a 4-digit year in the current century.

**Example:**

CTOD("12/20/2003") returns a date value of 12/20/2003 (when the Windows date format is set to "Short").

**Example:**

Define a field to use in a query. Name the field FILTDATE:

CTOD(STR(INVMONTH,2)+"/\*/2004")

If INVMONTH is 7, the value of FILTDATE is then " 7\*/2004" and a query can be used to select all records for the month of July in the year 2004.

## **CTOS**

Converts a character expression to a number of seconds using the format specified as the second argument to the function. You can use this function to convert a character field value that represents a time interval (rather than an absolute time) into a number of seconds.

### ***Syntax:***

CTOS(*C, Keyword*) where **C** is a character expression representing a time interval and **Keyword** specifies how the function will interpret the input value. Valid Keywords are as follows:

| <b>Keyword</b> | <b>Meaning</b>        |
|----------------|-----------------------|
| hh             | Hours                 |
| mm             | Minutes               |
| ss             | Seconds               |
| hh:mm          | Hours:Minutes         |
| hh:mm:ss       | Hours:Minutes:Seconds |
| mm:ss          | Minutes:Seconds       |

If no Keyword is specified, the default is hh:mm:ss (hours:minutes:seconds).

### ***Example:***

Assume that you have a CHARSEC field that contains character values representing a number of seconds. For a CHARSEC value of 30:30, the field CTOS(charsec,mm:ss) would return a numeric value of 1830, since the **mm:ss** keyword tells CTOS to interpret 30:30 as 30 minutes:30 seconds. The field CTOS(charsec,hh:mm:ss) would return a numeric value of 109800, since the hh:mm:ss keyword tells CTOS to interpret 30:30 as 30 hours:30 minutes.

**CTOT**

Converts a character expression representing a time of day to a time field. You can use this function to convert a character field value that represents an absolute time into an appropriately formatted time field.

**Syntax:**

CTOT(C) where **C** is a character expression representing a time of day. The character expression must be in either 24-hour format or in 12-hour format with am, pm, or international time suffixes.

**Example:**

Assume that you have a CHARTIME field that contains character values representing a time of day. For a CHARTIME value of "0:20", the field CTOT(chartime) would return a time value of 12:20:00am. For a CHARTIME value of "8:20pm" the field CTOT(chartime) would return a value of 8:20:00pm.

**DATE**

Returns the system date at the time the report was started. This date is maintained by your computer or entered when you start your computer.

**Syntax:**

DATE( ) no arguments.

**Example:**

To print/display the date in a Header line, create a field SYSDATE where SYSDATE is a calculated field that contains the function DATE( ), and then insert the field into a Header line:

----- Date printed: mm/dd/yyyy -----

This line then produces:

----- Date printed: 4/1/2002 -----

## **DAY**

Returns the number of the day in the month.

### ***Syntax:***

DAY(D) where **D** is a date expression.

### ***Example:***

To print or display the day of the month for each invoice date INV\_DATE, create the field:

DAY(INV\_DATE)

If the value of INV\_DATE is 01/16/2002, DAY(INV\_DATE) returns 16.

**DAYSBTWN**

Calculates the number of days between two dates. This date difference is derived by subtracting **D2** from **D1**.

**Syntax:**

DAYSBTWN(D1,D2) where **D1** and **D2** are both date expressions.

**Example:**

To calculate the number of days between the date a payment is due (DUEDATE) and the current system date DATE( ), create the field:

DAYSBTWN( DATE( ),DUEDATE)

Sample Data:

| <u>DATE( )</u> | <u>DUEDATE</u> | <u>DAYSBTWN( DATE( ),DUEDATE)</u> |
|----------------|----------------|-----------------------------------|
| 4/23/2000      | 4/13/2002      | 10                                |
| 4/12/2000      | 4/12/2002      | 0                                 |
| 4/13/2000      | 4/23/2002      | -10                               |

**DBF**

Returns a character string that contains the complete path and name of the table alias argument. If no table alias argument is entered, the path and name of the master table is returned.

**Syntax:**

DBF(A) where **A** is the alias of any currently attached table.

**Example:**

To retrieve the full path and name for the CUSTOMER table, create the field:  
DBF(CUSTOMER)

If the CUSTOMER table is on drive C in the DBASE subdirectory, DBF returns C:\DBASE\CUSTOMER.DBF.

**DELETED**

Returns the delete status of the record from the specified table. Returns a logical True (T) if a record is marked for deletion.

**Syntax:**

DELETED(A) where **A** is the alias of any currently attached table.

**Example:**

In a multi-table report that uses the tables ORDERS, CUSTOMER, ITEMS, and PRICES, create the following calculated field expression to determine the delete status of the records in CUSTOMER:

DELETED(CUSTOMER)

If the first two records of CUSTOMER have been marked for deletion and the following two records have not, Report Designer would report the following:

| <u>Name</u>           | <u>Deleted?</u> |
|-----------------------|-----------------|
| Britten Jr., Roland   | T               |
| Adams, Abner N.       | T               |
| Keylour Jr., Harrison | F               |
| Stern, Twila          | F               |

### ***DLOOKUP***

Returns the value of a date field from another table. To retrieve the value of a date field from another table, you can create a calculated field using DLOOKUP( ) instead of setting a database relation.

#### ***Syntax:***

DLOOKUP(I,C1,C2,C3,[C4]) where **I** is the field you want to use as the linking field to the lookup table's index key, **C1** is the name of the date field whose value you want to retrieve from the lookup table, **C2** is the lookup table name, **C3** is the name of the lookup index file, and **C4** is an optional tag for a CDX, MDX, or WDX index. The index file's key must be an exact, full match to the linking field.

#### ***Example:***

To retrieve the value of the DATE field from the RRORDERS table using CUST\_NO as the linking field, create a calculated field whose expression is:

```
DLOOKUP(CUST_NO,"DATE","C:\RR\RRORDERS.DBF","C:\RR\RRORDERS.IDX")
```

Note that the table and index names must have full path names unless they are in the same directory as the master table. If the index file has the default extension specified in your Report Designer configuration, you do not need to include the extension.

**DOW**

Converts the day-of-week of a given date expression to a number from 1 to 7. Sunday is day 1, Monday is day 2, etc.

**Syntax:**

DOW(D) where **D** is a date expression.

**Example:**

To convert the day of the week for a field INVDATE to its numeric form, create the field:

DOW(INVDATE)

Sample data:

| <b>INVDATE</b> | <b>Day #</b> |
|----------------|--------------|
| 01/11/2001     | 5            |
| 01/13/2001     | 7            |
| 01/15/2001     | 2            |

**DQTR**

Returns the date of the first day of the calendar quarter for a given date. (See also the QTR function.)

**Syntax:**

DQTR(D) where **D** is a date expression.

**Example:**

To calculate the first day of the quarter for the date in a date field INITDATE, create the following field:

DQTR(INITDATE)

If the value in the INITDATE field is 5-4-2001, then DQTR(INITDATE) yields 4-1-2001, the first day of the second quarter.

### ***DTEADD***

Adds a specified interval to a datetime.

#### ***Syntax:***

DTEADD(I,N,DT) where **I** specifies the interval to be added, **N** is how many of the specified intervals to add, and **DT** is the datetime expression being added to.

The following table lists the time period that corresponds to each valid interval value.

| <b><i>Interval</i></b> | <b><i>Time Period</i></b> |
|------------------------|---------------------------|
| yyyy                   | Year                      |
| q                      | Quarter                   |
| m                      | Month                     |
| y                      | Day of Year               |
| d                      | Day                       |
| w                      | Weekday                   |
| ww                     | Week                      |
| h                      | Hour                      |
| n                      | Minute                    |
| s                      | Second                    |

#### ***Example:***

To add 5 weeks to the value of the datetime field DTEND, create a calculated field with the following expression:

```
DTEADD(ww,5,DTEND)
```

### ***DTEDIFF***

Calculates the difference between two datetime values.

#### ***Syntax:***

DTEDIFF(I,DT1,DT2) where **I** is the interval used to calculate the difference between **DT1** and **DT2**. Valid interval values are the same as those for the DTEADD function.

#### ***Example:***

To calculate the difference in days between the values of the datetime fields DTSTART and DTEND, create a calculated field DAYDIF with the following expression:

```
DTEDIFF(d,DTSTART,DTEND)
```

This expression yields the following sample results:

| <u>DTSTART</u> | <u>DTEND</u> | <u>DAYDIF</u> |
|----------------|--------------|---------------|
| 01/10/2001     | 03/14/2001   | 63            |
| 04/13/2001     | 06/20/2001   | 68            |

**DTEPART**

Returns as an integer the specified part of a given datetime expression. Valid interval values are the same as those for the DTEADD function.

**Syntax:**

DTEPART(I,DT) where **I** is the interval and **DT** is the datetime expression.

**Example:**

If the date portion of a datetime field named DTEND is 04/06/2001, the expression DTEPART(ww,DTEND) produces a value of 14, indicating the 14th week of the year.

### ***DTLOOKUP***

Returns the value of a datetime field from another table. When you want a single datetime value from another table, you can create a calculated field using DTLOOKUP( ) instead of setting a database relation.

#### ***Syntax:***

DTLOOKUP(I,C1,C2,C3,[C4]) where **I** is the field you want to use as the linking field to the lookup table's index key. **C1** is the name of the datetime field whose value you want to retrieve from the lookup table, **C2** is the lookup table name, **C3** is the name of the lookup index file, and **C4** is an optional tag for a CDX, MDX, or WDX index. The index key must be an exact, full match to the linking field.

#### ***Example:***

To get the value of the datetime field DTEND from the JOBS table using JOB\_NO as the linking field, create a calculated field whose expression is:

```
DTLOOKUP(JOB_NO,"DTEND","C:\RR\JOBS.DBF","C:\RR\JOBS.NDX")
```

Note that the table and index names must have full path names unless they are in the same directory as the master table. If the index file has the default extension specified in your Report Designer configuration, you do not need to include the extension.

## ***DTOC***

Converts a date expression to a character expression in the format specified by the Windows International date setting. When the optional numeric argument is 1, DTOC returns a character string in the format `yyyymmdd`, which is useful for sorting and indexing by date.

### ***Syntax:***

`DTOC(D,N)` where **D** is a date expression and **N** is an optional numeric expression.

### ***Example:***

The expression `DTOC(``DATE)` yields the following sample results when the Windows date format is "Short" and Day and Month leading zeros are specified:

| <u>DATE</u> | <u>Character Conversion</u> |
|-------------|-----------------------------|
| 01/10/2001  | "01/10/2001"                |
| 01/13/2001  | "01/13/2001"                |

The expression `DTOC(``DATE,1)` yields the following sample results:

| <u>DATE</u> | <u>Character Conversion</u> |
|-------------|-----------------------------|
| 01/10/2001  | "20010110"                  |
| 01/13/2001  | "20010113"                  |

By using 1 as the numeric argument, you can use a simple DTOC expression like `DTOC(``DATE,1)` to replace expressions like the following:

`STR(YEAR(``DATE))+STR(MONTH(``DATE))+STR(DAY(``DATE))`

***DTTOC***

Converts a datetime expression to a character string.

***Syntax:***

DTTOC(DT) where **DT** is a datetime expression.

***Example:***

To convert the date and time values of a datetime field named DTEND to character strings, create a calculated field with the expression DTTOC(DTEND).

**ERROR**

Returns logical true if the input item has the error value or logical false if not. Report Designer represents an error value as asterisks. This function allows you to define and use your own error value. For example, you may want to print "You have an error" instead of a string of asterisks.

**Syntax:**

ERROR(I) where **I** can be any data type.

**Example:**

To print 0 instead of \* as the error value for the numeric field AMOUNT, create the following field:

```
IIF(ERROR(AMOUNT),0,AMOUNT)
```

Use this calculated field instead of AMOUNT.

**EXP**

Calculates the value of  $e^{*n}$  where **e** is the base of natural logarithms.

**Syntax:**

EXP(N) where **N** is a numeric expression.

**Example:**

To determine the value of  $e^{*2.000}$ , use the following field:

EXP(2.000)

The result is 7.3891

## **FLIP**

Exchanges the data before a specified character with the data following the character. Commonly used to flip last name with first name based on a comma between the two parts of the name. See examples.

### **Syntax:**

FLIP(C1,C2) where **C1** and **C2** are character expressions. **C1** is the character expression to flip and **C2** is the "flip character," often a comma.

When **C2** is a comma, FLIP eliminates the leading and trailing spaces for the part following the comma and puts a space between the flipped parts. See examples.

**C2** may also include an asterisk before or after the flip character. The asterisk causes Report Designer to return only part of **C1**. Placing an asterisk after the flip character returns only the data after the flip character. Placing an asterisk before the flip character returns only the data before the flip character. See examples.

### **Example:**

To flip the data in a FULLNAME field from last-name, first-name order to first-name last-name order:

FLIP(FULLNAME, ',')

Sample data:

| <u>FULLNAME</u>      | <u>FLIP(FULLNAME, ',')</u> |
|----------------------|----------------------------|
| Britten Jr., Roland  | Roland Britten Jr.         |
| Jefferson, Elvira A. | Elvira A. Jefferson        |
| Adams, Abner N.      | Abner N. Adams             |
| Gladdin III, John    | John Gladdin III           |

### **Example:**

To return only the first name of FULLNAME:

FLIP(FULLNAME, ',\*')

Sample data:

| <u>FULLNAME</u>      | <u>FLIP(FULLNAME, ',*')</u> |
|----------------------|-----------------------------|
| Britten Jr., Roland  | Roland                      |
| Jefferson, Elvira A. | Elvira A.                   |

### **Example:**

To return only the last name of FULLNAME:

FLIP(FULLNAME, '\*,')

Sample data:

| <u>FULLNAME</u>      | <u>FLIP(FULLNAME, '*,')</u> |
|----------------------|-----------------------------|
| Britten Jr., Roland  | Britten Jr.                 |
| Jefferson, Elvira A. | Jefferson                   |

### ***FUTURE***

Returns logical True if supplied date is in the future and logical False if not. If the optional argument "1" is included, the current date is considered to be in the future.

#### ***Syntax:***

FUTURE(D,[1]) where **D** is a date expression and **1** is an optional numeric argument that causes the current date to be considered as in the future.

#### ***Example:***

To determine whether the value in a field named DUE\_DATE is in the future, use the following expression:

```
FUTURE(DUE_DATE)
```

**HALF**

Returns the calendar half-year of the specified date. If date is in the range January 1 to June 30, this function returns 1; if in the range July 1 to December 31, it returns 2.

**Syntax:**

HALF(D) where **D** is a date expression.

**HISCOPE**

Returns the scope "ending value" as a character string. If high scope is end-of-file, in other words if the ending value is blank, HISCOPE returns a null string.

**Syntax:**

HISCOPE( ) no arguments

**Example:**

To print the starting and ending dates included in a report in the report Header, use HISCOPE and LOSCOPE. First, create two calculated fields, one for each value. Then, insert the fields in a Header line.

Profit Margins from mm/dd/yy to mm/dd/yy

## **IIF**

Evaluates a condition and returns one of two values, depending on whether the condition is true or false.

### **Syntax:**

IIF(condition,true-value,false-value) where **condition** can be any data type. (See the Notes below for an explanation of how non-logical expressions are evaluated as True or False.) The values returned, **true-value** and **false-value**, must be the same data type, but need not be the same data type as **condition**. **True-value** and **false-value** can be memo fields. By using a memo field as the **true-value** and empty quotation marks ("" ) as the **false-value**, you can use IIF to return an empty memo field without having an empty field in your text memo file.

If **condition** involves comparison of character expressions, the result that IIF returns may depend on how Report Designer is configured to handle case sensitivity (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

### **Note:**

If **condition** is a logical expression, IIF returns **true-value** if the expression is TRUE and **false-value** if the expression is FALSE.

### **Example:**

To print the title of each name in a mailing-labels report based on the gender of the addressee, create the field:

```
IIF(SEX = 'F','Ms. ', 'Mr. ')
```

### **Note:**

If **condition** is a character expression that evaluates to NULL or empty (""), IIF returns **false-value**. If the expression is not empty, IIF returns **true-value**.

### **Example:**

To print "Missing" if the character field TITLE is empty and "Okay" if it contains information:

```
IIF(TITLE,"Okay","Missing")
```

### **Note:**

If **condition** is a numeric expression, IIF returns **false-value** if the expression evaluates to NULL or 0 and **true-value** if the expression evaluates to non-zero.

### **Example:**

To print memo field THANKS if DUE is 0 or memo field SENDCASH, if not:

```
IIF(DUE,SENCASH,THANKS)
```

### **Note:**

If **condition** is a date expression that evaluates to empty (for example, a date field that contains no date within it), IIF returns **false-value**; otherwise, IIF returns **true-value**.

### **Example:**

To return logical T if DATE contains data or logical F if not:  
IIF(DATE, T, F.)

**Note:**

If **condition** is a memo field, IIF returns **true-value** if the memo field contains characters, even if the characters are only spaces and tabs. Otherwise, IIF returns **false-value**.

**Example:**

To return the string "See Comment" if COMMENT contains characters and the string "No Comment" if COMMENT does not contain characters:  
IIF(COMMENT, "See Comment", "No Comment")

## ***INLIST***

Compares a value with each item in a list of values to determine if the value is included in the list. Report Designer compares the first value with each value in the list. If it doesn't find a match, INLIST returns 0. If it does find a match, it returns a number corresponding to the position of the value in the list (that is, 1 for the first value, 2 for the second value, and so on).

### ***Syntax:***

INLIST(value,list-value-1,...,list-value-n) where all arguments must be the same data type: character, numeric, date, or logical expressions, and where there must be at least one **list-value**. If the values are character expressions, matching is not sensitive to upper or lower case, unless you have configured Report Designer for case sensitivity (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

### ***Example:***

To test each record in the ITEMS table to determine if its product code field (PRODNO) is one of three items in a list, create the field:

```
INLIST(PRODNO,'901','902','903')
```

Sample data:

| <u>PRODNO</u> | <u>INLIST(PRODNO...)</u> |
|---------------|--------------------------|
| 904           | 0                        |
| 903           | 3                        |
| 901           | 1                        |
| 911           | 0                        |
| 902           | 2                        |

### **INRANGE**

Determines if a value is within a specified range of values. Returns logical True if the value is equal to or greater than the lowest value and equal to or less than the highest value. Returns False if not.

#### **Syntax:**

INRANGE(value,low-value,high-value) where all arguments must be the same data type; character, numeric, date, or logical expressions. If the values are character expressions, matching is not sensitive to upper or lower case, unless you have configured Report Designer for case sensitivity (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

#### **Example:**

To determine if the price of each item in a PRICES table is within the range of 4.95 and 6.95, create the field:

```
INRANGE(LISTPRICE,4.95,6.95)
```

Sample data:

| <u>PRODNO</u> | <u>LISTPRICE</u> | <u>INRANGE(LISTPRICE...)</u> |
|---------------|------------------|------------------------------|
| 903           | 12.95            | F                            |
| 901           | 6.95             | T                            |
| 902           | 5.00             | T                            |
| 904           | 4.95             | T                            |

**INT**

Converts a numeric expression to an integer by discarding all digits to the right of the decimal point.

**Syntax:**

INT(N) where **N** is a numeric expression.

**Example:**

INT(NUMBERS)

Sample data:

| <u>NUMBERS</u> | <u>INT(NUMBERS)</u> |
|----------------|---------------------|
| 14.345         | 14                  |
| 45.543         | 45                  |
| 62.987         | 62                  |

**ISALPHA**

Determines if the first character of a character expression is any upper or lower case letter, including non-English letters. Returns logical True if yes; False if not.

**Syntax:**

ISALPHA(C) where **C** is a character expression.

**Example:**

To determine in which records the character field PARTNO begins with a letter, create the field:

ISALPHA(PARTNO)

Sample data:

| <u>PARTNO</u> | <u>ISALPHA(PARTNO)</u> |
|---------------|------------------------|
| abcd          | T                      |
| 1bc2          | F                      |
| z101          | T                      |

**ISBLANK**

Determines whether an expression contains the empty value. Returns logical True if expression contains empty value; otherwise returns logical False.

**Syntax:**

ISBLANK(I) where **I** can be any data type except logical.

**Example:**

To display or print an error in the report if the CUST\_NO field contains an empty value, create the field:

```
IIF(ISBLANK(CUST_NO),"Error",STR(CUST_NO))
```

**ISLOWER**

Determines if the first character of a character expression is a lower case letter, including non-English letters. Returns logical True if yes; False if not.

**Syntax:**

ISLOWER(C) where **C** is a character expression.

**Example:**

To determine in which records the character field PARTNO begins with a lower case letter, create the field:

ISLOWER(PARTNO)

Sample data:

| <u>PARTNO</u> | <u>ISLOWER(PARTNO)</u> |
|---------------|------------------------|
| ABCDE         | F                      |
| abcde         | T                      |

***ISUPPER***

Determines if the first character of a character expression is an upper case letter, including non-English letters. Returns logical True if yes; False if not.

***Syntax:***

ISUPPER(C) where **C** is a character expression.

***Example:***

To determine in which records the first character of character field PARTNO is in upper case, create the field:

ISUPPER(PARTNO)

Sample data:

| <u>PARTNO</u> | <u>ISUPPER(PARTNO)</u> |
|---------------|------------------------|
| AbCdE         | T                      |
| aBCde         | F                      |

**LASTPAGE**

Returns total number of pages in report.

**Syntax:**

LASTPAGE( ) no arguments.

**Example:**

To print/display page x of y numbering in a page footer line of a report, use a calculated field with expression REPORTPAGE( ) along with a second calculated field with expression LASTPAGE( ) and place them on a Page Footer band line:

----- **Page: 1 of 99** -----

## **LEFT**

Selects a specified number of characters starting from the left-most character of a character expression.

### **Syntax:**

LEFT(C,N) where **C** is a character expression and **N** is an integer numeric expression representing the number of characters to select.

### **Example:**

To create a field PARTNO to contain the first 4 characters of the field PARTID, use LEFT as follows:

LEFT(PARTID,4)

Sample data:

| <u>PARTID</u> | <u>PARTNO</u> |
|---------------|---------------|
| abcdyy        | abcd          |
| abefxx        | abef          |

**LEN**

Calculates the length of a character expression. Trailing spaces, if any, are counted. The length of a null string is zero.

**Syntax:**

LEN(C) where **C** is a character expression.

**Example:**

To produce a list of authors and titles with a dot leader (...) between them, use LEN with REPLICATE and RTRIM:

```
AUTHOR-REPLICATE(".",60-LEN  
(AUTHOR-RTRIM(TITLE)))+RTRIM(TITLE)
```

Sample report (using a monospaced font):

```
Barr.....Handbook of Artificial Intelligence  
Nierenberg.....How to Read a Person Like a Book  
Wiener.....Cybernetics
```

**LIBNAME**

If the current report was opened from a report library, LIBNAME returns the full path and name of that report library file. If the current report was saved as a compound file document, this function returns an empty string.

**Syntax:**

LIBNAME( ), no arguments.

**Example:**

To include the complete path and name of the report library file, create a calculated field consisting only of LIBNAME( ). Then insert the field in an appropriate area of the report.

## **LLOOKUP**

Returns the value of a logical field from another table. To retrieve the value of a logical field from another table, you can create a calculated field using LLOOKUP( ) instead of setting a database relation.

### **Syntax:**

LLOOKUP(I,C1,C2,C3,[C4]) where **I** is the field you want to use as the linking field to the lookup table's index key, **C1** is the name of the logical field whose value you want to retrieve from the lookup table, **C2** is the lookup table name, **C3** is the name of the lookup index file, and **C4** is an optional tag for a CDX, MDX, or WDX index. The index file's key must be an exact, full match to the linking field.

### **Example:**

To find out whether a customer has an approved credit line, you can get the value of the CREDIT field from the RRCUST table using CUST\_NO as the linking field.

Create a calculated field whose expression is:

```
LLOOKUP(CUST_NO,"CREDIT","C:\RR\RRCUST.DBF","C:\RR\RRCUST.NDX")
```

Note that the table and index names must have full path names unless they are in the same directory as the master table. If the index file has the default extension specified in your Report Designer configuration, you do not need to include the extension.

## **LOG**

Calculates the natural logarithm of a given number. If applied to a negative number or zero, LOG produces the error value.

### ***Syntax:***

LOG(N) where **N** is a numeric expression.

### ***Example:***

To determine the natural log of 7.3891, create the field LOG(7.3891), which returns a value of 2.0000. To determine the natural log of 8 times 12, create the field LOG(8\*12), which returns a value of 4.5643

**LOSCOPE**

Returns the scope "starting value" as a character string. If low scope is beginning-of-file, in other words if the starting value is blank, LOSCOPE returns a null string.

**Syntax:**

LOSCOPE( ) no arguments.

**Example:**

See HISCOPE.

**LOWER**

Converts upper case letters to lower case letters; opposite of UPPER.

**Syntax:**

LOWER(C) where **C** is a character expression.

**Example:**

To convert the upper case letters in a character field PRODCODE, create the field:

LOWER(PRODCODE)

Sample data:

| <u>PRODCODE</u> | <u>LOWER(PRODCODE)</u> |
|-----------------|------------------------|
| ABCD            | abcd                   |
| ABCE            | abce                   |

### ***LTRIM***

Removes the leading spaces from a character expression. Use this function to remove leading spaces that result from using the STR function, for example.

#### ***Syntax:***

LTRIM(C) where **C** is a character expression.

#### ***Example:***

To left justify the page number field (PAGE) in a document index, create the calculated field:

```
LTRIM(STR(PAGE,5))
```

Sample data:

Topic Page

Word truncation 12

Word-wrap 8

**LUPDATE**

Returns the date that the specified table was last updated. If the table alias is omitted, the master table date is returned.

**Syntax:**

LUPDATE(A) where **A** is the alias of any currently attached table.

**Example:**

To include the date the table with the alias PAYMNTS was last updated in a report of payments received so far this month, create a calculated field with the expression:

LUPDATE(PAYMNTS)

You might then insert this field in the Title or Page Header band, introduced by the text field "Last update on: "

**MAX**

Determines the higher value of two numeric expressions.

**Syntax:**

MAX(N1,N2) where **N1** and **N2** are numeric expressions.

**Example:**

To prevent the discounted price from going below \$10, create the field:  
MAX(DISCPRICE,10)

**MIN**

Determines the lower value of two numeric expressions.

**Syntax:**

MIN(N1,N2) where **N1** and **N2** are numeric expressions.

**Example:**

To prevent discounts of greater than 50%, create the field:  
MIN(DISCRATE,50)

## **MOD**

Calculates the remainder of a division. Returns the number representing the remainder of one numeric expression divided by another. If used with zero as the denominator, MOD produces the error value.

### **Syntax:**

MOD(N1,N2) where **N1** and **N2** are numeric expressions. **N1** is the dividend, and **N2** is the divisor.

### **Example:**

To convert data in a field SIZE that is expressed in inches to data expressed in yards and inches, create the field:

MOD(SIZE,36)

Sample data:

| Data        | Yards               | Inches              |
|-------------|---------------------|---------------------|
| <u>SIZE</u> | <u>INT(SIZE/36)</u> | <u>MOD(SIZE,36)</u> |
| 38          | 1                   | 2                   |
| 72          | 2                   | 0                   |
| 7           | 0                   | 7                   |
| 119         | 3                   | 11                  |

**MONLEN**

Returns the number of days in the month for the specified date.

**Syntax:**

MONLEN(D) where **D** is a date expression.

**Example:**

The expression MONLEN({9/01/2003}) returns 30, the number of days in the month of September.

**MONSBTWN**

Calculates the number of full months between two dates. This date difference is derived by subtracting **D2** from **D1**.

**Syntax:**

MONSBTWN(D1,D2) where **D1** and **D2** are date expressions.

**Example:**

To calculate the number of months between the starting date of a contract (STARTDATE) and the ending date (ENDDATE), create the field:

MONSBTWN(ENDDATE,STARTDATE)

Sample data:

| <u>ENDDATE</u> | <u>STARTDATE</u> | <u>MONSBTWN(ENDDATE,STARTDATE)</u> |
|----------------|------------------|------------------------------------|
| 03/14/2001     | 12/10/2000       | 3                                  |
| 03/02/2001     | 12/10/2000       | 2                                  |
| 12/10/2000     | 03/10/2001       | -3                                 |

**MONTH**

Returns the number of the month of a date expression.

**Syntax:**

MONTH(D) where **D** is a date expression

**Example:**

To print the month number of dates in the date field STARTDATE, create the field:

MONTH(STARTDATE)

Sample data:

| <u>STARTDATE</u> | <u>MONTH(STARTDATE)</u> |
|------------------|-------------------------|
|------------------|-------------------------|

|            |    |
|------------|----|
| 12/10/2001 | 12 |
|------------|----|

|            |   |
|------------|---|
| 04/23/2001 | 4 |
|------------|---|

### ***NDOW***

Returns the next date of the day-of-week number that is supplied as its second argument.

#### ***Syntax:***

NDOW(D,N) where **D** is a date expression and **N** is a numeric expression specifying day-of-week (with 1 being Sunday, 2 Monday, etc.).

#### ***Example:***

To determine the date of the next Saturday following STARTDATE, use an expression like the following:

```
NDOW(STARTDATE,7)
```

### ***NLOOKUP***

Returns the value of a numeric field from another table. To retrieve the value of a date field from another table, you can create a calculated field using NLOOKUP( ) instead of setting a database relation.

#### ***Syntax:***

NLOOKUP(I,C1,C2,C3,C4) where **I** is the field you want to use as the linking field to the lookup table's index key, **C1** is the name of the numeric field whose value you want to retrieve from the lookup table, **C2** is the lookup table name, **C3** is the name of the lookup index file, and **C4** is an optional tag for a CDX, MDX, or WDX index. The index file's key must be an exact, full match to the linking field.

#### ***Example:***

To retrieve the value of the PRICE field from the RRPRICES table using PRODUCT\_NO as the linking field, create a calculated field whose expression is:  
NLOOKUP(PRODUCT\_NO,"PRICE","C:\RR\RRPRICES>DBF","C:\RR\PRICES.IDX")

Note that the table and index names must have full path names unless they are in the same directory as the master table. If the index file has the default extension specified in your Report Designer configuration, you do not need to include the extension.

***NOW***

The NOW( ) function returns the date and time the report was started. This provides the date and time in a single field of type date-time, making it easier to manipulate.

***Syntax:***

NOW( ), no arguments

## **OVER**

Returns logical True if more than a specified number of days have passed since the supplied date.

### ***Syntax:***

OVER(D,N) where **D** is a date expression and **N** is a numeric expression specifying number of days.

### ***Example:***

To print a message indicating that a payment is past due, use an expression like the following:

```
IIF(OVER(DUE_DATE,90),"Payment is now overdue 90 days.
```

```
A 10 percent penalty will be added if not paid within 10 days.", " ")
```

As a result, the overdue notice will print only for those values of DUE\_DATE that are more than 90 days in the past.

**PAGENO**

Returns current report page number. Note that PAGENO( ) starts re-numbering with a Reset Page group break. If you want to consecutively print page numbers for an entire report that has Reset Page enabled, you should use the function REPORTPAGE() instead of PAGENO().

**Syntax:**

PAGENO( ) no arguments.

**Example:**

To print/display a page number in a Footer line of a report, create a field PAGENUM to contain PAGENO( ) and use it in a Footer line:

----- Page: 99 -----

This line then produces:

----- Page: 1 -----

**PAST**

Returns logical True if supplied date is in the past and logical False if not. If the optional argument "1" is included, the current date is considered to be in the past.

**Syntax:**

PAST(D,[1]) where **D** is a date expression and **1** is an optional numeric argument that causes the current date to be considered as in the past.

**Example:**

To determine whether the value in a field named DUE\_DATE is in the past, use the following expression:

```
PAST(DUE_DATE)
```

***PDOW***

Returns the previous date of the day-of-week number that is supplied as its second argument.

***Syntax:***

PDOW(D,N) where **D** is a date expression and **N** is a numeric expression specifying day-of-week (with 1 being Sunday, 2 Monday, etc.).

***Example:***

To determine the date of the Monday immediately preceding STARTDATE, use an expression like the following:

```
PDOW(STARTDATE,2)
```

If the value of STARTDATE is 6/02/2001, this expression will produce a value of 05/28/2001, the date of the Monday preceding 6/02/2001.

**PERCOMP**

The PERCOMP( ) function can be used to help correctly evaluate calculations in some multiple-scan reports. The problem occurs when a report includes a query and has an "unbalanced multiple-scan tree" situation (e.g., master file A scans B, C, and D and scanned file D itself scans file E). In such a situation, a query expression involving fields from files B, C, and E might not be evaluated as frequently as necessary.

**Syntax:**

PERCOMP(expression)

**Example:**

If you need to evaluate the expression once per composite record, you can create a calculated field that passes the expression to the PERCOMP ( ) function.

### **PREVIOUS**

Returns the value of the specified field in the previous composite record. (Note that records that do not satisfy the filter currently in force are not accessible with this function.) This function is useful for suppressing repeating data in fields other than group fields and for performing calculations with fields in different composite records.

#### **Syntax:**

PREVIOUS(field name) where **field name** is the name of any field in the report.

#### **Example:**

If your orders table contains fields for customer number (CUSTNO), order number (ORDERNO), and order date (DATE), you can use the PREVIOUS function to calculate the number of days since any customer's previous order, assuming that orders are sorted by date within customer.

The expression for a DAYSINCE field might be:

```
IIF(PREVIOUS(CUSTNO)=CUSTNO,DATE-PREV(DATE),0)
```

Translated, this expression means that if the customer number is the same as the customer number in the previous composite record (in other words if Report Designer is reading a record for a second or subsequent order by the same customer), return a value that is the current order date minus the order date in the previous composite record. Otherwise, return 0.

## **QTR**

Calculates the number of the calendar quarter of a date expression. (See the DQTR function.)

### **Syntax:**

QTR(D) where **D** is a date expression. 1/1 to 3/31 is Quarter 1; 4/1 to 6/30 is Quarter 2; 7/1 to 9/30 is Quarter 3; 10/1 to 12/31 is Quarter 4.

### **Example:**

To calculate the quarter number of each date in the STARTDATE field, create the field:

QTR(STARTDATE)

Sample data:

| <u>STARTDATE</u> | <u>QTR(STARTDATE)</u> |
|------------------|-----------------------|
|------------------|-----------------------|

|          |   |
|----------|---|
| 12/10/95 | 4 |
|----------|---|

|          |   |
|----------|---|
| 04/23/96 | 2 |
|----------|---|

|          |   |
|----------|---|
| 09/18/96 | 3 |
|----------|---|

**QUERY**

Returns the current query expression.

**Syntax:**

QUERY( ) no arguments.

**Example:**

To print or display the current query, create a calculated field whose expression is QUERY( ) and insert the field. Report Designer will print the query text using a word-wrapped, left-aligned format with a 50-character width. If the report has no query defined, this function returns "Include all records."

Note that this function provides text only for the current query definition; you cannot use QUERY with any other function or with operators.

**RECCOUNT**

Returns the number of records in the specified table.

**Syntax:**

RECCOUNT(A) where **A** is the alias of one of the tables used in the report. Alias is a required field.

**Example:**

In a report that uses the ITEMS table, create the calculated field:

RECCOUNT(ITEMS)

Then use the field in a Header line to report on the number of records in the table:

The ITEMS table has 40 records

where the number 40 is the result of the calculated field expression above.

### **RECNO**

Without an argument, RECNO( ) identifies the current composite record number. Composite records are numbered sequentially (starting with 1) after Report Designer does a sort and/or a query and reads all related records. RECNO(A) returns the record number from the table with the specified alias.

### **Syntax:**

RECNO(A) where **A** is the alias of one of the tables used in the report. Alias is optional.

### **Example:**

After setting a lookup relation from ORDERS to CUST and a Scan relation from ORDERS to ITEMS, create the calculated fields:

Record1 = RECNO( )

Record2 = RECNO(CUST)

Record3 = RECNO(ITEMS)

Sample data:

| <u>Customer</u> | <u>Item</u> | <u>Record1</u> | <u>Record2</u> | <u>Record3</u> |
|-----------------|-------------|----------------|----------------|----------------|
| Britten Nut     | 1           | 1              | 1              |                |
| Britten Bolt    | 2           | 1              | 2              |                |
| Adams Nut       | 3           | 3              | 1              |                |
| Adams Bolt      | 4           | 3              | 2              |                |
| Adams Wrench    | 5           | 3              | 3              |                |

**REPLICATE**

Repeats a character expression a specified number of times.

**Syntax:**

REPLICATE(C,N) where **C** is the character expression that is to be copied and **N** is the numeric expression representing the number of copies. Maximum number of characters is 254.

**Example:**

To print a line of asterisks after each record, create the field REPLICATE('\*',50) and include it in a Record line after a line of fields, such as in the following report layout:

```
Customer Name Order Date Amount
<xxxxxxxxxxxxxxxxxxxxxxxxxxxxx mm/dd/yy ($999.99)
<xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

**Sample report output:**

```
Customer Name Order Date Amount
Britten, Jr., Roland 01/10/96 $216.00
*****
Gladdin III, John 01/10/96 $96.00
*****
Adams, Abner N. 01/10/96 $144.00
```

**REPNAME**

Returns as a character string the current report name.

**Syntax:**

REPNAME(N), where **N** is an optional numeric argument specifying whether the full path and name is returned for a report saved as a compound document file.

For a report saved as a compound document file, if **N** is absent or 0 (zero), this function returns only the report name; the pathname is not included, and the extension is included only if it is something other than the default of RRW. If **N** is non-zero, this function returns the full path and name, including extension, for the report file.

For a report saved into a report library, this function always returns the report name, regardless of the presence or value of **N**.

**Example:**

To print the report name as a title, create a calculated field consisting only of REPNAME( ). Then place the field in the Title band of the report.

**REPORTPAGE**

Returns consecutive physical page number based on entire report. Similar to PAGENO( ) function except REPORTPAGE( ) does not start re-numbering with a Reset Page group break.

**Syntax:**

REPORTPAGE( ) no arguments.

**Example:**

To print/display page x of y numbering in a Footer line of a report, Use a calculated field with expression REPORTPAGE( ) along with a second calculated field with expression LASTPAGE() and place them on a Page Footer band line:

----- **Page: 1 of 99** -----

**RIGHT**

Selects the right-most specified number of characters of a character expression.

**Syntax:**

RIGHT(C,N) where **C** is a character expression and **N** is a numeric expression that defines the number of characters to select.

**Example:**

To create a PARTNO field to contain the last 5 characters of the 8-character PARTID field, use RIGHT as follows:

RIGHT(PARTID,5)

Sample data:

| <u>PARTID</u> | <u>PARTNO</u> |
|---------------|---------------|
| ababyyyy      | yyyy          |
| ababzzzz      | zzzz          |
| abab          | abab          |

**RIPARAM**

In reports run with Runtime, returns as a character string the value of a specified character field in the runtime control table or text control file. Returns asterisks for reports run interactively.

**Syntax:**

RIPARAM(C), where **C** is a character string that is the name of a character field in the runtime control table or file.

**Example:**

To include the user-supplied title stored in the TITLE field in the runtime control table, insert a field with the following expression on the Title line of your report:  
RIPARAM("TITLE")

## **ROUND**

Rounds a numeric expression to a specified number of decimal places.

### ***Syntax:***

ROUND(N1,N2) where **N1** is the numeric expression to be rounded and **N2** is the number of decimal places. Note that **N2** may be signed (e.g., ROUND(260,-2) = 300.)

### ***Example:***

To round numbers in a numeric field NUMBERS to 0 decimal places, create the field:

```
ROUND(NUMBERS,0)
```

Sample data:

```
NUMBERS ROUND(NUMBERS,0)
```

```
23453.3455 23453 (rounds down)
```

```
98789.7656 98790 (rounds up)
```

**RRUNIN**

With the Runtime, returns 1 if a report is run using a text control file; if using a control table, returns the record number of the report in that control table.

**Syntax:**

RRUNIN( ), no arguments.

**Example:**

If you develop a runtime report that uses RIPARAM to incorporate user-supplied text in the title, you can use IIF and RRUNIN to specify an alternate title when you run the report interactively. To print the text "Report Title" instead of the user-specified text supplied by RIPARAM, create the field:

```
IIF(RRUNIN(),RIPARAM(TITLE),"Report Title")
```

**RTRIM**

Removes the trailing spaces of a character expression. Since Report Designer automatically trims trailing spaces off all character fields when printing, this function is normally used only to concatenate character fields or to find the length of the actual data in a database field.

**Syntax:**

RTRIM(C) where **C** is a character expression.

**Example:**

In the CUSTOMER table, to print the state next to the city with only a comma and one space between the two fields, create the following field:

```
RTRIM(CITY)+' ', '+STATE
```

Report Designer prints the field as follows:

Detroit, MI

Columbia, MO

Portland, OR

**SCANNING**

Returns a true value if the specified table is being scanned; otherwise returns false. This function is useful for sorting, grouping, and conditionally printing data in multiple-scan reports (see Chapter 18, "Creating Multiple-Scan Reports").

**Syntax:**

SCANNING(A) where **A** is the alias of any currently attached table.

**Example:**

If you have all of your charges information in one table whose alias is CHARGES and all of your payments information in another table whose alias is PAYMNTS, you can use the SCANNING function to create a field that will contain either a charge date (CHGDATE) or a payment date (PAYDATE), depending on which table is being scanned. The expression for this field, which might be called SORTDATE, will be:  
IIF(SCANNING(CHARGES),CHGDATE,PAYDATE)

When you insert this field on a report, the charge date will print when the charges table is being scanned, and the pay date will print when the payments table is being scanned. You can also use the field as a sort field, to sort charge and payment amounts together by date.

## **SOUNDEX**

Returns a four-character string that represents the way the input expression sounds. If the character expression is longer than one word, Report Designer looks only at the first word in the expression. This function allows you to locate records based on how they sound, providing that the first letter is the same (e.g., Myers and Meyers, but not Copper and Kopper).

The conventions SOUNDEX uses to represent the sound of a word are as follows:

1. The first letter of the word is retained.
2. All occurrences of a, e, h, i, o, u, w, and y in positions other than the first position are dropped.
3. The remaining letters after the first letter are assigned the following numbers:

|                        |   |
|------------------------|---|
| b, f, p, v             | 1 |
| c, g, j, k, q, s, x, z | 2 |
| d, t                   | 3 |
| l                      | 4 |
| m, n                   | 5 |
| r                      | 6 |
4. Repeated, adjacent occurrences of letters that have been assigned the same number are omitted.

For example, following these conventions, SOUNDEX represents both "Lauren" and "Loren" as L650.

### **Syntax:**

SOUNDEX(C1,C2) where **C1** is a character expression and **C2** is an optional character expression that represents the word break character(s), the character(s) marking word separations. If **C2** is absent, Report Designer uses the space and hyphen characters to determine word breaks. If you supply **C2**, Report Designer uses only **C2** to determine word breaks (see WDCOUNT for an example).

### **Example:**

In a report based on a customer table containing names that could have been misspelled due to poor voice transmission, you can use this function to find a customer's record even though the name may have been misspelled.

To select all records where the customer's last name sounds like Meyers, create two calculated fields — one with the expression SOUNDEX("Meyers"), the other with the expression SOUNDEX(LASTNAME).

Then define a query that selects all records where the values of these calculated fields are equal. The query will select records with LASTNAME values of Meyers, Myers, and Miers.

**SPACE**

Produces a character expression made up of a specified number of spaces (blanks).

**Syntax:**

SPACE(N) where **N** is a numeric expression representing the number of spaces desired.

**Example:**

To create an underlined blank space on a report, create a calculated field whose expression is SPACE(99). Insert this field on your report layout and use Format ⇒ Font to apply the underscored style. Then use Format ⇒ Properties to specify the desired width of the field. As long as the field is left-aligned, centered, or right-aligned, your report will contain an underline of the specified width.

**SPELLNUM**

Spells the integer part of a numeric expression. The first character of the resulting character string is in upper case; all other characters are in lower case. If the number is negative, Report Designer returns a string that begins with the word "Minus". If the integer part of the number is 0 or if the field is blank, Report Designer returns the string "Zero". If the string exceeds the maximum string length of 254 characters, Report Designer returns a string of asterisks.

**Syntax:**

SPELLNUM(N) where **N** is a numeric expression.

**Example:**

To convert numbers in field NUMBERS into their English equivalents, create the field:

SPELLNUM(NUMBERS)

Sample data:

NUMBERS SPELLNUM(NUMBERS)

0.00 Zero

0.99 Zero

25.01 Twenty-five

-5.99 Minus five

Blank Zero

**SQRT**

Calculates the square root of a non-negative numeric expression. If applied to a negative number, SQRT produces the error value.

**Syntax:**

SQRT(N) where **N** is a numeric expression.

**Example:**

To print the square root of the contents of the numeric field NUMBERS, create the field:

SQRT(NUMBERS)

Sample data:

| <u>NUMBERS</u> | <u>SQRT(NUMBERS)</u> |
|----------------|----------------------|
| 9              | 3                    |
| 64             | 8                    |
| 1024           | 32                   |

## STOC

Converts a numeric value representing a number of seconds to a character string.

### **Syntax:**

STOC(N, *Keyword*) where **N** is a numeric expression representing a number of seconds and **Keyword** specifies the output format.

Valid Keywords are as follows:

| <b>Keyword</b> | <b>Meaning</b>          |
|----------------|-------------------------|
| ss             | Seconds                 |
| mm             | Minutes                 |
| hh             | Hours                   |
| mm:ss          | Minutes: Seconds        |
| hh:mm          | Hours: Minutes          |
| hh:mm:ss       | Hours: Minutes: Seconds |

If no Keyword is specified, the default is hh:mm:ss (hours: minutes: seconds).

### **Example:**

Assume that you have a field SECFIELD that contains numeric values representing a number of seconds. You can use STOC to create a calculated field CHARSEC to convert the numeric values to character strings formatted according to the specified Keyword.

Sample data:

| <u>CHARSEC Expression</u> | <u>SECFIELD Value</u> | <u>Output</u> |
|---------------------------|-----------------------|---------------|
| STOC(secfield,ss)         | 109832                | 109832        |
| STOC(secfield,mm)         | 109832                | 1830          |
| STOC(secfield,mm:ss)      | 109832                | 1830:32       |
| STOC(secfield,hh)         | 109832                | 30            |
| STOC(secfield,hh:mm:ss)   | 109832                | 30:30:32      |
| STOC(secfield,ss)         | 5                     | 5             |
| STOC(secfield,mm:ss)      | 5                     | 0:05          |
| STOC(secfield,hh:mm:ss)   | 5                     | 0:00:05       |

## **STR**

Converts a numeric expression to a character expression. This function is the opposite of VAL; that is, it constitutes a change in data type from numeric to character.

### **Syntax:**

STR(N1,N2,N3) where all arguments are numeric expressions. **N1** is a value to be converted and is required. **N2** is an optional argument representing the length of the string in number of characters. **N3** is an optional argument representing the number of decimal places.

If the value will not fit in the specified length, the STR function returns a string of asterisks instead.

If you omit the argument **N2**, STR uses 10 as the default length. If you omit the argument **N3**, STR uses 0 as the default number of decimal places.

If the value has more decimal places than specified in **N3**, STR rounds off the number to **N3** decimal places.

### **Example:**

To convert a product code field (PRODCODE) from a numeric to a character expression, create the field:

STR(PRODCODE)

Sample data:

| <u>PRODCODE</u> | <u>STR(PRODCODE)</u> |
|-----------------|----------------------|
| 12345           | " 12345"             |
| 9912567         | " 9912567"           |

(default length of 10 is used)

### **STRCOUNT**

Returns the number of times a substring occurs within a character expression.

#### ***Syntax:***

STRCOUNT(C1,C2,L) where **C1** and **C2** are character expressions and **C1** is a character substring of **C2**. The optional logical expression **L** controls the case sensitivity of the function. When **L** is true, the function is case sensitive; when it is false, the function is case insensitive. Without the third argument, the function uses the case sensitivity setting in the RRW.SRT file (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

#### ***Example:***

You might have a ten-character field (RESPONSE) that contains a string of the letters Y and N in either upper or lower case representing Yes and No responses to a questionnaire. To count the number of Yes responses, create a calculated field whose expression is STRCOUNT("Y",RESPONSE).

### ***STRREP***

Replaces each occurrence of a character substring with another and returns the full character string.

#### ***Syntax:***

STRREP(C1,C2,C3,L) where **C1** is the full character expression, **C2** is the substring to be replaced, and **C3** is the replacement substring. The optional logical expression **L** controls the case sensitivity of the function. When **L** is true, the function is case sensitive; when it is false, the function is case insensitive. When this argument is not provided, the function uses the case sensitivity setting in the RRW.SRT file (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

#### ***Example:***

To replace every occurrence of the text "LP" with "Liveware Publishing" in a character field named COMMENT, create a field with the following expression:

```
STRREP(COMMENT,"LP","Liveware Publishing")
```

### **STRSEARCH**

Returns the beginning position of the *n*th occurrence of a character substring.

#### **Syntax:**

STRSEARCH(C1,C2,N,L) where **C1** is the substring, **C2** is the full character string, and **N** is the number of the occurrence. If **N** is negative, STRSEARCH begins its search for the substring's position at the end of the character string. (Note that the position of the first character in a string is 1, not 0.)

The optional logical expression **L** controls the case sensitivity of the function. When **L** is true, the function is case sensitive; when it is false, the function is case insensitive. When this argument is not provided, the function uses the case sensitivity setting in the RRW.SRT file (see Chapter 5, "Setting Defaults," for information about configuring case sensitivity).

#### **Example:**

To extract the nickname from a BOXER\_NAME character field, create a field with the following expression:

```
SUBSTR(BOXER_NAME,STRSEARCH("(",BOXER_NAME,1)+1,  
STRSEARCH(")",BOXER_NAME,1)-STRSEARCH("(",BOXER_NAME,1)-1)
```

For a value of BOXER\_NAME such as "Billy (The Bruiser) Johnson," this field will return : The Bruiser.

### **STUFF**

Replaces any part of a character expression.

#### **Syntax:**

STUFF(C1,N1,N2,C2) where **C1** and **C2** are character expressions and **N1** and **N2** are numeric expressions. **C1** is the expression to be changed. **N1** is the starting position of the replacement. **N2** is the number of characters of **C1** to be removed. **C2** is the replacement expression. **C2** need not be the same length as **N2**.

#### **Example:**

To change four characters of PRODID to BB, starting with the third character, create the field:

```
STUFF(PRODID,3,4,'BB')
```

Sample data:

| <u>PRODID</u> | <u>STUFF(PRODID,3,4,'BB')</u> |
|---------------|-------------------------------|
| JTddddT       | JTBBT                         |
| JTdefgT       | JTBBT                         |

### ***SUBDAYS***

Calculates a date by subtracting a number of days from a date. Note that you can also subtract dates by using the – operator.

#### ***Syntax:***

SUBDAYS(D,N) where **D** is a date expression and **N** is a numeric expression representing number of days to be subtracted.

#### ***Example:***

To back-schedule the beginning date of a project based on the closing date (FINALDATE) and number of days (20) the project will take, create the field:

SUBDAYS(FINALDATE,20)

If FINALDATE is 05/21/2001, then this function yields 05/01/2001 as the starting date for the project.

**SUBMONS**

Calculates a date by subtracting a number of months from a date.

**Syntax:**

SUBMONS(D,N) where **D** is a date expression and **N** is a numeric expression representing number of months to be subtracted.

**Example:**

To back-schedule the beginning date of a project based on the closing date (FINALDATE) and number of months (24) the project will take, create the field:

SUBMONS(FINALDATE,24)

If FINALDATE is 01/10/2004, then this function yields 01/10/2002 as the starting date for the project.

## ***SUBSTR***

Extracts a substring from a character expression.

### ***Syntax:***

SUBSTR(C,N1,N2) where **C** is the character expression from which you want to extract a substring. **N1** and **N2** are numeric expressions. **N1** is the starting position for the extraction. **N2** is the length of the extraction in number of characters and is an optional argument. If you omit **N2**, the substring extends to the end of **C**.

### ***Example:***

Suppose you want to extract the 4 characters representing product code from an 8-character product number field (PRODID) and that these 4 characters begin with the third character in the product number.

To do this, create the field:

```
SUBSTR(PRODID,3,4)
```

Sample data:

```
PRODID SUBSTR(PRODID,3,4)
```

```
JT3A2378 3A23
```

```
JT4B6895 4B68
```

**SUBWKS**

Subtracts a number of weeks from a date.

**Syntax:**

SUBWKS(D,N) where **D** is a date expression and **N** is a numeric expression representing number of weeks.

**Example:**

To back-schedule the beginning date of a project based on the closing date (FINALDATE) and number of weeks (10) the project will take, create the field:

SUBWKS(FINALDATE,10)

If FINALDATE is 4/1/2003, then this function yields 1/22/2003 as the starting date for the project.

### **SUBYRS**

Subtracts a number of years from a date.

#### ***Syntax:***

SUBYRS(D,N) where **D** is a date expression and **N** is a numeric expression representing number of years.

#### ***Example:***

Stock options are 100% vested four years from the date of grant. Records in the table contain the 100% vested date, DATEVEST. SUBYRS(DATEVEST,4) gives the date the option was granted.

## ***TIME***

Returns the character representation of the system time at the time the report was started. The time is in 24 hour format, hh:mm:ss.

### ***Syntax:***

TIME( ), no arguments.

### ***Example:***

To print the system time in a Header line, create the field SYSTIME to contain the TIME function:

```
----- TIME: <xxxxxxx -----
```

yields the following:

```
----- TIME: 03:05:51 -----
```

**TODATE**

Converts a datetime expression to a date.

**Syntax:**

TODATE(DT), where **DT** is a datetime expression.

**Example:**

You can use this function to extract just the date portion of a datetime expression. For example, if one of the values of DTEND is 04/06/2001 03:20:45, the expression TODATE(DTEND) would return 04/06/2001 (omitting the time portion of the datetime value).

**TOTIME**

Converts a datetime expression to a time.

**Syntax:**

TOTIME(DT), where **DT** is a datetime expression.

**Example:**

You can use this function to extract just the time portion of a datetime expression. For example, if one of the values of DTEND is 04/06/2001 03:20:45, the expression TODATE(DTEND) would return 03:20:45 (omitting the date portion of the datetime value).

## TRANSFORM

Returns formatted character data that results from applying a format to a numeric or character expression.

### Syntax:

TRANSFORM(C1 or N,C2) where the first argument is either **C1**, a character expression, or **N**, a numeric expression. **C2** is a character expression that contains the format to be applied to the first argument. The format expression has two parts, a function and a template. At least one must be present. If both are present, the function is first.

**Function** — A function begins with an @ character, followed by one or more character symbols, and ends with a space character ( ' '). For example, '@C '. Figure 9.2 lists the functions available.

**Template** — A template comprises a string of special characters, each of which represents an output character position. A template can also contain characters that are to be output literally. Figure 10.3 lists the special characters that can be used to form a template.

|   |   | Sample Output    |
|---|---|------------------|
| U | To  |                  |
| s |   |                  |
| e |   |                  |
| C | Output CR (credit) after a positive number; e.g., TRANSFORM(123,"@c ")  | " 123.00 CR"     |
| X | Output DB (debit) after a negative number; e.g., TRANSFORM(-123,"@x ")  | " 123.00 DB"     |
| ( | Enclose Negative numbers in parentheses; e.g., TRANSFORM(-123,"@( ")  | " (123.00)"      |
| B | Left justify numeric data; e.g., TRANSFORM(123456,"@b ")  | "123456.00 "     |
| Z | Output a zero value as spaces (blanks); e.g., TRANSFORM(0,"@z ")  | " "              |
| ! | Convert lower case letters to upper case; e.g., TRANSFORM("Cole","@!")  | "COLE"           |
| R | Avoid replacing input characters with literal characters from the template; applies to character expressions only e.g., TRANSFORM("ABC", "@R X.X.X.") versus TRANSFORM("ABC", "X.X.X.") | "A.B.C"<br>"A.C" |

Figure 10.2 TRANSFORM Function

### Notes:

1. Report Designer ignores invalid function characters. For example, "@c3 " is treated the same as "@c ".

- When Report Designer encounters mutually exclusive characters such as "@(x ", the last function specified overrides any preceding function; i.e., "@(x " behaves as "@x ".

| Template Character | Sample Action and Example  | Output           |
|--------------------|--|------------------|
| Numeric Data       | 9 Substitutes next digit of number,<br>TRANSFORM(123,'99999')                                | " 123"           |
| #                  |  |                  |
| \$                 | Defines "fill character"; used in place of leading blanks,<br>TRANSFORM(12345,"\$9,999,999") | "\$\$\$\$12,345" |
| *                  | TRANSFORM(12345,"*9,999,999")  | "*****12,345"    |
| .                  | Represents position of decimal point,<br>TRANSFORM(12345,"999,999.99")                       | " 12,345.00"     |
| ,                  | Represents position of comma (or fill character),<br>TRANSFORM(12345,"9,999,999")            | " 12,345"        |
| Character Data     |  |                  |
| X                  | Substitutes next character of data,<br>TRANSFORM("Anderson","x x x xx")                      | "A d r on"       |
| !                  | Substitutes upper case equivalent of next character of data,<br>TRANSFORM("Coleman","!!!!")  | "COLE"           |

**Figure 10.3 TRANSFORM Template Characters**

**Notes:**

- For numeric data, when a function is given without template characters, Report Designer normally outputs ten integer and two decimal places.
- For character data, Report Designer treats 9, #, \$, \*, . and , literally when they appear in the template. If the format argument contains "@R ", literals do not replace characters from the input argument.

For example:

```
TRANSFORM("Henderson", 'xxxxx.xx')
```

produces "Hende.so", but

```
TRANSFORM("Henderson", '@R xxxxx.xx')
```

produces "Hende.rs".

**TRIM**

Removes trailing spaces in a character expression. This function is identical to RTRIM.

**Syntax:**

TRIM(C) where **C** is a character expression.

**Example:**

See RTRIM

### ***TTOC***

Converts a time expression or the time portion of a datetime expression to a character string.

#### ***Syntax:***

TTOC(DT) where **DT** is a datetime or time expression.

#### ***Example:***

To extract the time portion of the datetime expression DTEND as a character string, create a calculated field with the expression TTOC(DTEND).

## **TTOS**

Converts a time expression or the time portion of a datetime expression to a number of seconds. You can then use the numeric output to perform certain interval calculations (for example, the difference between two time values).

### ***Syntax:***

TTOS(DT) where **DT** is a datetime or time expression. If **DT** is a datetime expression, the date portion is ignored.

### ***Example:***

To convert the time portion of the datetime expression DTSTART to a numeric value representing a number of seconds, create a calculated field with the expression TTOS(DTSTART).

Sample data:

| <u>DTSTART Value</u>      | <u>TTOS(DTSTART) Output</u> |
|---------------------------|-----------------------------|
| 05/05/2001 12:30:00<br>am | 1800                        |
| 05/05/2001 9:00:00<br>am  | 32400                       |
| 05/05/2001 1:00:00<br>pm  | 46800                       |
| 05/05/2001 8:26:00<br>pm  | 73560                       |

**UDFNAME**

Returns the path and name of the UDF library file.

**Syntax:**

UDFNAME( ), no arguments.

**Example:**

To print the path and name of the UDF library, create a calculated field consisting only of UDFNAME( ). Then place the field in an appropriate band of the report.

## **UPPER**

Converts lower case letters of a character expression to upper case letters.

### ***Syntax:***

UPPER(C) where **C** is the character expression you wish to convert to upper case.

### ***Example:***

To print the CITY field from the CUSTOMERS table in upper case letters, create the field:

```
UPPER(CITY)
```

Sample data:

```
CITY UPPER(CITY)
```

```
Columbia COLUMBIA
```

```
Jefferson City JEFFERSON CITY
```

```
Kansas City KANSAS CITY
```

## VAL

Converts character representation of numbers into numeric values (i.e., this is a change in data type from character to numeric). This function is the opposite of STR.

### **Syntax:**

VAL(C) where **C** is a character expression containing numbers. VAL ignores leading spaces. Also, VAL converts only digits, one decimal point, and a leading minus sign and stops converting a character value when it encounters a non-digit, an embedded minus sign, or a second decimal point.

### **Example:**

VAL(CHARACTERS)

Sample data:

| <u>CHARACTERS</u> | <u>VAL(CHARACTERS)</u> |
|-------------------|------------------------|
| 346-34-7132       | 346                    |
| (617)376-1234     | 0                      |
| -123              | -123                   |
| -123-456          | -123                   |
| 123abc            | 123                    |
| 123.123.123       | 123.123                |

**WDCOUNT**

Returns the number of words in a character expression.

**Syntax:**

WDCOUNT(C1,C2) where **C1** is the character expression whose words are to be counted. **C2** is an optional character expression that represents the word break character(s), the character(s) marking word separations. If **C2** is absent, Report Designer uses the space and hyphen characters to determine word breaks. If you supply **C2**, Report Designer uses only **C2** to determine word breaks.

**Examples:**

WDCOUNT("this is a character-string") yields 5.

WDCOUNT("this/character/separates/words words","/") yields 4 since Report Designer uses "/" to break words and ignores the space character.

## **WEEK**

Returns a number representing the week-of-the-month for a date expression. Week numbers, which start at 1, are determined by the calendar date. Weeks begin on Sunday and end on Saturday.

### ***Syntax:***

WEEK(D) where **D** is a date expression.

### ***Example:***

To print the week number of the date field DATE from the ORDERS table, create the field:

WEEK(DATE)

Sample data:

DATE WEEK(DATE)

06/28/2001 5

07/07/2001 2

07/28/2001 5

**WKSBTWN**

Calculates the number of full calendar weeks between two dates. This date difference is derived by subtracting **D2** from **D1**.

**Syntax:**

WKSBTWN(D1,D2) where **D1** and **D2** are date expressions. If the number of days is less than 7, the result is 0.

**Example:**

To calculate the weeks between the starting date of a contract (STARTDATE) and its completion date (FINALDATE), create the field:

WKSBTWN(FINALDATE,STARTDATE)

Sample data:

| <u>FINALDATE</u> | <u>STARTDATE</u> | <u>WKSBTWN</u> |
|------------------|------------------|----------------|
| 04/14/2001       | 04/10/2001       | 0              |
| 04/23/2001       | 04/07/2001       | 2              |
| 04/28/2001       | 04/07/2001       | 3              |

## **WORD**

Returns a word based on its place in a character expression. For example, you can use this function to print/display the first or last word in the expression.

### ***Syntax:***

WORD(C1,N,C2) where **C1** is a character expression (string), **N** is a numeric expression that represents the number or place of the word in the expression, and **C2** is an optional character expression that represents the word break character(s), the character(s) marking word separations. If **N** is a positive number, Report Designer processes the expression starting at the beginning of the string. If **N** is a negative number, Report Designer processes the expression starting at the end of the string. For example, when **N** is 1, Report Designer returns the first word of the expression; when **N** is -1, Report Designer returns the last word of the expression. When **N** is 0 or greater than the number of words in the character expression, Report Designer returns an empty character field.

If **C2** is absent, Report Designer uses the space and hyphen characters to determine word breaks. If you supply **C2**, Report Designer uses only **C2** to determine word breaks (see WDCOUNT for an example).

### ***Examples:***

To print/display the last word in a character field DESCRIPTN, create the expression:

```
WORD(DESCRIPTN, -1)
```

Sample data:

```
DESCRIPTN WORD(DESCRIPTN, -1)
```

```
PC Cable Connector Connector
```

```
PC 3 1/2" Diskettes Diskettes
```

## **YEAR**

Returns the year part of a date expression. The result is a four-digit numeric value.

### ***Syntax:***

YEAR(D) where **D** is a date expression.

### ***Example:***

To calculate the year number of a date field BIRTHDATE, create the field:

YEAR(BIRTHDATE)

Sample data:

| <u>BIRTHDATE</u> | <u>YEAR(BIRTHDATE)</u> |
|------------------|------------------------|
|------------------|------------------------|

|          |      |
|----------|------|
| 12/10/67 | 1967 |
|----------|------|

|          |      |
|----------|------|
| 11/19/71 | 1971 |
|----------|------|

### **YRSBTWN**

Calculates the number of full years between two date expressions. This date difference is derived by subtracting **D2** from **D1**.

### **Syntax:**

YRSBTWN(D1,D2) where **D1** and **D2** are date expressions.

### **Example:**

To calculate the age of all employees in a personnel table based on date of birth field (BIRTHDATE) and the current date DATE( ), create the field:

YRSBTWN(DATE( ),BIRTHDATE)

Sample data:

| <u>DATE( )</u> | <u>BIRTHDATE</u> | <u>YRSBTWN(DATE( ),BIRTHDATE)</u> |
|----------------|------------------|-----------------------------------|
| 03/31/2001     | 12/10/65         | 35                                |
| 03/31/2001     | 04/11/60         | 40                                |
| 04/01/2001     | 07/23/57         | 43                                |
| 04/01/2001     | 12/05/51         | 49                                |

## Using User-Defined Functions

## Using User-Defined Functions

This section explains how to create, edit, and use User-Defined Functions (UDFs). You create UDFs to process field values according to an expression or formula that you define. The ability to define UDFs provides two main advantages:

- ❑ You can use the UDFs that you develop in any report.
- ❑ Since you define the expression and specify the arguments, you can create UDFs to perform complex operations beyond those available through the use of predefined functions.

After you have created a UDF, it is saved in a file called RR.UDF, which is created in the program directory or in the link directory (if one has been defined). When naming a UDF, you can use lower or mixed case to distinguish its name from the names of predefined functions. You can then use the UDF in calculated field expressions in any report just as you would use a predefined function, by typing its name or selecting it from the Function list box.

## *Creating a User-Defined Function*

## ***Creating a User-Defined Function***

A user-defined function definition has two parts: a *declaration* and an *expression*.

The declaration serves three purposes:

- ❑ It names the UDF;
- ❑ It identifies argument names and data types to be used in the UDF's expression;
- ❑ It provides a template for the actual UDF reference.

The expression defines the calculations and processing to be performed on the UDF arguments. Unlike a calculated field expression, a UDF expression uses the argument names as specified in the declaration rather than actual field names.

## ***Procedure***

To begin creating a user-defined function, select Calculations ⇒ User Function. If no UDFs have yet been defined for the current report, the New User Function dialog appears. If one or more UDFs have already been defined, select New in the User Functions dialog to display the New User Function dialog.

Briefly, the steps for creating a UDF are as follows:

1. In the User Function Declaration edit box, enter a declaration using the following syntax:

**udfname (ArgType\_ArgName1, ArgType\_ArgName2, ...)**

2. In the Expression edit box, define the function expression by typing all or part of the expression directly in the edit box or by selecting the appropriate buttons to insert fields, operators, and/or functions into the expression.
3. Select Verify to determine whether the expression syntax is correct.
4. Select OK.

## ***Declarations***

A UDF declaration, which can be up to 256 characters long, consists of the following parts:

- ❑ UDF name in upper, lower, or mixed case
- ❑ In parentheses, the data type and name of each argument to the UDF

The syntax for the declaration is:

```
udfname(Argtype_ArgName1,Argtype_ArgName2, ...)
```

For example, the declaration for a sum function that adds two numbers might be SUM(N\_A,N\_B). Translated, this declaration means that the name of the UDF is SUM. It takes two numeric arguments (represented by N\_ ), the first of which will be referred to as A and the second as B in the UDF expression.

To take a more realistic example, the declaration for a function called ISWEEKEND, which determines whether a given date falls on a weekend, might be ISWEEKEND(D\_ANYDATE). This declaration means that the ISWEEKEND function takes one date argument, which will be referred to in the UDF expression as ANYDATE.

When you use a UDF in a calculated field expression, the UDF reference must conform to the structure defined by the UDF declaration. For example, if the UDF declaration specifies one date argument, when you include the UDF reference in a calculated field, you specify one date field as an argument to the UDF.

### **UDF Names**

UDF names can be up to 30 characters long; the first 4 characters must be unique (that is, no two UDF names can have the same first 4 characters). When you use a UDF in a calculated field expression, you can include just the first 4 characters of the UDF name.

### **UDF Arguments**

UDF arguments represent expressions that the function will operate on. In the declaration, each argument consists of a letter representing the argument data type, an underscore character (\_), and a name.

Use one of the following letters to indicate argument data type:

- ❑ C for a character argument
- ❑ D for a date argument
- ❑ L for a logical argument
- ❑ M for a memo argument
- ❑ N for a numeric argument (fixed or floating point)

An argument name, which follows the data type indicator and underscore character, must be unique in the first 9 characters (for example, a declaration such as UDF(C\_ARG,N\_ARG) is not valid, since both arguments have the same name) and must start with a letter. The name can contain only letters, numbers, and the underscore character.

Argument names indicate how an argument will be referred to in the UDF expression that defines the function's operation. For example, if the declaration for ISWEEKEND is ISWEEKEND(D\_ANYDATE), the expression must use the name ANYDATE to refer to the date variable. If the declaration is ISWEEKEND(D\_A), the expression must use A to refer to the date variable.

Actual values are "passed" to a UDF through the intermediary of argument names. When you use the UDF in a calculated field expression, you substitute actual expressions or field names for the argument names in the declaration. For example, when you use the ISWEEKEND(D\_ANYDATE) function, you can substitute a field name or another expression for the argument name as follows: ISWEEKEND(NEWYEARS) or ISWEEKEND({01/01/2005}). The value of the field or expression is then used in the UDF's calculations wherever ANYDATE appears.

To take another example, a function that calculates the difference between two date values might have the following declaration:

```
DDIF(D_DATE1,D_DATE2)
```

When you use this UDF in a calculated field expression, a function such as DATE(), a field such as BIRTHDATE, or an expression such as CTOD("10/23/1990") can be substituted for either argument. This substitution supplies values for the function's calculations.

## ***UDF Expression***

A UDF's expression defines the function's operation. The expression has the same structure and uses the same functions and operators as a calculated field expression, but argument names instead of field names represent actual values that will be supplied when the UDF is used in an expression.

For example, the expression for ISWEEKEND is:

```
(DOW(ANYDATE)=7).OR.(DOW(ANYDATE)=1)
```

This expression uses the predefined DOW( ) (day of week) function, a relational operator (=), and a logical operator (OR) to operate on a date expression represented by the argument name ANYDATE. The DOW() function returns a number from 1 to 7 that represents the day of the week of the ANYDATE expression. The = operator tests to see if this number is 7 (Saturday) or 1 (Sunday). The OR operator means that if the number of the day is either 7 or 1, the expression is true; that is, the date falls on a weekend.

When you include this UDF in a calculated field, the field expression that replaces the ANYDATE argument will supply a date value for the expression to process.

Note that the argument type prefixes (C\_, D\_, L\_, M\_, N\_) are *not* included in the UDF expression.

### **Inserting Predefined Functions**

When you select a predefined function and insert it in a UDF expression, in most cases you must supply one or more arguments (fields or operators) to that function. You can use the "Paste Function Arguments" setting as an aid to providing function arguments. When "Paste Function Arguments" is On (the default), Report Designer inserts the arguments for a function into the expression. The first argument is highlighted; any item you insert or type as an argument (a field or operator, for example) replaces the highlighted argument name.

For example, suppose that you have selected the SUBSTR function and inserted it into your UDF expression. With "Paste Function Arguments" on, the function is inserted as follows:

```
SUBSTR(char,num,opt num)
```

When you enter or insert the first argument, it replaces "char" in the expression. You can then supply the other function arguments as needed.

When "Paste Function Arguments" is Off, Report Designer inserts function names without supplying argument names. Instead, the function name is inserted followed by open/close parentheses — for example, SUBSTR( ).

## *Modifying a User-Defined Function*

## ***Modifying a User-Defined Function***

To edit a previously created UDF, select Calculations ⇒ User Function. Select the UDF you want to edit from the list box; then select Edit to display the Edit User Function dialog box. The Edit User Function dialog is the same as the New User Function dialog.

To modify the existing expression, position the edit cursor as necessary to insert or delete elements. To delete a portion of the expression, drag the mouse over that portion and press Delete. Following the procedures described in the section in this chapter on creating a UDF, revise the expression as necessary. When you have completed your changes, select OK.

If the UDF you are changing will change the data type of another UDF or a calculated field expression in the current report, Report Designer will display a list of UDFs and calculated fields that will become unusable as a result of your change. The items on this list will become impossible to evaluate as a result of your change. At this point, you can select Cancel to cancel the change or OK to make the change. Selecting OK will cause the affected UDFs and fields to be flagged with question marks in field lists. If any flagged UDFs or fields are used in your report, you will have to correct their expressions before you can run the report.

Because UDFs may be used in multiple reports, you should edit them carefully. Report Designer cannot notify you of the effect your change may have on other reports.

## *Deleting a User-Defined Function*

## ***Deleting a User-Defined Function***

To delete a UDF, select Calculations ⇒ User Function. Then select the UDF you want to delete and select Delete.

You cannot delete any UDF that is used in expressions for calculated linking fields in the current report. If the UDF you are deleting is used in another UDF expression or a non-linking calculated field, Report Designer displays a list of UDFs and/or calculated fields that will be affected by your deletion. The items on this list will be deleted if you delete the UDF. At this point, you can select Cancel to cancel the deletion or OK to delete the UDF. Selecting OK will cause the affected UDFs and fields to be deleted.

Because UDFs may be used in multiple reports, you should be careful about deleting them. Report Designer cannot notify you of the effect your deletion may have on other reports.

## *Sample User-Defined Functions*

## ***Sample User-Defined Functions***

The following sections present examples of user-defined functions and explain the procedures for creating them.

## Creating a Salutation

Another example illustrates how a UDF simplifies the process of creating form letters. Suppose you have a number of tables that contain fields for titles (Mr. or Ms.), first names, and last names. Any of these fields can be blank, leading to form letter salutations like "Dear Smith" or "Dear Mr. John." To generate an acceptable salutation no matter which of these fields is empty, you can create a UDF called SALUTATION.

You want SALUTATION to compensate for missing title and name data by generating salutations like "Dear Mr. Smith:" when there is data in both the title and last name field; salutations like "Dear John," when the first name field contains data but either the title or last name field is empty; and salutations like "Dear Report Designer User:" when only the last name field contains data.

If MM is the title argument, FN is the first name argument, and LN is the last name argument, the declaration of SALUTATION is:

```
SALUTATION(C_MM,C_FN,C_LN)
```

The expression is:

```
IIF(MM< >"".AND.LN< >","", "Dear "+MM-" "+LN-":",  
IIF(FN< >","", "Dear "+FN-":", "Dear Report Designer User:"))
```

Translated, this expression means that if the title and last name both contain text, output a string composed of "Dear "+MM-" "+LN-:". Otherwise, if the first name contains text, output a string composed of "Dear "+FN-:". Otherwise, output "Dear Report Designer User:"

Once this UDF has been defined, it can be used with any table containing title, first name, and last name fields. If your report uses a table with fields called MRMS (title), FIRSTNAME, and LASTNAME, you can create a calculated field called GREETING that invokes the SALUTATION function. The expression for GREETING will be:

```
SALUTATION(MRMS,FIRSTNAME,LASTNAME)
```

By supplying these values to the SALUTATION expression, the GREETING field will produce output like that shown in Figure 10.4.

| <u>MRMS</u> | <u>FIRST</u> | <u>LAST</u> | <u>GREETING</u>  |
|-------------|--------------|-------------|------------------|
| Ms.         | Judy         | Smith       | Dear Ms. Smith:  |
| Mr.         | Miller       |             | Dear Mr. Miller: |
| Mr.         | John         |             | Dear John,       |
|             | Lee          | Jones       | Dear Lee,        |
|             | Cook         |             | Dear User:       |

**Figure 10.4 Sample Output Using SALUTATION**

## ***Calculating Appreciated Value***

Another example illustrates the creation of a numeric UDF that calculates the current value of appreciable assets. Since appreciated value depends on original value, interest rate, and the time that has elapsed since the asset was purchased, the declaration for an appreciated value (AV) function is as follows:

```
AV(N_OV,N_INT,D_DP)
```

OV represents original value, INT interest rate, and DP purchase date. If yearly interest is converted to daily interest, the expression is:

```
OV*(1+(INT/365))^DAYSBTWN(DATE(),DP)
```

Translated, this expression means that appreciated value will be calculated by taking the original value and multiplying it by 1 plus the interest rate divided by 365 (days in a year) raised to a power that is the number of days since the asset was purchased. This number of days is supplied by the DAYSBTWN() function, which calculates the number of days between the current date and the date of purchase.

When you use this function in a calculated field, you replace the OV, INT, and DP arguments with actual expressions. For example, if you have an asset table that includes a COST field containing purchase price and a PURDATE field containing purchase date, you compute appreciated value at 8% interest using the following expression:

```
AV(COST,.08,PURDATE)
```

Two field names and a constant are substituted for the arguments in AV's declaration. This substitution supplies values to the expression that calculates appreciated value. To calculate appreciated value at a different interest rate, all you have to do is change the constant.

*Creating and Using a System UDF file*

## ***Creating and Using a System UDF file***

In addition to the standard RR.UDF user defined function library, Version 10 also support a second SYSRR.UDF. The SYSRR.UDF is a read only user function library whose functions can be read and used in reports but whose definitions cannot be edited. Having this secondary UDF library allows developers to distribute a custom UDF file to their users while still allowing those users to maintain their own user defined functions.

To create a SYSRR.UDF, you first create your functions in the Report Designer which will write them to RR.UDF. Then using Windows Explorer, you simply rename RR.UDF to SYSRR.UDF.

When R&R is opened it will first read any user functions from SYSRR.UDF followed by those from RR.UDF. Functions from each will appear in any R&R function listing. In the Calculations User Function dialog, functions from both files will be listed and their expressions will appear in the Expression box but the Edit and Delete buttons will not be available for those functions that reside in SYSRR.UDF.

## Chapter 11 Sorting and Grouping Data

## ***Introduction (Sorting and Grouping Data)***

This chapter explains how to use the Sort and Group commands to sort and group report data. With the Sort command, you can select up to 8 sort fields to determine the order in which data will be presented in a report. With the Group command, you can select up to 8 group fields to group data into categories.

The explanation of sorting and grouping in this chapter is presented in the following sections:

- ❑ Sorting Data
- ❑ Grouping Data
- ❑ Techniques for Sorting and Grouping

The first two sections of the chapter explain how to use the Sort and Group dialog boxes. The final section explains the relationship between sorting and master indexes and presents techniques for sorting and grouping with total and calculated fields.

**Sorting Data**

## Sorting Data

Before you select one or more sort fields, the order of your report data is determined either by the order of records in the master table or by the master index (if one has been specified). Selecting sort fields gives you complete control over the order in which data will be presented in a report. The sort order that you establish overrides the database or master index order.

If you select one sort field, the order of data in that field determines the report's record order. You can select additional sort fields to establish a sorting hierarchy; the number of the sort fields determines the hierarchy. The first sort field determines the highest level sort; the eighth sort field determines the lowest level sort.

For example, if you select STATE as the first sort field, CITY as the second, and COMPANY as the third, Report Designer sorts data first by state, then by city within each state, then by company within each city.

Note that sorting records in Report Designer affects only the order in which data is presented in reports; it does not affect your tables.

## Selecting Sort Fields

The Database ⇒ Sort Order command enables you to select up to 8 fields for sorting the composite records in your report. When you select a sort field, the order in which Report Designer arranges report records is determined by the order of data in the specified sort field.

For example, suppose the composite record structure includes a DESCRIPTN field. If you select DESCRIPTN as a sort field, the report data will be sorted alphabetically by the value found in the DESCRIPTN field of each composite record.

To specify sort fields:

1. Select Database ⇒ Sort Order (or the Sort button) to display the Sort Order dialog (see Figure 11.1).

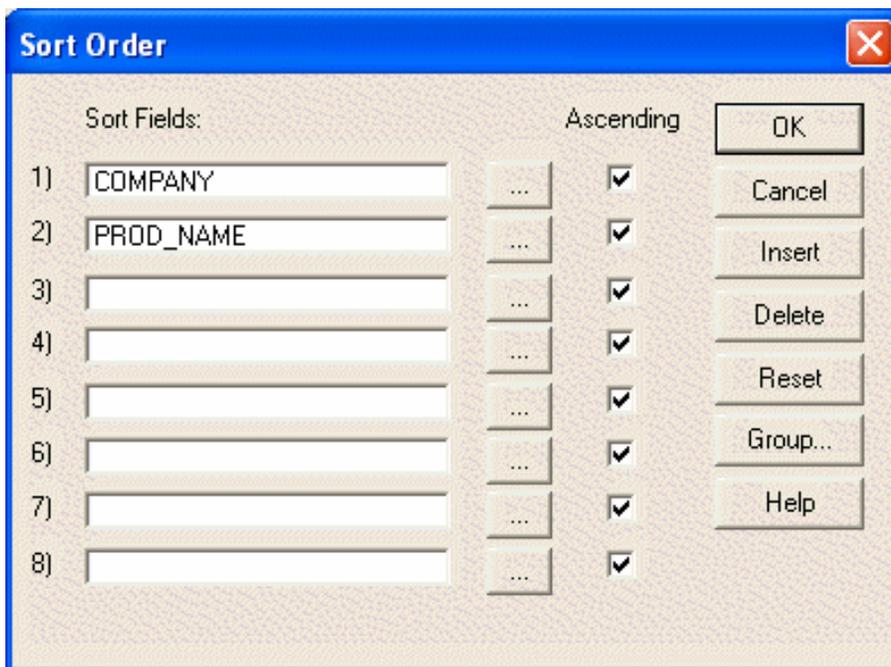


Figure 11.1 Sort Order Dialog Box

2. Open the list box for the first sort field by pressing the [...] field selection dialog. This menu displays all data fields (except memo fields) from the tables used in the report, as well as certain calculated and total fields.
3. Select a field from this menu to establish the first level of sorting.
4. Select other sort fields as necessary to specify additional sort levels. If the slot where you want to add a sort level is empty, simply open the list box and select a field.

To insert a sort level between two existing sort fields, first highlight the field that's in the slot where you want to insert; then select Insert. The current sort field and those below it will be pushed down one level. Then select the sort field you want to insert at that level. Then select OK.

5. Select OK to save the new sort order.

By default, data for the field you select will be arranged in ascending order.

Ascending order is alphabetical for character fields, false before true for logical

fields, from most negative to most positive for numeric fields, and chronological for date fields. Descending order is the opposite of ascending order. To change to descending order, turn off the "Ascending" setting in the Sort Order column next to the selected field.

## Removing or Resetting Sort Field Selections

To remove a sort field selection:

1. Select Database ⇒ Sort Order (or the Sort button).

The Sort Order dialog box appears.

2. Highlight the sort level you want to remove; then select Delete.

The highlighted sort selection is removed and all the levels below it are moved up.

3. Select OK to save the new sort order.

To clear *all* sort field selections, select Reset. You can then specify new sort fields or simply select OK without specifying fields.

**Grouping Data**

## Grouping Data

The Database ⇒ Group Order command enables you to select up to 8 fields for grouping the composite records in your report. By selecting group fields, you can organize the records in your report in up to 8 hierarchical categories. Each category can have an associated Group Header and/or Footer to identify it or to provide summary information about the records in that group.

The number of the group field determines the grouping hierarchy in your report. The first group field selection specifies the most general (most inclusive) grouping level; the eighth group selection specifies the most specific (least inclusive) grouping level.

For example, you might want to group records in a sales report by region, state, city, and product. The report excerpt in Figure 11.2 uses these group fields to report sales at four levels of detail:

- 1 REGION (1st level)
- 2 STATE (2nd level)
- 3 CITY (3rd level)
- 4 PRODUCT (4th level)

| <b>Quarterly Sales Report</b>    |           |                |                 |
|----------------------------------|-----------|----------------|-----------------|
| <b>Region: Northwestern</b>      |           |                |                 |
| <u>State City Product Sales</u>  |           |                |                 |
| Alaska                           | Anchorage | PC Com         | \$999           |
|                                  |           | PC Database    | \$4,470         |
|                                  |           | PC Spreadsheet | \$1,490         |
| -----                            |           |                |                 |
| <b>Total Sales for Anchorage</b> |           |                | <b>\$6,959</b>  |
|                                  |           |                |                 |
| Fairbanks                        |           | PC Database    | \$7,450         |
|                                  |           | PC Publisher   | \$1,245         |
|                                  |           | PC Spreadsheet | \$1,490         |
| -----                            |           |                |                 |
| <b>Total Sales for Fairbanks</b> |           |                | <b>\$10,185</b> |
|                                  |           |                |                 |
| <b>Alaska Sales</b>              |           |                | <b>\$17,144</b> |
| .                                |           |                |                 |
| .                                |           |                |                 |
| .                                |           |                |                 |
| <b>NORTHWESTERN REGION SALES</b> |           |                | <b>\$45,859</b> |

**Figure 11.2 Grouped Report**

Note that if you do not select group fields for a report, the default group fields will be the same as your sort fields.

## **Combining Sorting and Grouping**

Because your group fields are often the same as your sort fields, the sort fields you initially select automatically become your group fields. However, you can change the default group fields as necessary. In fact, you can combine sort and group field selections to achieve considerable flexibility in organizing your report. For example, suppose you have a database containing transactions that you want to order by date. In addition, you want to report subtotals by month. You can achieve this result by sorting the composite records by date and then grouping by month.

Note that grouping achieves the desired effect only when records are sorted in the appropriate order. In the example above, grouping by month works only if the records are in date order.

## Selecting Group Fields

When you select sort fields, Report Designer automatically makes those fields your group fields. Using the Group Order dialog box, you can change the existing group field selections, insert or remove group fields, and specify options that control how grouped data will be presented in your report.

To add a group level to a report:

1. Select Database ⇒ Group Order, the Group button, or the Group button in the Sort dialog box to display the Group Order dialog box (see Figure 11.3).
2. If the slot in which you want to select a field for grouping is blank, select the field name using the [...] field selection button next to that slot.
3. To insert a group level above a level for which you have already selected a field, highlight the existing group level; then select the Insert button. The highlighted group level and all the levels below it are moved down, leaving a blank slot. Then select a field name from for the blank slot.

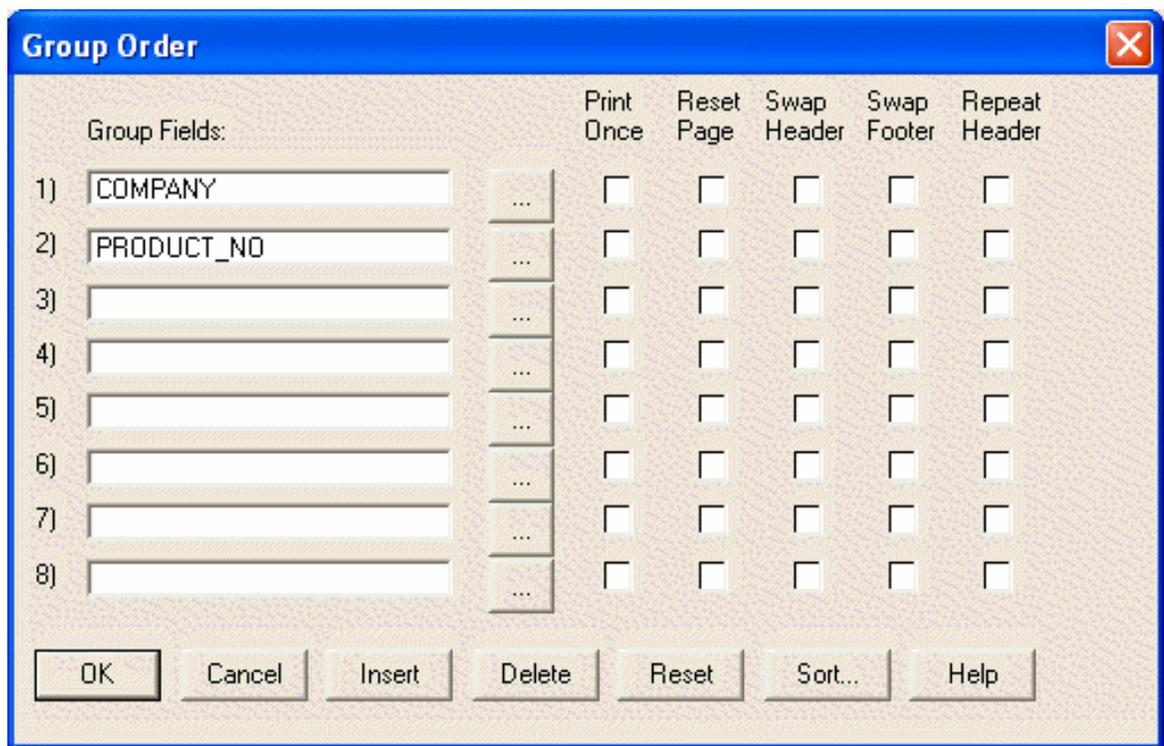


Figure 11.3 Group Order Dialog Box

4. Select OK to save the new group order.

You can specify up to 8 grouping levels on the Group Order dialog box. Once you have specified multiple group fields, you can insert or remove selections; Report Designer automatically adjusts the remaining group field selections.

## Removing or Resetting Group Field Selections

To remove a group field selection:

1. Select Database ⇒ Group Order (or the Group button).

The Group Order dialog box appears.

2. Highlight the group level you want to remove; then select Delete.

The highlighted group level is removed and all the levels below it are moved up.

3. Select OK to save the new group order.

To clear *all* group field selections, select Reset. You can then select new group fields or simply select OK without selecting fields.

## *Changing Group Options*

## ***Changing Group Options***

The Group Order dialog contains the following additional options that provide further control over how grouped data appears on the report:

- Print Once
- Swap Footer
- Reset Page
- Repeat Header
- Swap Header

By default, each of these options is Off. To turn an option On for a particular group level, click the box in the appropriate column. The following sections explain each of the group options.

## ***Print Once***

This option enables you to suppress printing of repeating data on Record lines. For example, if you group a report by STATE, and the STATE field has been inserted in the Record band, the same state name will print for each record in a group. By turning on Print Once, you can suppress this repetition and print the state name once only.

By default, data from a selected group field will print on every line that includes that field. To specify that the data from a group field print only once per group, turn on the Print Once option for that group level.

In the report excerpt illustrated in Figure 11.4, Print Once is Off for the customer name group field.

| Customer Name | Item     | Quantity | Amount |
|---------------|----------|----------|--------|
| Joyce Adams   | 101      | 18       | 162.00 |
| Joyce Adams   | 103      | 12       | 60.00  |
| Joyce Adams   | 108      | 36       | 144.00 |
|               | Subtotal |          | 366.00 |
| Greg Anderson | 102      | 18       | 177.00 |
| Greg Anderson | 104      | 64       | 192.00 |

**Figure 11.4 Report with Print Once Turned Off**

Figure 11.5 shows the same report with Print Once turned On.

| Customer Name | Item     | Quantity | Amount |
|---------------|----------|----------|--------|
| Joyce Adams   | 101      | 18       | 162.00 |
|               | 103      | 12       | 60.00  |
|               | 108      | 36       | 144.00 |
|               | Subtotal |          | 366.00 |
| Greg Anderson | 102      | 18       | 177.00 |
|               | 104      | 64       | 192.00 |

**Figure 11.5 Report with Print Once Turned On**

## ***Reset Page***

Using the Reset Page setting, you can reset the page number to 1 and start a new page for each group. For example, if you are printing a series of invoices grouped by order number and each invoice contains several pages of items ordered, you can re-start numbering for the first page of each invoice at Page 1.

By default, Report Designer numbers report pages consecutively. To have Report Designer reset the page number returned by PAGENO( ) to 1 after the last record of each group, turn on Reset Page for that group level; as a result, each group will automatically begin on a new page.

The Reset Page setting also determines which burst levels will be available in Report Designer when the Mail Option is selected from File ⇒ Export.

## ***Swap Header***

When you create a report layout that contains Group Headers, you can use the Swap Header option to print the Group Header instead of the Page Header on pages where the group changes. The Group Header created for swapping must be the same number of lines as the Page Header, since it will substitute for the Page Header on some pages. Group Header and Page Header lines should also have the same line height.

By default, Report Designer prints a Group Header before the first record for each group and places the Page Header at the top of each page. To print the Group Header instead of the Page Header at the top of the first page containing records for a new group, turn on Swap Header for that group level; as a result, each group will automatically begin on a new page.

For example, use the Swap Header option to print sales information grouped by region, with the region name at the top of each page on which a new region begins. By turning Swap Header on, you tell Report Designer to print the Group Header at the top of the first page of the group (each group will begin on a new page) and then print the Page Header at the top of each subsequent page in the group.

## ***Swap Footer***

When you create a report layout that includes Group Footers, you can use the Swap Footer option to print a Group Footer instead of the Page Footer on each page containing the last record in a group. The Group Footer created for swapping must be the same number of lines as the Page Footer, since it will substitute for the Page Footer on some pages. Group Footer and Page Footer lines should also have the same line height.

This feature is especially useful when you are reporting on pre-printed, multi-page forms, such as invoice forms. For example, you would use this option when printing invoices that group many pages of items by order number.

In this case, for each invoice, each page but the last will contain a Page Footer that includes a page total. However, the last page of each invoice will contain the Group Footer with the total for the entire invoice.

When the Swap Footer option is off, Report Designer prints the Group Footer after the last record for each group and places the Page Footer at the bottom of each page. To print the Group Footer instead of the Page Footer at the bottom of the last page containing records for each group, turn on Swap Footer for that group level; as a result, each group will automatically begin on a new page.

## ***Repeat Header***

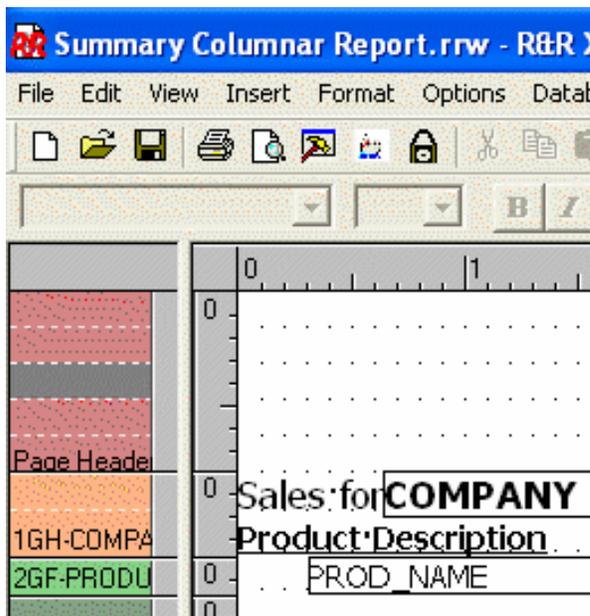
This option allows you to reprint a Group Header at the top of the page when a group continues across several pages. When this option is on, each time Report Designer starts a new page, it prints a Page Header, if any, and then repeats the Group Header before printing more data within the group. When this option is off, Report Designer prints the Group Header only once at the beginning of each group. You can use this option to reprint column headings contained in a Group Header when the data within the columns continues across pages.

## *Using Group Headers and Footers*

## Using Group Headers and Footers

Report Designer determines where to place Group Headers and Footers in your report based on the group fields you define. For example, if REGION is the first group field, the first-level Group Header prints before the first record for each new region; the first-level Group Footer prints after the last record for each region. In the same way, the second group field controls the placement of second-level Headers and Footers.

Each Group Header and Footer must have a corresponding group field at the same level. Without a controlling group field, Report Designer does not print or display Group Header and Footer lines. The line type indicators on the layout window show the connection between group fields and their corresponding Group Header and Footer bands. When you create a Group Header or Footer band, the line type indicator shows the Header or Footer level, followed by the group field name.



**Figure 11.6 Group Field Line Indicators**

For example, in the portion of the report layout shown in Figure 11.6, the 1GH\_COMPANY and 2GF\_PRODUCT that display to the left of the Group Header and Footer bands indicate that the first-level group field COMPANY controls the Header and the Second Level Group field Product controls the footer line. The Group Header lines print each time the value in the COMPANY field changes; the Group Footer lines print at the end of each Product within the Company group. If you have enabled Colored Bands/Preview on the Preferences dialog, then each band type appears in a separate color, thereby making it easier to distinguish band lines while designing a report.

Using Group Footers enables you to include summary information (such as Product Subtotal figures) at each level of this report.

## Techniques for Sorting and Grouping

## **Techniques for Sorting and Grouping**

You can use various techniques to obtain further control over the order of report records. For example, you can:

- Use a master index instead of selecting sort fields;
- Sort and group on total fields;
- Sort and group on calculated fields.

These techniques are explained in the following sections.

## **Sorting with Master Indexes**

You can often speed up report generation by using a master index instead of a sort field to order records for a report. A master index determines the order in which Report Designer reads the records in the master table, often eliminating the need for any sorting. For information on using a master index, see the explanation of Database ⇒ Master Table in Chapter 6, "Selecting Data Files."

## Sorting and Grouping with Total Fields

Report Designer allows you to sort and group on total fields, as long as the fields have been designated as pre-processed.

For example, suppose you want to create an orders report that shows total orders by state and within state, by customer. You want to list states in order of decreasing number of orders, and within each state group, you want to list customers in order of decreasing number of orders.

You might create this report as follows:

1. Create the report using STATE and CUSTID as your initial sort and group fields, so that you can create the group totals you want.
2. Create a total field called STATECNT that is a count of the ORDERNO field that resets on the STATE group field. This field will count the number of orders for each state. On the Total Field dialog, select Options and select "Pre-processed" as the Processing type.
3. Create a total field called CUSTCNT that is a count of the ORDERNO field that resets on the CUSTID group field. This field will count the number of orders for each customer. On the Total Field dialog, select Options and select "Pre-processed" as the Processing type.
4. Replace the STATE sort field with the pre-processed STATECNT total field.
5. Replace the CUSTID sort field with the pre-processed CUSTCNT total field.

Note that although your list of sort fields will be STATECNT, CUSTCNT, Report Designer will sort your report as if the sort fields were STATECNT, STATE, CUSTCNT, CUSTID. The STATE and CUSTID fields are implicitly included (even though they do not appear in the list of sort fields) to resolve ties between states that have the same number of orders and between customers that have the same number of orders.

As a general rule, when a pre-processed total field (or calculated field using a pre-processed total) is selected as sort field  $n$ , Report Designer inserts an implicit sort field between sort level  $n$  and  $n+1$ . The implicit sort field is the group field on which the total resets. If your sort field list includes several contiguous pre-processed totals that reset on the same group field, Report Designer inserts the implicit sort field once, after the last of the contiguous totals.

## Sorting and Grouping with Calculated Fields

Report Designer allows you to sort and group on most calculated fields. For example, you could sort and group an orders report by month, by creating a calculated field with the expression MONTH(ORD\_DATE). Using this expression as the first sort and group field in your report would enable you to sort by month, as well as create Group Headers and Footers for each month's records.

Although you can group on such fields, you *cannot* use as a sort field any calculated field that:

- Uses the PAGENO, LASTPAGE, REPORTPAGE, RECNO, or PREVIOUS functions
- Is self-referencing
- Is running-total-related

You can also sort and group on many total-related calculated fields, as long as the total fields used in the calculated field expressions have been designated as pre-processed. For example, you could sort and group a customer report by customer category, using a calculated field that assigned customers to a category based on the total dollar volume of their orders. You might create such a report as follows:

1. Create the report using CUSTID as the first sort and group field.
2. Create a total field called CUST\_TOT that is a sum of the ORD\_AMT field reset on the CUSTID group field. This field will sum the order amounts for each customer.
3. Use the Options setting on the New/Edit Total Fields dialog to make CUST\_TOT a pre-processed total.
4. Create a calculated field called CATEGORY that assigns customers to one of three categories ("High Volume," "Moderate Volume," "Low Volume") based on the value in the CUST\_TOT pre-processed total field.

The field might have the following expression:

```
IIF(CUST_TOT>50,000,"High Volume",  
IIF(CUST_TOT >= 10,000,"Moderate Volume",  
"Low Volume"))
```

5. Use the Sort command to replace the CUSTID sort field with the CATEGORY field. If you want to sort by customer total within this category, you could add CUST\_TOT as the second level sort field.
6. Use the Group command to insert the CATEGORY field as the first group field, pushing the CUSTID field down one level.
7. Use Calculations ⇒ Total Field to edit the CUST\_TOT total field so that it will continue to reset on CUSTID, which is now the *second* group field.

Although you can group on calculated fields whose expressions include *both* a pre-processed total field and a database field, you cannot select such fields as sort fields. This restriction is a result of the type of processing that produces pre-processed totals.

## **Sorting in Multiple-Scan Reports**

When you select sort fields for multiple-scan reports (reports that scan more than one table from the same controlling table), note that fields not supplied with data by the current scan will be empty. Empty fields of this type will sort last, whether you select ascending or descending order. See Chapter 18, "Creating Multiple-Scan Reports," for more information on sorting multiple-scan reports.

## Chapter 12 Creating Queries

## ***Introduction (Creating Queries)***

This chapter explains how to use Database ⇒ Query to select the composite records that will be included in a report. With this command, you can define a set of selection rules called a *query*, which is saved with your report. Each time you run the report, Report Designer will include only those records that meet the selection criteria.

The explanation of Database ⇒ Query is presented in the following sections:

- ❑ Query Structure
- ❑ Developing and Modifying a Query
- ❑ Query Techniques

**Query Structure**

## Query Structure

Each query consists of one or more *selection rules* that instruct Report Designer to retrieve data selectively based on criteria that you establish. To build a rule, you select or enter elements using the Selection Rule dialog box explained in the next section. Each selection rule consists of three elements:

- A field from the composite record structure;
- A comparison operator such as "equal to" (see Figure 12.2);
- A comparison value, which can be a field, value, list of values, or range against which the value of the first field is compared.

## Fields

Each selection rule begins with a field from the composite record structure. You can use a database field or a calculated, Parameter, or total field created in Report Designer. See the Query Techniques **Query Techniques** section of this chapter for information about using calculated, Parameter, and total fields in queries.

When you initially create selection rule, only the field and parenthesis boxes are enabled.

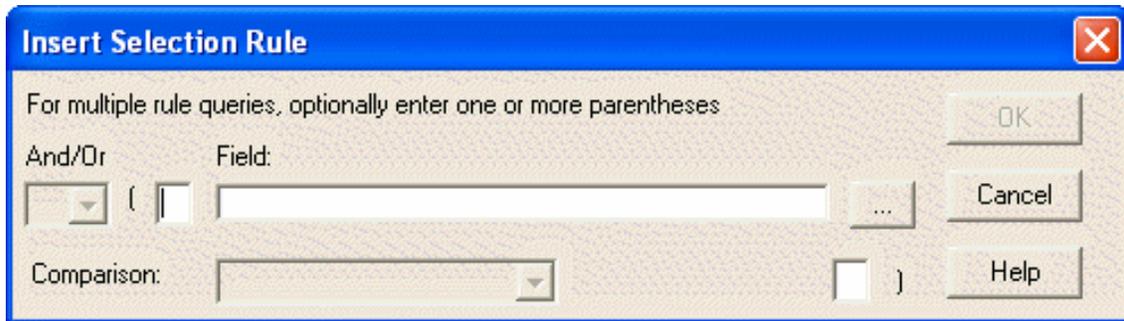


Figure 12.1 New Selection Rule

## Comparison Operators

The second element of every selection rule is a comparison operator, such as "equal to" or "not equal to." Figure 12.2 lists a table of the comparison operators provided by Report Designer, the data types they support and the style of comparison value that they use.

| Operator                 | Field Is   | Supported Data Types | Comparison Value                      |
|--------------------------|--|----------------------|---------------------------------------|
| equal to                 | Equal to entered value or selected field's value                 | All                  | Single value or Single selected field |
| not equal to             | Not equal to entered value or selected field's value             | All                  | Single value or Single selected field |
| greater than             | Greater than entered value or selected field's value             | All except logical   | Single value or Single selected field |
| greater than or equal to | Greater than or equal to entered value or selected field's value | All except logical   | Single value or Single selected field |
| less than                | Less than entered value or selected field's value                | All except logical   | Single value or Single selected field |
| less than or equal to    | Less than or equal to entered value or selected field's value    | All except logical   | Single value or Single selected field |
| in the range             | Between two entered values or equal to either                    | All except logical   | From and To single values             |
| not in the range         | Not between two values and equal to neither                      | All except logical   | From and To single values             |
| in the list              | Equal to one of the listed values (up to 25 values)              | All except logical   | List of single values                 |
| not in the list          | Not equal to any listed values (up to 25 values)                 | All except logical   | List of single values                 |

**Figure 12.2 Comparison Operators**

## *Comparison Values*

## ***Comparison Values***

The compared to area of the Selection Rule dialog dynamically changes based upon the comparison operator and the data type of the selected field.

The following sections describe:

- Entering character values
- Entering numeric values
- Selecting logical values
- Selecting date and date/time values
- Working with single value operators
- Working with list operators
- Working with range operators

**Comparison formats by data type**

## Entering String Values

When you enter a string value as either a compared to value for an equality, a FROM or TO value for a range or a list item for a list, you do not need to add any explicit string delimiters. R&R will assume that what you enter is an actual string. So if you create a rule to select records where STATE is equal to "MA", R&R will look for records where the STATE field contains the literal "MA" rather than the literal MA.

Note however that the selection rule is displayed in the Query dialog using R&R calculated field syntax. The following rule:

**Edit Selection Rule**

Select a compared to Field or enter a compared to value without quotes

And/Or (  )

Field: STATE ...

Comparison: equal to  )

Compared to:

Field: ...

OR

Value: MA

OK Cancel Help

Will be displayed in the Query dialog as:

**Query**

Include all records where:

STATE is equal to "MA"

OK Cancel Verify... Help

Insert... Edit... Append... Delete

Note that the literal MA is displayed in quoted delimiters.

To select a blank value as a comparison value, you can simply leave the compared to value blank and press OK.

## **Entering Numeric Values**

When you enter a numeric value as either a compared to value for an equality, a FROM or TO value for a range or a list item for a list, you enter only signs, decimals and digits.

## Selecting Logical values

When a logical field is compared, a comparison value is selected using True/False radio buttons.

## Selecting Date and Datetime Values

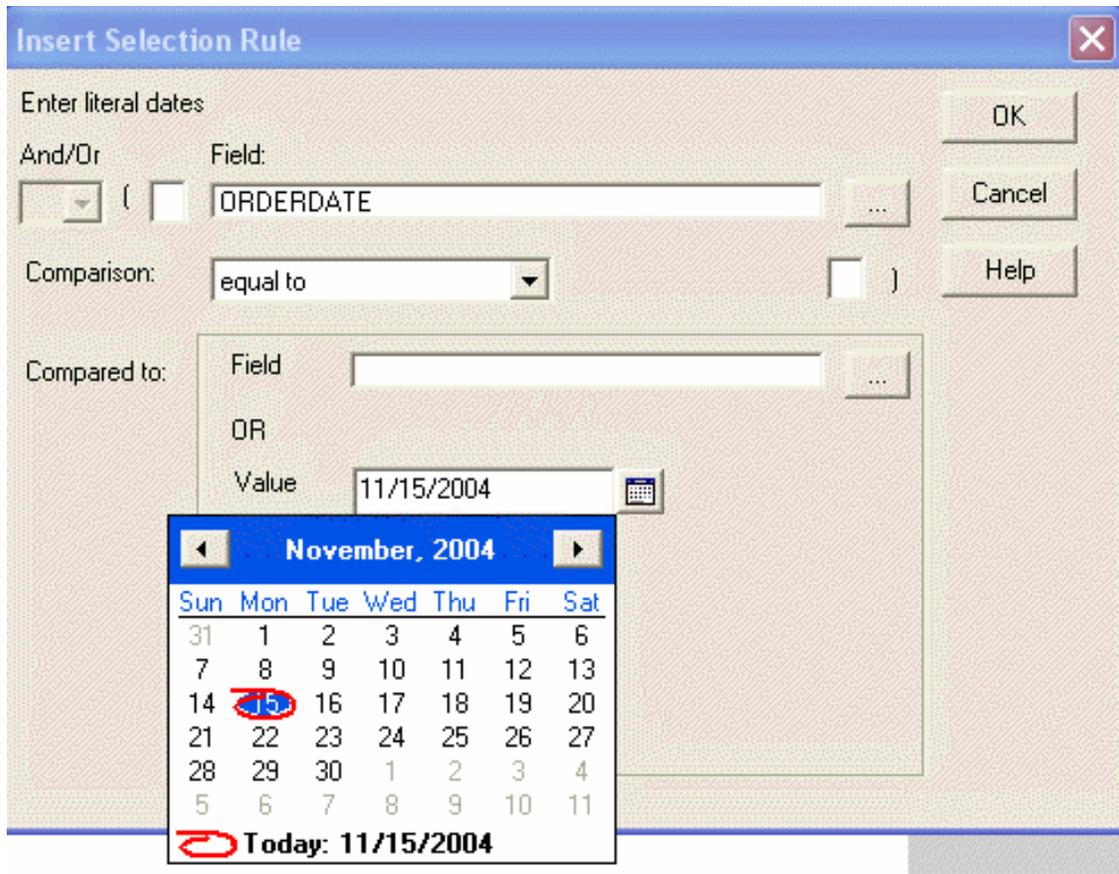
Date and date time values can be entered literally or can be selected using the calendar button.

### Date Entry

You can enter a date value by typing it in to the value box using the current Windows short date format such as MM/DD/YYYY.

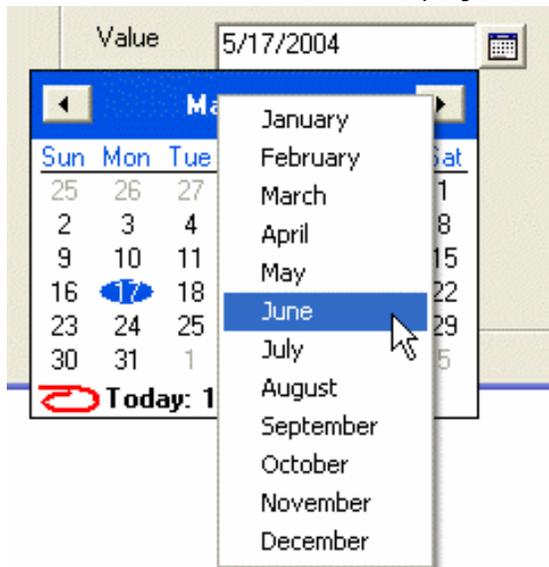


Alternatively you can select a date by clicking the calendar control button that is next to the value box. This will display a calendar that will initially default to the current system date.



Click on a day to select it.

To scroll by month, use the left and right arrow keys on the calendar header or click on the month name to display the month list.



To scroll by year, click on the year in the header to display spin controls to the

right of the year.



You can also use the \* and @ wildcards for any part of a literal date.

Examples:

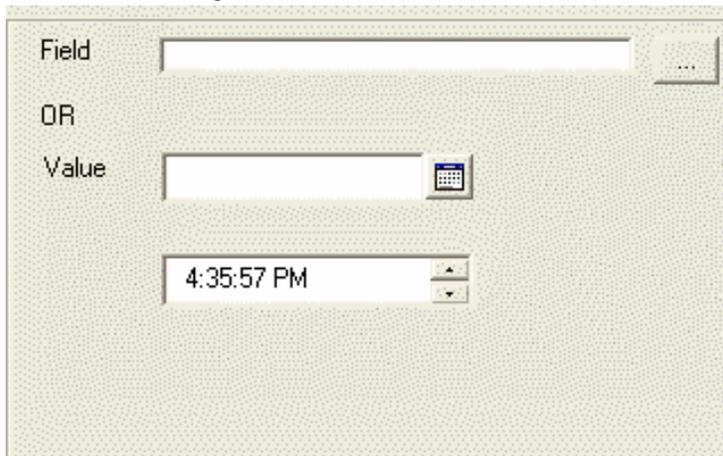
Any date in the year 2005 would be entered as \*/\*/2005

Any date in June of any year would be entered as \*/06/\*

The first day of any month in this year would be entered as 01/\*/@

### Time Entry

You can enter a time value by typing it in to the value box using the current Windows time format such as HH:MM:SS AM. A new time entry will initially default to the current system time.



You can also use the spin control to adjust the time. Click the control arrows to initially adjust the hours.

To then adjust any of the other components, use the left and right arrows to select the component and then use the spin arrows to scroll through the available choices.

|       |   |   |
|-------|---|---|
| Field | <input type="text"/>                    | ...   |
| OR    |   |   |
| Value | <input type="text" value="11/15/2004"/> |  |
|       | <input type="text" value="3:35:57 PM"/> |  |

**Comparison formats by operator type**

## Single Value Comparisons

The operators Equal to, Not Equal to, Greater than, Greater than or equal to, Less than, Less than or equal to are all single value operators. This means that they compare the selected field to a single value.

This single value can be either a literal value that you explicitly enter in the selection rule or it can be an existing report field.

The compared to box for a single value comparison operator contains two boxes.

The screenshot shows a dialog box titled "Insert Selection Rule". The main instruction is "Select a compared to Field or enter a compared to numeric value". The dialog is divided into several sections:

- And/Or:** A dropdown arrow, a checkbox, and a "Field:" label.
- Field:** A text box containing "CUST\_NO" and a "..." button.
- Comparison:** A dropdown menu showing "equal to" and a checkbox.
- Compared to:** A section with two options: "Field" (with a text box and "..." button) and "Value" (with a text box).
- Buttons:** "OK", "Cancel", and "Help" buttons on the right side.

The upper box is a field selector where you can use the [...] to display the select field dialog to select an existing field.

The lower box is the value entry box where you can enter a literal value.

Note that you can either select a field OR enter a value. If you first select a field and then enter a value, when you enter the value, the field entry is cleared. It also works the other way around. If you enter a value and then select a field, the value entry is cleared.

See the next sections for information on entering values for each available datatype.

## Entering Values in a List

If you have selected "in the list" or "not in the list" as the comparison operator, you can enter multiple comparison values.

The compared to section for list operators has two boxes.

The screenshot shows a dialog box titled "Insert Selection Rule". It contains the following elements:

- Instruction: "Enter a string value and press Add to add it to the list"
- Buttons: "OK", "Cancel", "Help"
- Fields: "And/Or" (dropdown), "Field:" (text box with "PROD\_NAME"), "Comparison:" (dropdown with "in the list")
- "Compared to:" section:
  - Text box: "PC Project Planner" with "Add" button
  - List box: "PC Com", "PC Database", "PC Graphics" with "Edit" and "Delete" buttons

**Figure 12.3**

The upper box is where you edit/add a list item. You use the same format for entering as you would enter a single value comparison of that same data type. After make an entry, press the Add button to add the current item to the list.

The list of added items displays in the list box below. You can edit or delete an existing list item by selecting it in the list. Pressing the Delete button immediately removes the item from the list. Pressing Edit moves the selected item to the upper box where you can make your changes and press Add to place the edited item in the list below.

A comparison list can contain up to 25 items.

## Defining a Range of Values

If you have selected "in the range" or "not in the range" to define a range of comparison values you will be given two entry areas to enter the FROM and TO values that will determine the end points of the range. You use the same format for each endpoint as you would enter a single value comparison of that same data type.

For multiple rule queries, optionally enter one or more parentheses

And/Or (  Field: PROD\_CODE ...

Comparison: in the range  )

Compared to:

| FROM | TO  |
|------|-----|
| 102  | 208 |

OK Cancel Help

**Figure 12.4**

If the FROM value is greater than the TO value, R&R will return a "Range out of order" error and will not allow you to proceed.

## *Connectors*

## ***Connectors***

Selection rules can be joined with the connectors "and" and "or." Joining two or more selection rules with "and" means that records must meet the criteria established by *all* selection rules in order to be included in the report. Joining selection rules with "or" means that records must meet the criteria for at least one of the selection rules in order to be included in the report.

When Report Designer processes a query, connectors are evaluated left to right. You can change this order of evaluation by using parentheses as described in the following section.

## *Parentheses*

## ***Parentheses***

You can use parentheses to indicate the order for evaluating connectors in a query. If you have more than two query rules and have selected at least one OR operator, you may need to add parentheses to make sure that you are getting the desired result.

For example, the following query consists of two selection rules telling Report Designer to select the records for all cities in California with a population greater than 5000.

Include all records where  
STATE is equal to "CA"  
**AND** POPULTN is greater than "5000"

Because the selection rules are joined by "and," Report Designer will retrieve records that satisfy the requirements of *both* rules. If these rules were joined by "or" instead, Report Designer would retrieve all records that satisfy *either* rule; that is, records in which the value of STATE is "CA" *or* the value of POPULTN is 5000 or higher.

If you are only using AND connectors, no matter how many query rules you might have the order in which they are evaluated does not matter since all conditions must be satisfied for a record to be selected.

However if you have more than two rules and have used both AND and OR operators, then you should add parentheses to make sure that you are getting the desired result.

Let's return to the above example and says that we want to change our list so that we see cities in California with a population over 5000 or average income of over 100000. So we append a new rule:

Include all records where  
STATE is equal to "CA"  
**AND** POPULTN is greater than 5000  
**OR** AVGINC is greater than 100000

Without any extra parentheses, the connectors are evaluated in the order that they are listed. So what we get California cities with a population of greater than 5000 and cities from ALL states having an average income of greater than 100000. To get what we really want we need to add extra parentheses to group the second and third rules so that the OR happens before the AND. In the second rule we add a ( to the left parenthesis box and in the third rule we add a ) to the right parenthesis box.

Our query then becomes:

STATE is equal to "CA"  
**and** ( POPULTN is greater than 5000  
**Or** AVGINC is greater than 100000 )

The connectors within parentheses are evaluated first, from the innermost level of parentheses outward, and from left to right within any set of parentheses. So first we find those records that have a population of greater than 5000 or average income of greater than 100000 and then AND that result so that the state must be California.

To place parentheses in a selection rule, place the edit cursor in the left or right parentheses edit box and type one or more parentheses.

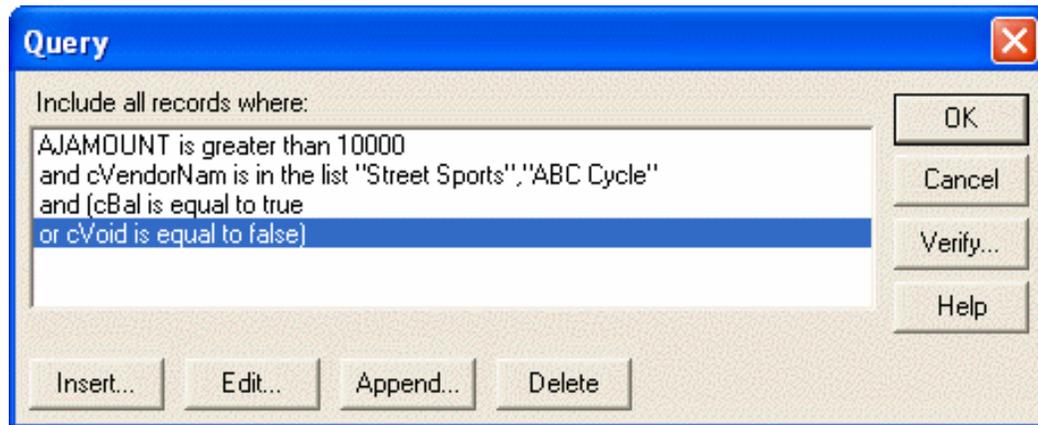
If you are using parentheses, you can enter them in any of your query rules. However the total number of left parentheses must match the total number of right parentheses or when you try to OK or Verify the query, you will get an "Unbalanced parentheses" error.

**Developing and Modifying a Query**

## Developing and Modifying a Query

If no query exists for a report, the Insert Selection Rule dialog box is displayed when you select Database ⇒ Query. Using this dialog, you build a query by telling Report Designer which records or range of records to retrieve for a report.

After you've developed a query for a report, selecting Database ⇒ Query displays the Query dialog box.



**Figure 12.5 Query Dialog**

The selection rules that make up the query are shown in the order in which they were defined. Using the buttons at the bottom of the Query dialog, you can modify the query by editing, inserting, appending, and/or deleting individual selection rules. Figure 12.6 summarizes the purpose of each of these buttons.

| Use    | To  |
|--------|---|
| Insert | Insert a rule above the currently highlighted one |
| Edit   | Modify the currently highlighted rule             |
| Append | Add a selection rule below existing rules         |
| Delete | Delete the currently highlighted rule             |

**Figure 12.6 Explanation of Query Dialog Buttons**

## Defining Selection Rules

To define one or more selection rules of a query, do the following:

1. Select Database ⇒ Query to display the Insert Selection Rule dialog. Since you are defining the first selection rule, the And/Or box is disabled.
2. If you are developing a multiple-rule query, you can type one or more left parentheses in the edit box to the left of the Field list box as necessary. You can use left and right parentheses to change the order in which connectors are evaluated in a multiple-rule query.
3. Click the field list button. This displays the Select Field Name dialog which lists all fields from the composite record structure that can be used in a query. Select a field from this list.
4. Open the Comparison list box. The comparison operators listed here depend on the data type of the field you initially selected. Choose the appropriate operator from the list.
5. Enter or select a comparison value.
6. If necessary, enter one or more right parentheses in the box to the right of the Compared To box.
7. Select OK to close the Selection Rule dialog box and display the Query dialog. To confirm that you have correctly defined the rule, select Verify.
8. Insert and append other selection rules as necessary. Note that although each rule can be modified independently, changes to one rule may require other changes as well (such as selection of a different connector or insertion or removal of parentheses).
9. When you have defined all selection rules, select OK to save the query and return to the report layout.

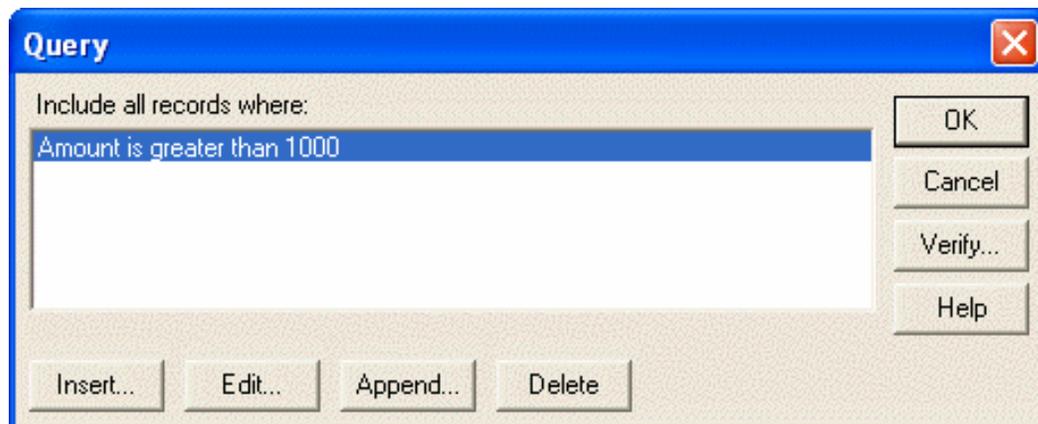


Figure 12.7 Query Dialog Box with One Selection Rule Defined



## *Editing a Query*

## ***Editing a Query***

You edit a query by modifying existing selection rules and/or adding new selection rules using Insert or Append.

## ***Editing an Existing Selection Rule***

To modify a selection rule, do the following:

1. In the Query dialog box, either double-click on the rule you want to modify or highlight the rule and select Edit.
2. Modify the connector, parentheses, Field choice, Comparison operator, and/or Compared To value as necessary.
3. Select OK to complete the definition and return to the Query dialog. Select Verify to confirm that you correctly defined the rule.

### ***Inserting a Selection Rule***

Select Insert in the Query dialog box to insert a new selection rule before the currently highlighted rule. Then define the rule as necessary. When you insert a selection rule as the first one in a multiple-rule query, the rule that was originally first on the list is placed second and is given a default connector of "and." If necessary, you can edit the second rule and select "or" as the connector.

### ***Appending a Selection Rule***

To add a selection rule at the end of a query, select Append. Select a connector from the And/Or list box. Define the selection rule by specifying a field, comparison operator, and comparison value.

### ***Deleting a Selection Rule***

To delete a selection rule, highlight it in the Query dialog box and select Delete. The selection rules below the rule you deleted will then move up. You may have to edit the connector for the rule that was below the one you deleted.

## Query Techniques

## **Query Techniques**

In addition to selecting records that match specified database field values, queries can select records that match character or date patterns, total field values, and calculated field values. The following sections explain these query techniques.

## *Pattern-Matching with Wildcard Characters*

## Pattern-Matching with Wildcard Characters

A pattern-matching query selects all records where the value in the selected character or date field matches (or doesn't match) a pattern you enter using special characters called wildcard characters. For example, to select all records where the value in the CITY field starts with the letter H, you can create the query:

|                   |          |
|-------------------|----------|
| Field             | CITY     |
| Comparison        | equal to |
| Compared to Value | H*       |

The asterisk (\*) in this query is a wildcard character that stands for any group of characters, like the asterisk in the DOS command DIR H\*.DBF.

Figure 12.8 lists the wildcard characters used to define patterns in queries.

| Character | Meaning  |
|-----------|--|
| ?         | In a character or memo query, matches any single character in the same position in the field.<br>Example:<br>R?W.INI would match both RRW.INI and RSW.INI but not RR6W.INI         |
| *         | In a character or memo query, matches any group of characters (including no characters).<br>Example:<br>R*W.INI would match RRW.INI and RSW.INI and RR6W.INI                       |
| @         | In a date query, matches any value in that part of the date (for example, 12/*/2005 matches any day in December 2005).   |
|           | In a date query, matches any value that corresponds to that part of the system date (for example, @/*/2005 matches any day in 2005 in the month that is the current system month). |

**Figure 12.8 Wildcard Characters**

Note that wildcards cannot be used with numeric or logical fields.

### ***Wildcards in Character/Memo Field Queries***

If the comparison you have selected is an equality comparison ("equal to", "not equal to", "in the list", or "not in the list"), you can use the wildcard characters \* and ? to select records with character values that match the pattern you enter. Several examples are given in Figure 12.9.

| <b>To Include all Records</b>   | <b>Enter</b> |
|---|--------------|
| Starting with xyz   | xyz*         |
| Ending with xyz   | *xyz         |
| Starting with, ending with, or containing xyz                                 | *xyz*        |
| Consisting of the letter x followed by any character followed by the letter z | x?z          |
| Containing the letter x followed by any character followed by the letter z    | *x?z*        |

**Figure 12.9 Wildcards for Character Queries**

## Wildcards in Date Queries

Date query selection allows you to enter a wildcard value for a month, day or year portion of a date. This allows you to easily create the following kind of selection rules:

- Select any date in the year 2005
- Select any date in June of any year
- Select the first day of any month

### Examples:

To print a report of all new customers that you have signed up for the current month, you would use the following selection rule:

The screenshot shows the 'Edit Selection Rule' dialog box. The title bar is blue with the text 'Edit Selection Rule' and a close button (X). The main area is light gray. At the top, it says 'Select a field or choose a date value'. Below this, there are several controls: a dropdown menu for 'And/Or', a text box for 'Field:' containing 'SIGNUP', a browse button (...), a dropdown menu for 'Comparison:' set to 'equal to', a radio button, and a text box for 'Compared to:' with a 'Field' label and a browse button (...). Below the 'Compared to:' section, there is an 'OR' label and a 'Value' text box containing '@/\*/@' with a date picker icon. On the right side, there are three buttons: 'OK', 'Cancel', and 'Help'.

This rule would include in the report only those records in which the SIGNUP field had a value of this month, any day, this year.

To print a report of all customers who signed up in a selected year (such as 2002), you would use a selection rule like this:

**Edit Selection Rule** ✖

Select a field or choose a date value

And/Or: (  Field: SIGNUP ...

Comparison: equal to  )

Compared to:

|       |  |
|-------|--|
| Field | <input type="text"/>                             |
| OR    |  |
| Value | */*/2002 <input type="button" value="Calendar"/> |

OK  
Cancel  
Help

This rule would include in the report only those records in which the SIGNUP field had a value of any month, any day, in 2002.

### ***Wildcards in Memo Field Queries***

Report Designer also allows you to use wildcard characters with query equality comparisons ("equal," "not equal," "in the list," and "not in the list") to search for and select records based on text in a memo field. However, the \* character must be the first and/or last character of the selection value.

For example, to include records that contain text starting with the word "Software" in the PROD\_NOTES memo field, enter the selection rule:

|                   |            |
|-------------------|------------|
| Field             | PROD_NOTES |
| Comparison        | equal to   |
| Compared to Value | Software*  |

Note that memo field queries are based only on the text of the memo field itself, not on any values contained in data fields embedded in the memo.

### ***Querying for Wildcard Characters as Literals***

You can use the backslash (\) escape character with query equality comparisons ("equal", "not equal", "in the list", and "not in the list") to select character strings that contain either the asterisk (\*) or question mark (?) wildcard characters. Entered before the wildcard character in the data-entry field, the backslash tells Report Designer to treat the wildcard character literally (that is, not as a pattern indicator).

For example, to match records that have a value in the NAME field consisting of a question mark only, create the following query:

|                   |          |
|-------------------|----------|
| Field             | NAME     |
| Comparison        | equal to |
| Compared to Value | \?       |

Note that since the backslash is also used as a special character in query rules, you must select character strings containing backslashes in the same way. For example, \\\* will match any string starting with a backslash.

## *Querying on Total Values*

## ***Querying on Total Values***

Report Designer allows you to select records based on total field values. However, the types of total queries that are allowed depend on whether your report includes any totals that have been designated as pre-processed with the Processing setting on the New/Edit Total dialog (accessed by selecting Options on the dialog). See Chapter 8, "Working with Total Fields," for information about this setting.

- Reports without pre-processed totals can include total-related queries only on grand running sums and counts.
- Reports with one or more pre-processed totals can include total-related queries only on pre-processed totals that reset on the highest level (most inclusive) group field for which a pre-processed total has been defined.

## ***Running v. Pre-Processed Totals***

In order to create effective total field queries, you need to understand the difference between running and pre-processed totals.

Any total field you create is by default a running total; Report Designer calculates its value cumulatively as it reads each record that contributes to the total. You can create queries using running counts and sums with a "Grand" reset level, but these queries may be difficult to formulate since only records that meet the query condition contribute to the total. In addition, since Report Designer tests the current record against the query before computing the running total for that record, the query will be applied based on the total value as of the previous record.

Many total fields you create can be modified to make them pre-processed totals, fields whose final values are calculated before the records in the report are printed. Queries on pre-processed total fields are much easier to formulate, since all records that contribute to the total will be read before the query is applied. The only restriction on such queries is that they can use only those pre-processed totals that reset at the highest (most inclusive) group level at which a pre-processed total is defined. For example, you cannot query on a pre-processed group total if your report contains a pre-processed grand total (your pre-processed grand total would be invalidated by excluding records based on the pre-processed group total).

## ***Queries Involving Pre-Processed Totals***

In reports that contain pre-processed totals, you can query on any pre-processed total that resets at the highest group level at which a pre-processed total has been defined. You cannot query on any running totals or on any other pre-processed totals in the report.

For example, in an invoice report in which each invoice total is a pre-processed, order-number group total, you could create a query that selects only those invoices with totals of \$500 or more. In an order list grouped by customer number and containing a pre-processed, customer-number group total, you could create a query that selects only those customers with 10 or more orders. Because of the way in which Report Designer accumulates pre-processed totals, none of the running totals in these reports would be available for querying. In addition, the queries on the pre-processed order and customer totals would be invalid if either report contained higher level pre-processed totals. An error message will notify you of invalid queries when you try to display or print such a report.

## ***Queries Involving Running Totals***

In reports that contain no pre-processed totals, you can query on grand running sums and counts. However, the total for the current composite record will not have been calculated before the query is applied. Therefore, Report Designer's decision as to whether to include the record will be based on the total value as of the previous composite record.

For example, when you query on a running count, the count for the current composite record will not have been calculated before the query is applied. In order to use the query to select the first  $n$  records, you must specify that the count field value be less than  $n$  rather than less than or equal to  $n$ .

To select the first three records using the COUNTER running total field, which counts the NAME field, specify the following query rule:

(COUNTER is less than 3)

Without the query, the report would include the following contributors, sorted by contribution in descending order:

| <b><u>NAME</u></b> | <b><u>CONTRIBUTION</u></b> |
|--------------------|----------------------------|
| Warren             | 150                        |
| Clark              | 125                        |
| Mortimer           | 120                        |
| Smith              | 100                        |
| Jones              | 50                         |

With the query, the records selected for the report would be:

| <b><u>NAME</u></b> | <b><u>CONTRIBUTION</u></b> | <b><u>COUNTER</u></b>  |
|--------------------|----------------------------|--|
| Warren             | 150                        | 1  |
| Clark              | 125                        | 2  |
| Mortimer           | 120                        | 3 (value of COUNTER field for this record not calculated until after query is applied) |

## *Querying on Calculated Fields*

## ***Querying on Calculated Fields***

Report Designer allows you to select records based on calculated field values *except* those that:

- Use the PAGENO( ), LASTPAGE( ), REPORTPAGE( ), RECNO( ), or QUERY( ) function
- Use totals that cannot be queried on (see the section entitled **Querying on Total Values** earlier in this chapter)

### ***Comparing a Field to an Expression***

You can compare a field to an expression by using a calculated field in a query. For example, to define a query that selects all records where the value in the Amount field equals the value of the expression Discount \* Rate, create a calculated field named DiscRate whose expression is Discount \* Rate.

You can then select DiscRate( ) as a compared to field.

Include all records where  
(Amount is equal to DiscRate( ))

## *Querying on Parameter Fields*

## ***Querying on ParameteRR Fields***

ParameteRR fields are particularly well suited as Compared To fields in query expressions for reports where query criteria will change each time the report is run.

For example, you might produce an earnings report and then wish to select only a single sales division and a specific date range. By creating three ParameteRR fields, a character WHICHDIV, a date STARTDATE, and a date ENDDATE, you can create a query expression that says:

DIVISION is equal to WHICHDIV and TRANDATE is greater than or equal to STARTDATE and TRANDATE is less than or equal to ENDDATE.

When the report is executed, choices are made for each of the 3 ParameteRR in a convenient single-screen ParameteRR Value Entry dialog.

Since ParameteRR fields can be included in calculated field expressions, a query can use a calculation that includes a parameteRR.

For example you might have a client tracking application that includes a memo field called SESSNOTES with notes on an interview session. In your report you want to select applications who mentioned a particular topic such as the web in that session. So you could first create a ParameteRR field called TOPIC that prompts user to enter the topic value. You would then create a calculated field called FINDTOPIC with the expression: "\*" - TOPIC - "\*". This expression will add asterisk wildcards to the ParameteRR entry value.

Finally in your query you would:

Include all records where SESSNOTES is equal to FINDTOPIC.

When the report is executed, the user will enter the topic value and the report will return all records where that topic was included anywhere within the memo field SESSNOTES.

## Chapter 13 Creating Charts

## ***Introduction (Creating Charts)***

This chapter explains how to create charts that present report data graphically and incorporate them into your reports.

You can choose from a variety of chart types to embed in your reports, including 2-dimensional or 3-dimensional bar, pie, line, and area graphs. You can control all aspects of the embedded chart, such as size, position, text elements, and color.

Information about creating charts is presented in the following sections:

- Creating an Embedded Chart
- Understanding the Charting Tabbed Dialogs
- Modifying a Chart
- Sample Charting Scenarios
- Special Considerations for Charting

**Creating an Embedded Chart**

## Creating an Embedded Chart

You create an embedded chart for a report by specifying a combination of settings from the dialogs (referred as either *tabs* or *property pages*) on the charting property sheet. Although the order in which you access the dialog tabs will vary depending on the report and the chart you are creating, in the following procedures the tabs are accessed in the order in which they appear on the charting property sheet.

The following sections explain how to create and embed a chart in the Summary Columnar Report, one of the sample reports that is installed with Report Designer. The resulting chart will show sales by customer, and further broken down by product type, and will appear in each Company footer of the report. The techniques explained here for adding a chart to this sample report can easily be adapted for creating and embedding a chart in any report.

## Inserting the Chart

In most cases, you will want to insert a chart into a Freeform band line that is large enough to accommodate the entire chart. If necessary you can estimate the area to be occupied by the chart and adjust the band height later.

To insert a chart into the Summary Columnar Report, do the following:

1. Start Report Designer and open the Summary Columnar Report in the Samples folder.
2. Right-click on the third Company group footer line (the line containing the 1GH-COMPANY label). Select Properties from the menu to display the Band Line Properties dialog.
3. In the Height group box, select Freeform; then enter or select a setting of 5 inches. Select OK.
4. Select Insert ⇒ Create Band Line. In the Line Placement group box, select Below Current Line; then check the New Page Line checkbox. As a result, the data for each company will begin on a new page.
5. Select Insert ⇒ Chart (or select the Chart button on the Standard Toolbar). The cursor changes to a combination of crosshair and a rectangle. Click and drag the chart cursor in the Freeform line of the Company band until the insertion rectangle is approximately 5 inches high and 7 inches wide; then release the mouse.

When you release the mouse, the Chart property sheet appears. The Chart property sheet consists of several tabs; when it first appears, the Type tab is active. In the following sections, you will select a chart type and style; specify the data to be charted; add titles and labels; and specify size, font, and other chart characteristics.

## Selecting a Chart Type and Style

You can select from one of four chart types, and for each of those types you can specify additional characteristics. You use the Type and Style tabs of the Chart property page to choose the chart elements.

The chart for the Summary Columnar Report will use the default Type of "Bar" and the default Style of "Simple." For charts that you will be developing for your own reports, you can select any one of the four chart types and, depending on the type you select, further modify the appearance and orientation of the selected chart type.

For detailed information about each chart type and the styles that can be applied, see the Understanding the Charting Tabbed Dialogs section in this chapter.

## Specifying the Data To Be Charted

To select the report data to be included in the chart, first click the Data tab to make it active. Then do the following:

1. In Selected Field list box click the Add button and select "item\_tot" field to add it to the Selected Fields list box. This field contains totals sales figures for each product.
2. In the Label Field box, select "PROD\_CODE" Note that this field name is also inserted automatically as the Sort Field value.

## **Adding Titles and Labels**

The Text tab enables you to add titles, legends, and labels to a chart. Follow these steps to add text elements to the chart for the Summary Columnar Report:

1. In the Chart Title box, type "Sales by Item."
2. In the Value edit box, type "Sales in Dollars"; this will appear as the Y-axis label

The default font for text elements is Arial. To select a different font, use the Font tab, as explained in the **Specifying Size, Font, and Other Options** section.

## Specifying Size, Font, and Other Options

You use the Options tab to control chart size and anchoring; you use the Font tab to specify a font to be applied to all text elements and to select a color palette for the chart.

To specify or change the chart dimensions, click the Options tab and enter or select Width and Height values. Use the Anchor setting to specify where the chart will be "anchored" in the report: This setting establishes either the top or bottom edge of the chart as the starting position of the chart on the layout (see the **Chart Anchoring** section for more information).

Use the Font tab to select a font to be applied to all text elements in the chart. The range of available fonts will vary depending on your system configuration and the currently selected printer. You can also use the Font tab to specify a color palette to be used for the chart. See the **Font Property Page** section for details about the available palettes.

## Previewing the Completed Report

To preview the placement and appearance of the chart you embedded, select File ⇒ Print Preview (or click the Preview button).

Figure 13.1 shows a zoomed preview of a page from the report.

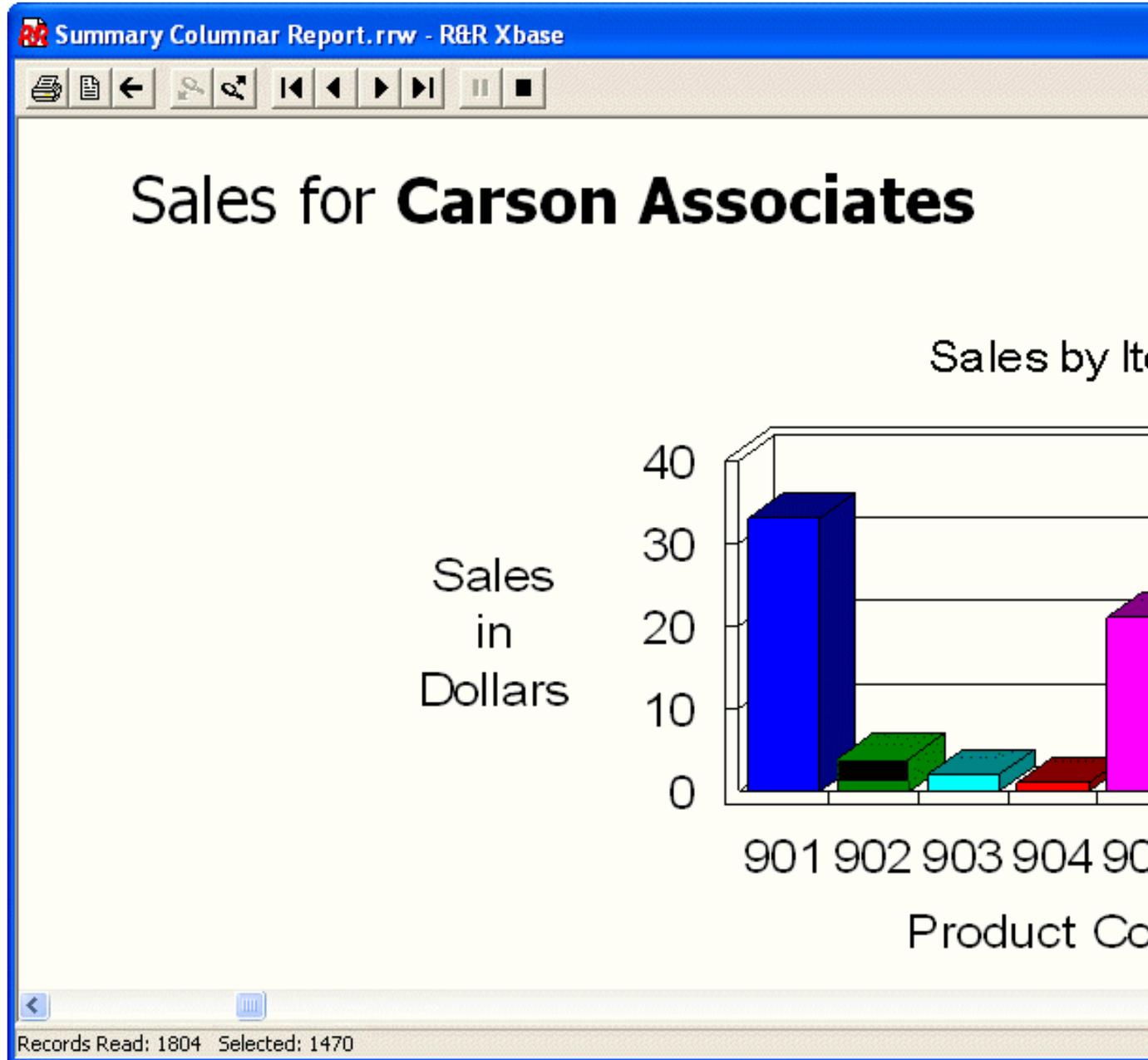


Figure 13.1 Zoomed Preview of Embedded Chart

## Modifying an Existing Embedded Chart

To modify an embedded chart, first display the Chart property sheet in either of the following ways:

- Click the chart to select it and choose Format ⇒ Properties;
- Right-click the chart and select Properties.

Using the various tabs of the Chart property sheet, you can change the characteristics of the chart as necessary.

To re-position a chart on the layout, first click to select the chart; then click and drag the chart to the new location. To re-size a chart directly on the layout, first click to select the chart; then click and drag one of the handles that display around the perimeter of the chart.

**Understanding the Charting Tabbed Dialogs**

## **Understanding the Charting Tabbed Dialogs**

The following sections explain the settings available on each of the Charting tabbed dialogs (also referred to as property sheets).

- Using the Type Tab
- Using the Style Tab
- Using the Data Tab

## Using the Type Tab

Use the Type tab to specify the kind of chart you want, whether the chart will be 2-dimensional or 3-dimensional, and whether the chart will include vertical and/or horizontal grid lines. Figure 13.2 describes each of the chart types.

| <i>Chart Type</i> | <i>Description</i>  |
|-------------------|---|
| Bar               | Presents data as a series of bars whose heights are proportional to the values being charted.   |
| Pie               | Presents each value as wedge that represents the value's percentage of the overall total. (Note that pie charts are not suitable for representing negative values.)   |
| Line              | Presents values as a series of points connected by lines, with a separate line for each field value being charted. Line charts are suitable only for charts that will contain at least two data points.   |
| Area              | Presents values in a manner similar to that of the Line chart, except that the region between the line and the horizontal axis is filled with the same color as the line. (Area charts are not suitable for representing negative values, and should be used only for charts that will contain at least two data points.) |

**Figure 13.2 Description of Chart Types**

By default, each chart type has a flat or two-dimensional appearance. As illustrated in Figure 13.3, you can specify that the chart elements should have a three-dimensional appearance by clicking the 3D box. In addition, you can add horizontal and/or vertical grid lines to the selected chart by clicking the Vertical and/or Horizontal box.

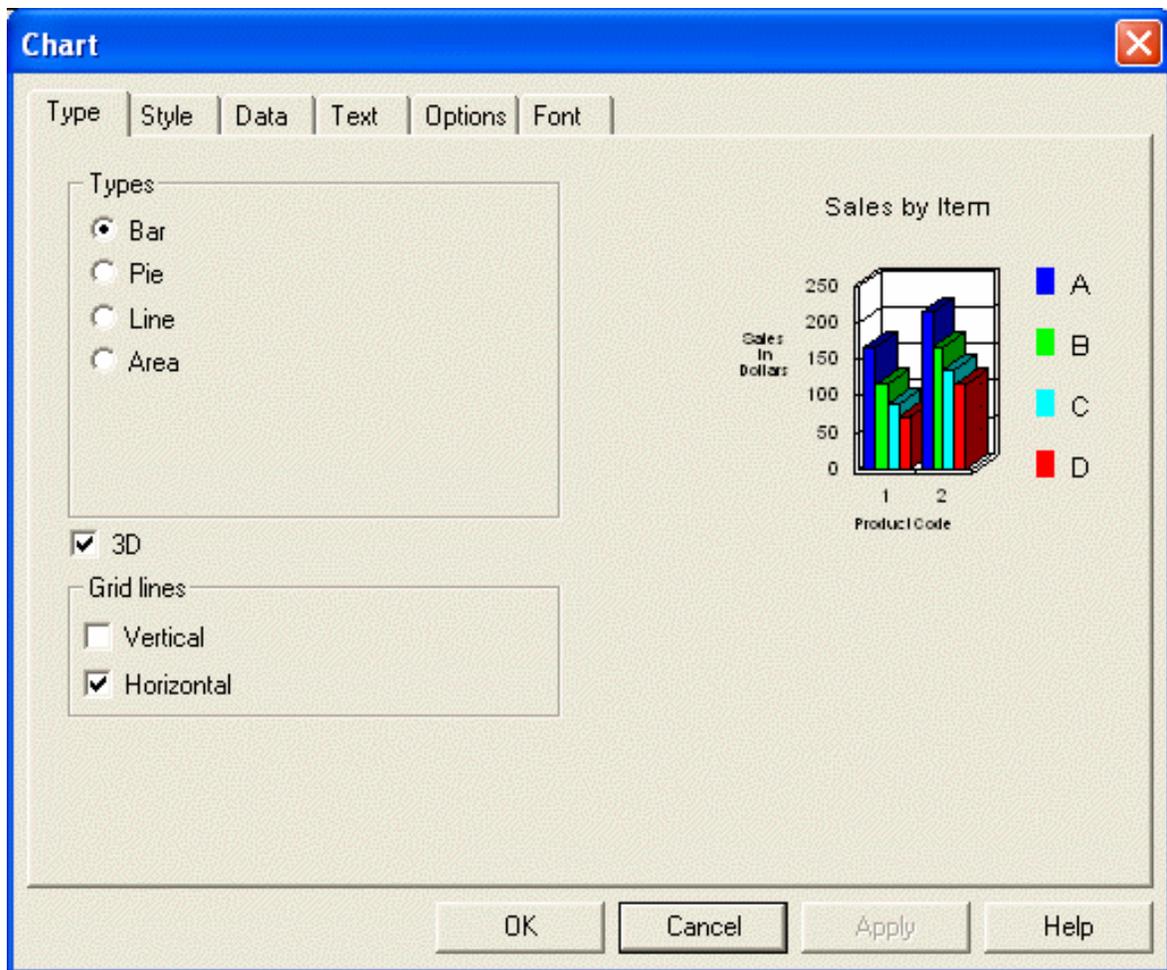


Figure 13.3 Chart Type Tab

*Using the Style Tab*

## ***Using the Style Tab***

For bar and area charts, you can specify additional characteristics using the Style tab (the Style settings do not apply to line or pie charts). The options available on the Style tab depend on the chart type selected.

## ***Style Options for Bar Charts***

The following style options are available for bar charts:

- Simple
- Stacked
- Stacked Percentage
- Stacked Floating

Use "Simple" if the chart you are creating will have only one value for each data point; select one of the other styles only if the chart you are creating will contain multiple values for each data point.

Figure 13.4 explains each of these style options.

| <b><i>Style Option</i></b> | <b><i>Explanation</i></b>   |
|----------------------------|---|
| Simple                     | Represents the multiple values as separate, side-by-side bars.  |
| Stacked                    | Represents the multiple values as a single bar with a separate segment for each value.  |
| Stacked Percentage         | A kind of stacked chart in which all bars are the same height, with each segment representing the percentage contribution of that value to the whole.   |
| Stacked Floating           | A kind of stacked chart in which the first segment is invisible and thereby serves as an offset from the axis at which the second segment begins. (This style is appropriate only when all values will include the same set of bar segments.) |

**Figure 13.4 Style Options for Bar Charts**

Additional style settings in the Orientation box (Horizontal and Vertical) enable you to specify whether the bars of the chart extend upward from the horizontal axis or rightward from the vertical axis.

## ***Style Options for Area Charts***

The following style options are available for area charts:

- Absolute
- Stacked
- Stacked Percentage

You should select from these styles only if the chart you are creating will contain multiple values for each data point.

Figure 13.5 explains each of these style options.

| <b><i>Style Option</i></b> | <b><i>Explanation</i></b>  |
|----------------------------|--|
| Absolute                   | Represents each series of values as distances from the horizontal axis; portions of some of the resulting filled areas will be obscured behind other filled areas.   |
| Stacked                    | Represents each series of values as distances above the values from the previous series, giving the appearance of areas stacked on top of each other.  |
| Stacked Percentage         | A kind of stacked chart in which the line defining the top area is a horizontal line at 100 percent, and the other areas are scaled appropriately to indicate what percentage of the whole they represent. |

**Figure 13.5 Style Options for Bar Charts**

*Using the Data Tab*

## Using the Data Tab

Use the Data tab of the Chart property sheet to select the data to be charted. You must specify at least the following on the Data tab:

- One or more Selected Fields whose values provide the chart data;
- A Label Field whose values provide labels for the chart's data points;
- A Sort Field whose values determine the order of the data points. By default, this setting is the same as the Label Field setting. After selecting a Sort Field, you can choose ascending or descending sort order; in addition, you can specify whether to combine duplicate sort field values.

For each Selected Field, a chart will contain one value per data point. For example, in a simple bar chart each data point is represented by one bar for each Selected Field; a line chart will have one line for each Selected Field.

You can add a field to the Selected Fields box using the Add button to the right of the Selected fields list.

Fields appear in the Selected Fields list box in the order in which you add them. Use the Move Up and Move Down arrow buttons to the right of the Selected Fields box to change the order of the fields. To remove a field from the Selected Fields box, either double-click the field or highlight it and select Remove.

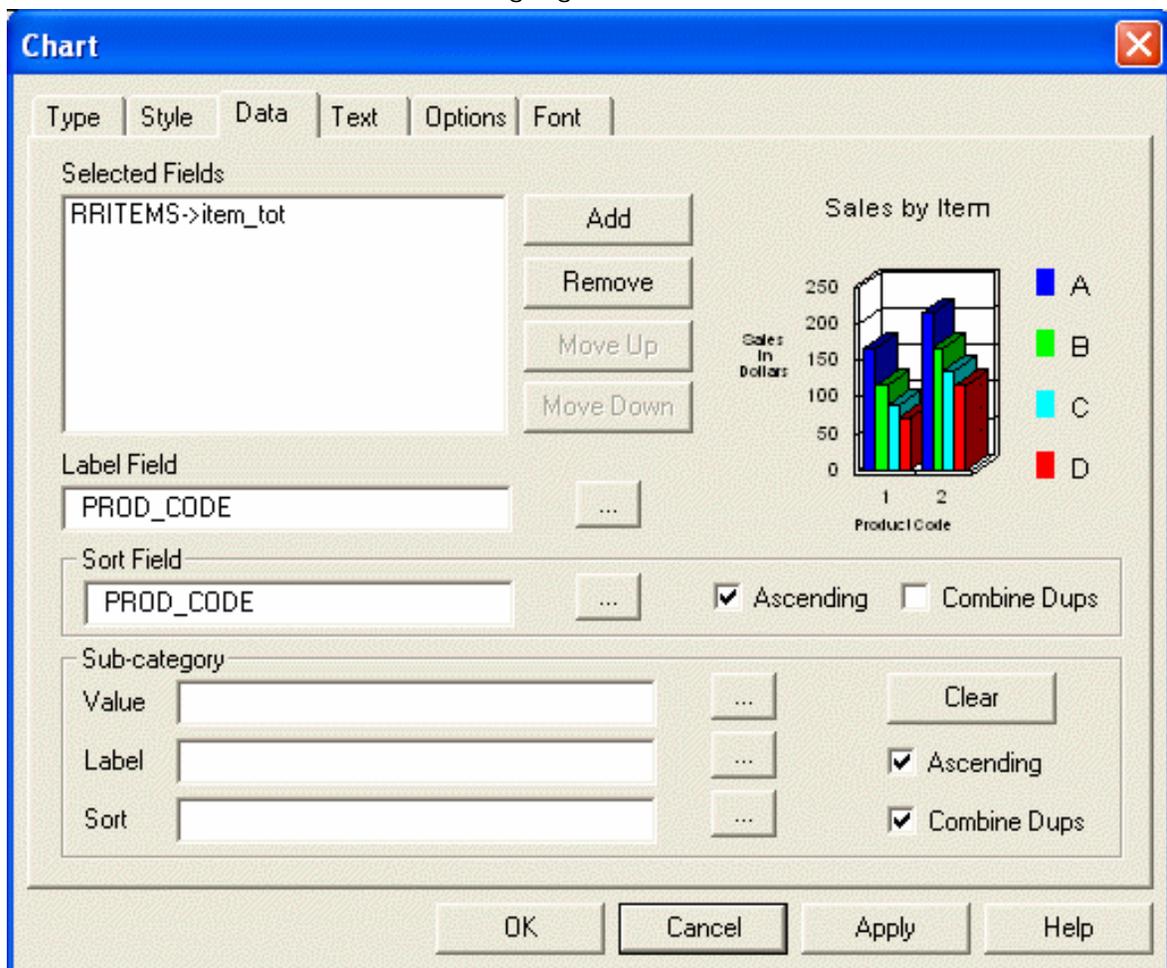


Figure 13.6 Chart Data Tab

In addition to the three required items, if you have added only one field to the Selected Field box, you can also specify three fields that describe a Sub-category (see Figure 13.6). The Value Field in the Sub-category box replaces the Selected Field as the source of data. When you specify a Sub-category, you are essentially informing the charting software that the single Selected Field can be thought of as being composed of a series of values of the Sub-category Value Field. In this case, the Selected Field's values are not actually used at all in preparing the chart, though the Sort and Label Field values associated with the Selected Field *are* used. A given chart can contain more than one Selected Field or a Sub-category but not both, since the Sub-category Value Field replaces the Selected Field as the source of data. See the **Sample Charting Scenarios** section for an example that uses the Sub-category concept.

See the **Special Considerations for Charting** section for more information about re-ordering the Selected Fields.

*Using the Text, Options, and Font Tabs*

### ***Using the Text, Options, and Font Tabs***

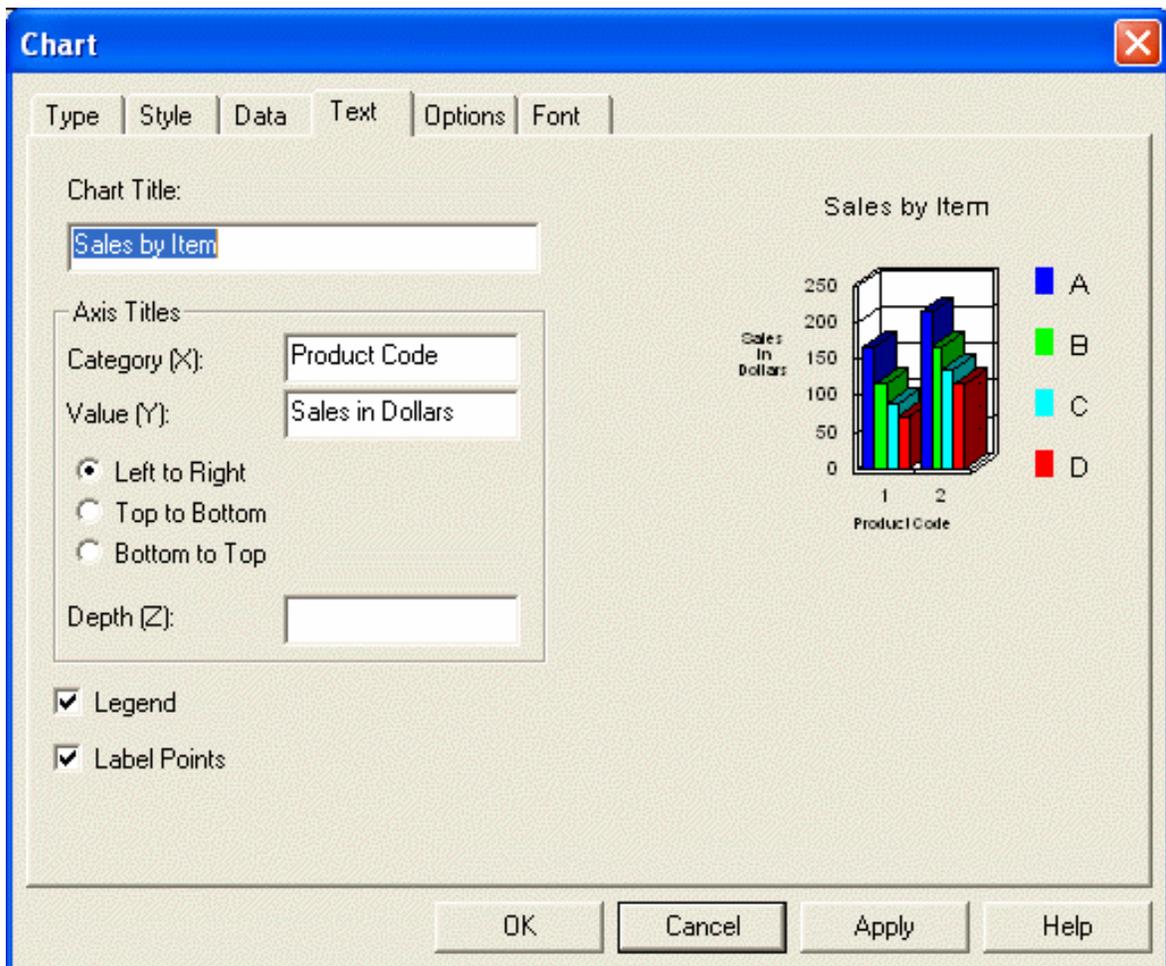
The Text tab enables you to add titles, legends, and labels to a chart. The Options tab includes settings for chart size, anchoring, and value range. On the Font tab, you can specify a base font to be used by all text elements of the chart and a color palette that will determine the chart's colors.

## Text Property Page

Available settings for the Text tab are explained in Figure 13.7.

| Setting                   | Description  |
|---------------------------|--|
| Chart Title               | Appears centered across the top of the chart rectangle.  |
| Category (X)<br>Value (Y) | Appears below the horizontal axis of the chart. Appears to the left of the vertical axis. You can further specify orientation: Left to Right (horizontal), Top to Bottom (vertical, starting at top), or Bottom to Top (vertical, starting at bottom). |
| Depth (Z)                 | Appears to the right of the chart to serve as a label for the "depth" portion of a 3D chart.   |
| Legend                    | Specifies inclusion of a legend to the right of the chart that explains the different chart elements (not applicable to pie charts).   |
| Label Points              | Specifies inclusion of numeric labels to indicate the values that have been charted (not applicable to 3D charts).   |

Figure 13.7 Chart Text Tab



**Figure 13.8 Chart Text Tab**

## Options Property Page

On the Options property page (see Figure 13.9), you can specify:

- A precise Chart Size in inches.
- Whether to Anchor the chart by its top or bottom edge. This setting is relevant only when the chart is not confined to a single band line. See the **Special Considerations for Charting** section for further discussion of this option.
- A Value Range to use for all instances of a given chart. You can specify either that you want each chart's value axis to have its own value range (Automatic) suited to the values it contains, or that you want a single value range for all charts. If you want a single value range for all charts, you can specify either that Report Designer should compute a range suitable for all the values present in all instances of the chart in the entire report (Normalize) or that a range of values that you specify should be used instead (User Defined). By default, the value range is Automatic and always includes the value zero. With this default setting, for example, if you are charting a range of values between 1001 and 1009, they will all appear about the same, unless you specify a value range of, for example, 1000 to 1010.

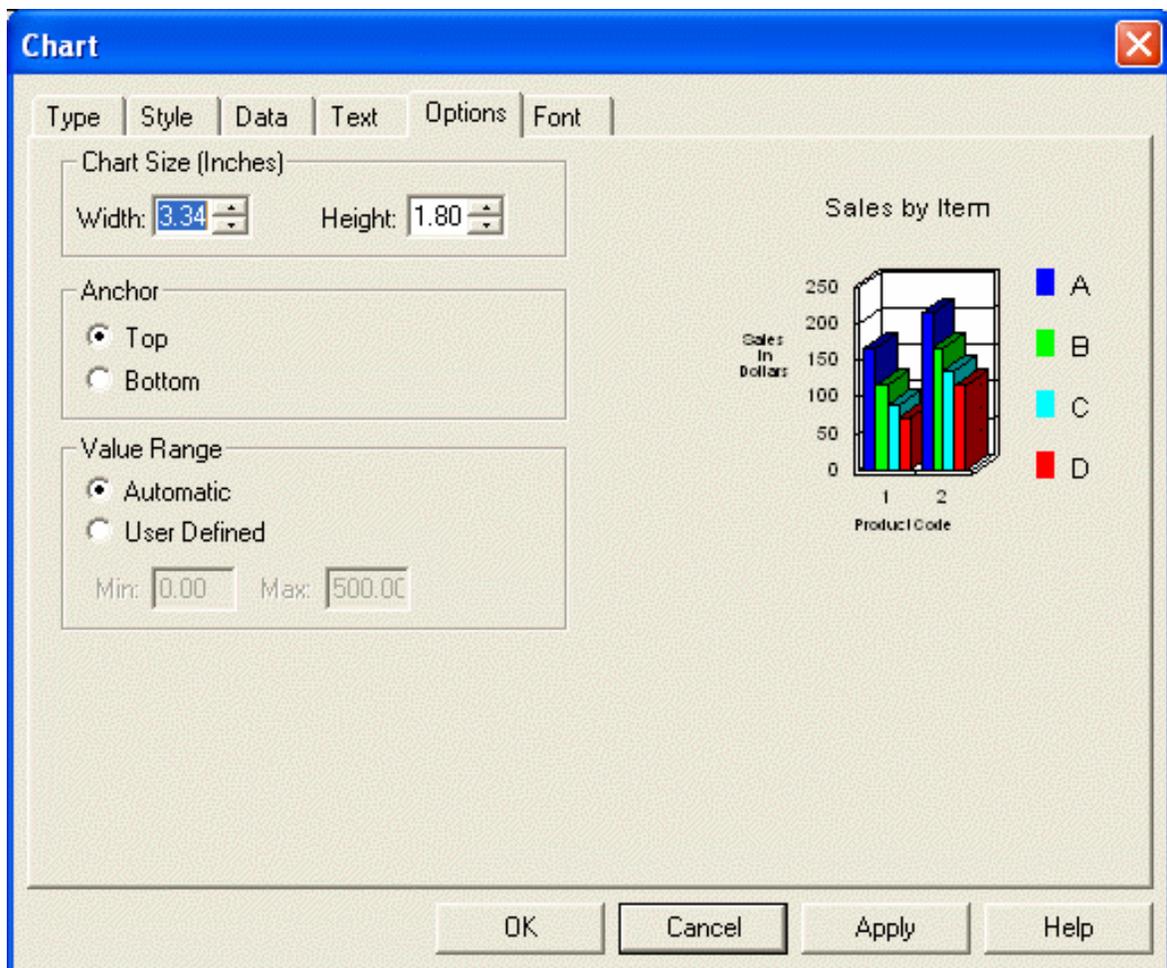


Figure 13.9 Chart Options Tab



## ***Font Property Page***

On the Font property page, you can specify:

- A Base Font name to use for all text items on the chart.
- A color Palette from which to select colors for use on the chart. The available palettes are:

16-Color, which contains the standard Windows colors

Shades of Gray

Pastels, which contains "washed out" shades of the primary colors

Shades of RGBCMY, which contains various intensities of the primary colors

Rainbow, which contains various shades of a spectrum of colors

Shades of Red

Shades of Green

Shades of Blue

Shades of Cyan

Shades of Magenta

Shades of Yellow

The monochromatic palettes can be used to create "tasteful" charts, but the various shades can be difficult to distinguish from each other in certain types and styles of charts.

**Sample Charting Scenarios**

## **Sample Charting Scenarios**

In this section, we will discuss some sample charting scenarios and describe how to specify the chart, concentrating on the Data property page.

## Chart of Customer Totals in Summary Band

Suppose you have a report of items purchased, sorted and grouped by invoice number within customer. You have defined "OrdSum," which is a sum of item prices resetting on a change in order number (OrdNum) and which therefore represents the total dollar amount for a given order; and "CustSum," which is a sum of item prices resetting on a change in customer ID (CustID) and which therefore represents the total dollar amount for a given customer.

Insert a chart in the summary band. On the Data page, specify "CustSum" as the Selected Field, "CustSum" as the Sort Field, and "Company" as the Label Field. Do not check the Combine Dups check-box. Do not check the Ascending check-box. If you specify Simple Bar chart as the Type and Style, you will have a chart in the summary band that shows one bar per customer using the values of the CustSum field to determine the bar heights. The bars will be presented in decreasing order of total sales per customer.

If on the Data page, you also specify a Sub-category with a Value field of "OrdSum," a Label Field of "OrdNum," and a Sort Field of "OrdNum," and you change the chart Style to Stacked Bar, the summary will contain a chart with a single bar per customer where each bar is broken into segments representing order totals.

## Chart of Sales Attributable to Product Line

In the same report as described in the **Chart of Customer Totals in Summary Band** section, suppose you want a chart in each customer footer showing what percentage of sales for that customer are attributable to each of various product lines. Assume that each item record includes a product-line field (ProdLine) and that each item is in one of six product lines. On the Data page, specify "CustSum" as the Selected Field and "Company" as the Label and Sort Fields. Specify "Price" as the Sub-category Value Field, "ProdLine" as both the Sub-category Label and Sort Fields, and check the Combine Dups check-box. These settings ensure that each product line will have a single pie wedge representing the sum of all contributions of that product line, independent of invoice number. Specify Pie chart on the Type page. In each customer footer, you will see a pie chart depicting the percentage of sales to that customer due to items in each product line.

**Special Considerations for Charting**

## **Special Considerations for Charting**

In our attempt to provide a maximum of flexibility in our charting support, we have given you control over some aspects of your charts that may puzzle you if you specify "odd" settings. This section describes some of the "tricky" areas and how to think about them.

## **Sort Field & Label Field**

Generally speaking, you will want to specify the same field as both the Sort Field and the Label Field. However, you may have occasion to make these two fields distinct. For example, suppose you want to label the bars in a bar chart with the names from a last-name field. However, to ensure that values representing different individuals are separately depicted in the chart, you may want to sort by social-security number or other unique identifier.

## Combine Dups

When Report Designer collects data for a chart, it stores the values of the Selected Fields, as well as the values of the Label and Sort Fields. Each remembered "value set" actually consists of these three values. The remembered Sort Field values are used to order the data for presentation in the chart. Sometimes multiple value sets will have identical Sort Field values. The Combine Dups setting determines whether such duplicate Sort Field values should be treated as distinct (Combine Dups not checked) or should be combined (Combine Dups checked). When the values of a field that is a sum, a count, or a non-total are combined, the values are simply added together and the number of separate data points decreases accordingly. For total types other than sums or counts, appropriate calculations are done in combining the values.

As a rule of thumb, you will probably want to check the Combine Dups box if the values being charted are two or more levels deeper than the band line in which the chart is anchored, or if the Sub-category Value Field has a group level two or more levels deeper than the Selected Field's group level.

One way to think of the meaning of checking the Combine Dups check-box is as a request for an implicit total of all values for which the Sort field has the same value. If the data you are charting is such that you would not have duplicate values of the Sort field, the setting doesn't matter, but if you do expect duplicates, you should (or should not) check the Combine Dups box depending on whether you want each value set having duplicate Sort field values to be treated as part of an implicit total or as a separate value set. Some examples that illustrate the decision process follow.

Here is an example where you would want to check the Combine Dups check-box. Suppose you have a report with group levels of Customer and Order. If you are making a chart of Customer spending patterns by Item, you will expect to have multiple Orders for some Customers in which the same Item was ordered. You would want to combine duplicate values in this case because you want a single value for each Item and Customer, not for each Item and Order. Note that the Item level is at the level of the record band and is two levels down from the Customer level, which is where the chart is located.

Here is an example where you would probably not want to check the Combine Dups check-box: Suppose you have a table that includes electoral votes by state, and you want a chart in the summary band showing the number of electoral votes by state in increasing order of number of votes. There are many states having the same number of electoral votes. If you combine duplicates, there will be fewer bars than states, and the bars representing combined values will depict the total number of electoral votes among all states having that same number of votes. If you were also to label the bars with the number of electoral votes, you might see a bar labeled "9" with a height of 27 because there are three states that have nine electoral votes each. If you were to label the bars with the state name instead, the label would be the name of whichever state happened to come first after the sorting of states by number of electoral votes.

## **Chart Anchoring**

The anchor setting specifies whether the top or bottom edge of the chart rectangle should determine the "official" position of the chart on the layout. When a chart is not confined to a single band line, the anchor setting determines whether it "grows up" into areas of the report above the line containing the bottom of the chart rectangle, or "grows down" into areas below the line containing the top of the chart rectangle. You might use this feature by having a group footer consisting of multiple band lines, where the footer text and data are displayed along the left side of the layout and the chart is displayed across the entire footer on the right side of the layout.

## **Significance of the Order of Selected Fields**

The order in which the fields appear in the Selected Fields list-box has special significance for certain chart types. In a Simple Bar chart, the first field will appear leftmost among the bars for each data point. In a Stacked Bar chart, the first field will appear on the bottom of the stack of bars for each data point in a Stacked Bar chart. In an area chart, the first field's area will be drawn first, and as a result will be overlaid by the subsequent fields. If you were plotting a sum, a minimum, a maximum, and an average for each data point, it would make sense to list the fields in the order sum, maximum, average, minimum, so that the tallest area appears farthest back. In a 3D area chart, the 3D area for the first value is also depicted farthest back in the perspective view. Similarly, in a 3D line chart, the "ribbon" representing the first line is depicted farthest back.

## Group Levels and Charting

A chart of a given Selected Field can vary dramatically depending upon the band line the chart is in. For example, suppose you have a report that includes order, customer, and state group fields. Further suppose that the report includes an order-level total field (OrdTot). If you chart OrdTot as a bar chart in the order-level group footer, each chart will consist of a single bar representing the value of OrdTot for that order. If you move (or copy) the same chart to the customer footer, it will contain a bar for each order from that customer. If you move the same chart to the state footer, it will contain a bar for each order from each customer from that state.

## Chapter 14 Adding Lines, Boxes, and Shading

## ***Introduction (Adding Lines, Boxes, Shading)***

This chapter explains how to draw lines and boxes for inclusion in reports and how to add various levels of shading to report areas. The explanation is presented in the following sections:

- ❑ Drawing and Manipulating Lines
- ❑ Drawing and Manipulating Boxes
- ❑ Adding Shading
- ❑ Extending Lines and Boxes Across Bands
- ❑ Special Considerations

After drawing a line or box, you use the Line Properties or Box Properties dialog to modify the object. You can display the Line or Box Properties dialog in any one of the following ways:

- ◆ Right-click on the object (for a box, right-click on the box border) and select Properties;
- ◆ Select the object and press F9;
- ◆ Select the object and select Format ⇒ Properties.

**Drawing and Manipulating Lines**

## **Drawing and Manipulating Lines**

Using the Insert ⇒ Line command or the Line button on the Standard Toolbar, you can draw horizontal or vertical lines. After drawing a line, you can move it, cut and paste it, or re-size it as necessary. In addition, you can select one of 5 line thicknesses, 5 different line styles, and assign one of 16 colors to the line.

The following sections explain how to draw and manipulate lines on the report layout.

## Drawing and Positioning a Line

To draw a line, do the following:

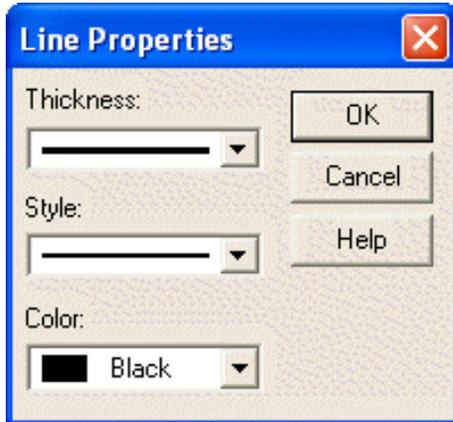
1. Select Insert ⇒ Line (or the Line button on the Standard Toolbar). The cursor becomes a crosshair (+).
2. Click and drag the cursor either horizontally or vertically to draw the line. If Snap-To-Grid (accessed by selecting Format ⇒ Snap-To-Grid) is on, the line snaps to the ruler increments (or to the top or bottom of an Automatic band line) as you draw it.
3. When the line is the desired length (use the rulers as a guide), release the mouse. The size of the line is displayed in the Status Bar.

To move a line after inserting it on the layout, first select it; sizing handles appear at either end of the line. To move the line with the mouse, click and hold the mouse on any part of the line except the handles; then drag the line to its new position and release the mouse. To move the line with the keyboard, press F7 and position the line with the arrow keys.

To re-size a line, click and drag one of the sizing handles until the line is the desired length; then release the mouse.

## Changing Line Thickness, Style and Color

When you draw a line, it is assigned a default thickness (the thinnest of the 5 available line weights), style (solid or optional dashed) and color (black). You can change the thickness, style and and color using the Line Properties dialog (see Figure 14.1).



**Figure 14.1 Line Properties Dialog Box**

To select a different line thickness, style or color, do the following:

1. Open the Line Properties dialog. The current Thickness, Style and Color settings are displayed.
2. Select the drop down item fro the property that you wish to change .
3. Select OK.

## Drawing and Manipulating Boxes

## Drawing and Manipulating Boxes

Using the Insert ⇒ Box command or the box button on the Standard Toolbar, you can draw boxes to set off portions of your report. After inserting a box, you can control the thickness and color of the box border; specify exclusion of one or more of the box sides; and add one of several shading patterns to the box background (see the **Adding Shading** section of this chapter for an explanation of box shading).

## Drawing and Positioning a Box

To draw a box on the report layout, do the following:

1. Select Insert ⇒ Box (or the Box button on the Standard Toolbar). The cursor becomes a combination of a crosshair (+) and the Box button.
2. Position the crosshair of the box cursor at the place where you want to anchor one of the box corners. Click and drag the mouse; Report Designer draws an outline representing the size and placement of the box. If Snap-To-Grid (accessed by selecting Format ⇒ Snap-To-Grid) is on, the outline snaps to the ruler increments (or to the top or bottom of an Automatic band line) as you draw it.
3. When the box outline is the desired size (use the rulers as a guide), release the mouse. The size of the box is displayed in the Status Bar.

To move a box after inserting it on the layout, first click on one of its sides to select it; sizing handles appear at each corner and at the center of each side. To move the box with the mouse, click and hold the mouse on any part of the box except the handles; then drag the box to its new position and release the mouse. To move the box with the keyboard, press F7; then position the box using the arrow keys.

## **Specifying Alignment**

Right-click on a drawn box and select Alignment to specify Left (the default), Center, or Right alignment. Although the default setting is usually appropriate, you can change the alignment in order to provide more precise control over placement and sizing of the box. The alignment setting also determines the direction of increase or decrease when you select a different border thickness.

## Sizing a Box

After you have inserted a box on your report layout, you can change the size of the box as necessary.

Note that if the "Snap-To-Grid" setting (accessed by selecting Format ⇒ Snap To Grid, by pressing Shift+F8, or by selecting the Snap-To-Grid button) is on, the box shape will "snap" to the horizontal and vertical ruler increments (or to the top or bottom of an Automatic band line) as you size the box.

To change only one dimension of a box (either width or height), do the following:

1. Click on one of the box sides to select the box. Eight "handles" appear at the edges of the box — one at each corner and one at the center of each side.
2. Depending on which dimension you want to change, click and drag the top, bottom, or side handle as necessary. As you drag the handle, a dotted outline indicates the changing dimensions of the box.
3. When the box outline is the desired size, release the mouse.

To change both the width and the height of a box at the same time, follow these steps:

1. Click on one of the box sides to select the box. Eight "handles" appear at the edges of the box — one at each corner and one at the center of each side.
2. Click and drag a corner handle. For example, if you want to increase box size while maintaining the top left position, click and drag the bottom right handle. To maintain the box's aspect ratio (the ratio of width to height), hold down Shift as you drag a corner handle.
3. When the outline is the desired size, release the mouse.

## Changing Border Thickness, Style and Color

By default, a newly drawn box has a black border on all sides and is assigned the thinnest border weight of the five available using a solid line. Using the Box Properties dialog box, you can specify a thicker border, a different line style and select from one of 16 border colors.

Follow these steps to change the thickness and color of a box border:

1. Open the Box Properties dialog (see Figure 14.2). The current Thickness, Style and Color settings are displayed in the Borders group box.
2. Open the Thickness menu and select the desired border weight from those displayed.
3. Open the Style menu and select the desired style from those displayed.
4. Open the Color menu and select the desired color from those displayed.
5. Select OK.

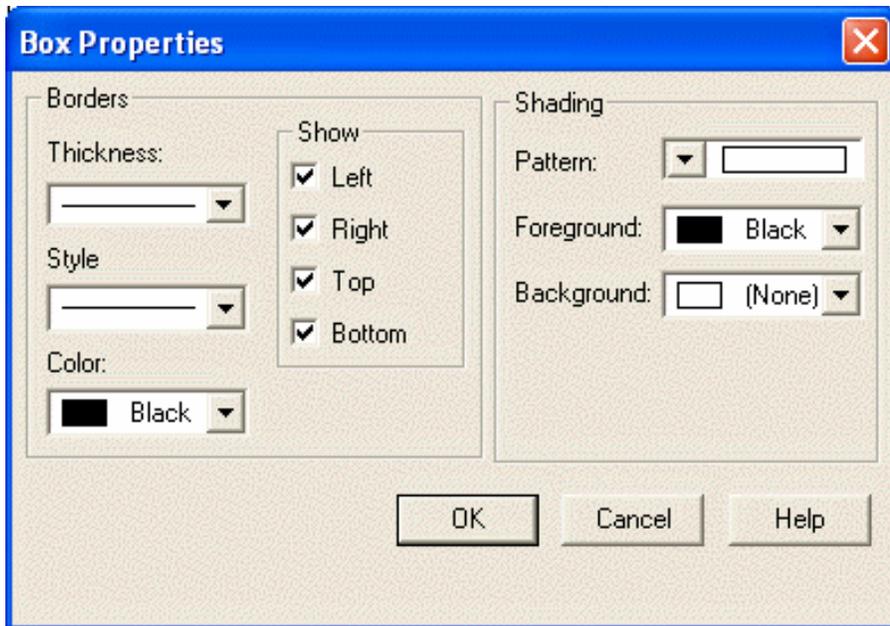


Figure 14.2 Box Properties Dialog Box

## Excluding One or More Box Sides

The Show group box on the Box Properties dialog controls display and printing of the top, bottom, left, and right sides of the box. By default, all four sides of a box are initially included, as indicated by the x's in the check boxes. You can specify that one or more of the box sides be excluded. This capability is useful, for example, if you want to print a border above and below a field or group of fields. By turning off all four sides of a box and applying a shading pattern, you can insert borderless shading areas on your report.

To control which sides of a box will be included, do the following:

1. Open the Box Properties dialog. The x's next to the Left, Right, Top, and Bottom settings in the Show box indicate that all four box sides will print.
2. Click the check box for the side or sides that you want to exclude from the box; the x is cleared from that setting. For example, if you want to print only the Top and Bottom of the box, turn off the Left and Right check boxes.
3. If necessary, change the Pattern, Foreground, and Background settings in the Shading box (see the **Adding Shading** section).
4. Select OK.

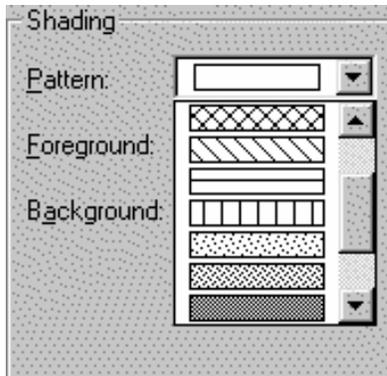
In Figure 14.4, a box has been drawn around the report title in the Page Header band and the left and right sides of the box have been excluded. A gray shading background has been applied to the box around the column titles and all four sides have been excluded, resulting in a shaded, borderless box.

## Adding Shading

## Adding Shading

You can also use the Box Properties dialog to add one of several shading patterns and background colors to a box. You can control any of the following characteristics of a box:

- ◆ Pattern: Select one of 13 shading patterns to assign to the box background. Figure 14.3 shows some of the shading options available.
- ◆ Foreground: Specify a color for the crosshatch pattern (if any).
- ◆ Background: Specify a color for the background of the box.



**Figure 14.3 Pattern Selection Box**

The default settings for Shading are no Background (that is, transparent), black Foreground, and solid Pattern. To change the Shading settings, open the Box Properties dialog and do the following:

1. Open the Background list box. Select a color from those displayed.
2. Open the Pattern list box (see Figure 14.3). Select a pattern from those displayed.
3. If you selected a crosshatch pattern (any pattern except the first selection), open the Foreground list box and select a color to assign to the crosshatch lines. Select OK.

In Figure 14.4, the borderless box around the column headings in the Page Header band has been assigned a solid Pattern and a gray Background.

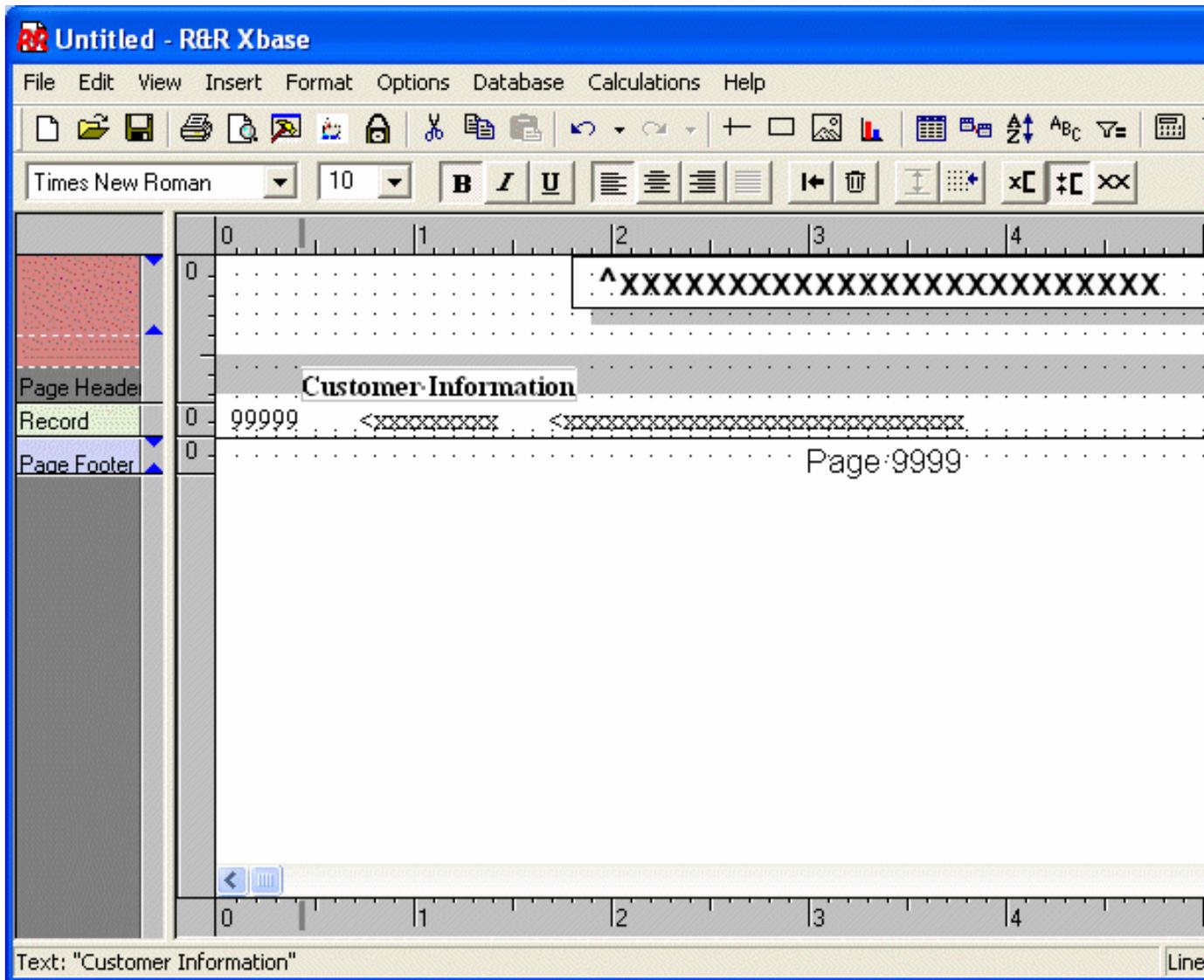


Figure 14.4 Report with Boxes and Shading

**Extending Lines and Boxes Across Bands**

## Extending Lines and Boxes Across Bands

Boxes and vertical lines can extend across multiple band areas. The box or line will begin printing when the band line containing the *top* of the box or line prints. The box or line will end when the band line containing the *bottom* of the box or line prints.

For example, a box that starts in the Header band and ends in the Record band will end on the *first* Record line. If you have multiple Record lines and you want the box to span all of those lines, size the box so it ends in the Footer or Summary band instead.

## **Reports with New-Page Lines**

You cannot place the top or bottom of a box or vertical line on a New-Page line. However, if the box or line extends across a New-Page line, the object will be carried across pages.

## **Reports with Multiple Records Across**

For reports with multiple records across, boxes will print for each record in the Record band as long as the box begins and ends in that Record band. If the box begins or ends in another band, it will print for the first record only.

## **Boxes and Lines that Extend Across Pages**

When a box or vertical line extends across pages, it will print down the page until the Page Footer (if any) or bottom margin is reached. When the box or line resumes on the next page, the top margin and Page Header (if any) are skipped; then the box or line resumes printing.

## Special Considerations

## **Special Considerations**

The following sections explain several special characteristics of lines and boxes that you may need to take into consideration to ensure proper placement and alignment.

## Increasing Line or Box Thickness

When you increase the thickness of a horizontal line, the bottom of the line remains anchored and the thickness increases upward.

When you increase the thickness of a vertical line, the direction of increase depends on whether the line is left-, center-, or right-aligned:

- A left-aligned vertical line (the default) increases in thickness to the right.
- A center-aligned vertical line increases equally in both directions.
- A right-aligned vertical line increases to the left.

When you increase the thickness of a box, the outer edge of the box remains fixed and the thickness increases *inward*.

## **Lines and Boxes on Automatic Band Lines**

When Snap-To-Grid is on, any vertical line or box drawn on an Automatic band line will snap to the top and bottom of the band line; a horizontal line will snap to the bottom of the band line.

If you increase the font size of any field or text on a band line, you will have to adjust the height of any boxes or vertical lines on that band line accordingly.

## **Band Lines with Logical or Scan Conditions**

If the band line on which a box or vertical line *begins* is suppressed as the result of a logical or scan condition, the vertical line or box will not print.

If the band line on which a box or vertical line *ends* is suppressed as the result of a logical or scan condition but the band line on which it begins is not, the vertical line or box will begin printing in the appropriate place. However, the vertical line or the box sides will print continuously to the end of report.

## Chapter 15 Inserting Bitmapped Images

## ***Introduction (Inserting Bitmapped Images)***

This chapter explains how to insert and size bitmapped images in reports. This information is presented in the following sections:

- Supported Image File Formats
- Inserting a Picture from a File
- Inserting a Picture from a Field
- Pasting an Image from the Clipboard
- Placing and Sizing an Image on the Layout
- Using the Picture Properties Dialog

R&R provides two basic methods for adding bitmapped images to your report. The first method allows you to place a single specific image at a location in your report. For example, you might want to place your company logo on each page of your report. For this, you would select either Insert->Picture from File or you could paste an image that has been placed on the windows clipboard.

The second method allows you to have a image file that changes as the report is processed. For example you may have a customer database and want to print a report with each company's logo next to their name. For this, you select Insert->Picture from Field and then select a character database or calculated field whose contents are the path and filename of an image file. When the report is executed, the contents of the picture field is evaluated and the associated image is printed.

Note that each method uses the same basic picture sizing and properties to control the actual display of the image.

## ***Supported Image File Formats***

R&R supports the image file formats listed below.

| <b>File Extension</b> | <b>Image File Type</b>                 |
|-----------------------|--|
| BMP                   | Windows Bitmap                         |
| TIF                   | Tagged Image File format               |
| PCX                   | PC Paintbrush format                   |
| EPS                   | Encapsulated PostScript                |
| JPG                   | JPEG                                   |
| GIF                   | CompuServe Graphics Interchange Format |
| TGA                   | TARGA                                  |
| WMF                   | Windows Metafile                       |
| DIB                   | Windows Device-Independent Bitmap      |
| PCT                   | Macintosh PICT                         |
| WPG                   | WordPerfect Graphic                    |
| DCX                   | Intel FAX format                       |

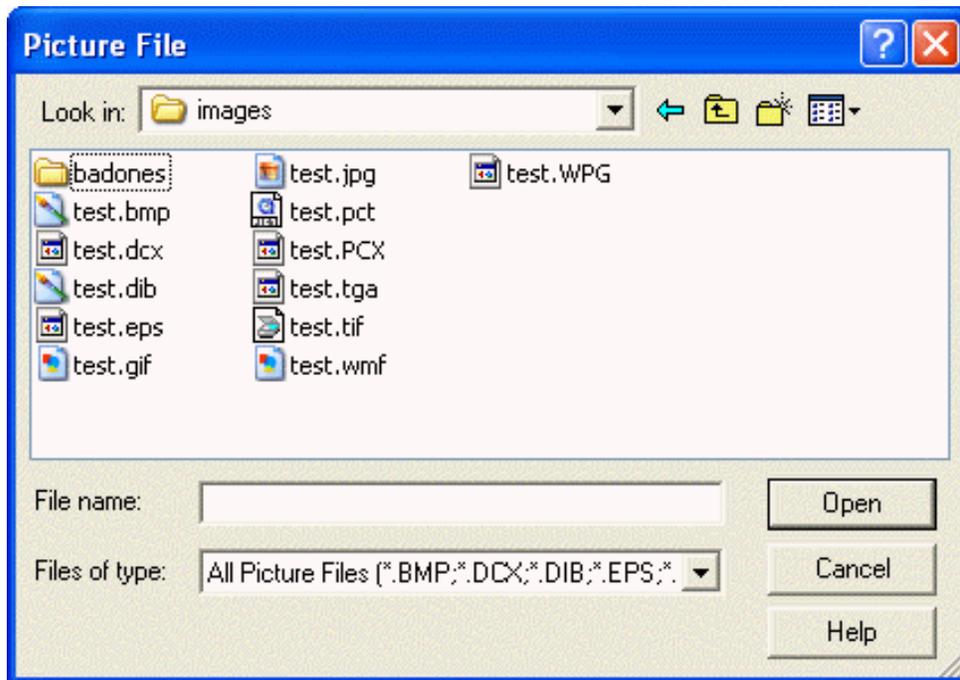
**Figure 15.1 Supported Image File Types**

Note that EPS, WMF, PCT, and WPG file formats can include both bitmapped and vector components. For these file formats, Report Designer will use *only* the bitmapped graphic information.

## ***Inserting a Picture from a File***

To insert a static graphic image into a report, do the following:

1. Select Insert ⇒ Picture (or the Insert Image button on the Standard Toolbar). The cursor changes to a combination of a crosshair and an outline of the Image button.
2. Position the crosshair of the Image cursor at the place where you want the top left of the image to begin. Click and drag the mouse down and to the right; Report Designer draws an outline representing the size and placement of the image.
3. When the outline is the desired size, release the mouse. The Picture File selection dialog displays (see Figure 15.2). Report Designer lists files in the default image directory that have the default image file extension (if no image directory or file extension defaults have been specified, Windows BMP files in the current directory are listed). Select a file from those listed.



**Figure 15.2 Picture File Selection Dialog**

4. Select Open. Report Designer inserts the image at the specified location, maintaining the aspect ratio (the ratio of width to height) of the original image file. You can move, cut, copy, paste, or delete the inserted image just as you do any field on the layout (note that cutting, copying, and pasting are performed internally; the image is not placed in the Windows Clipboard). If you move the image to another band of the report (or if you Paste it in another band), you may have to adjust the band line height to accommodate the size of the image. To move an image, first select it. Then click and hold the mouse anywhere on the image except at one of the "handles" around the edge. Drag the image to the new location and release the mouse.

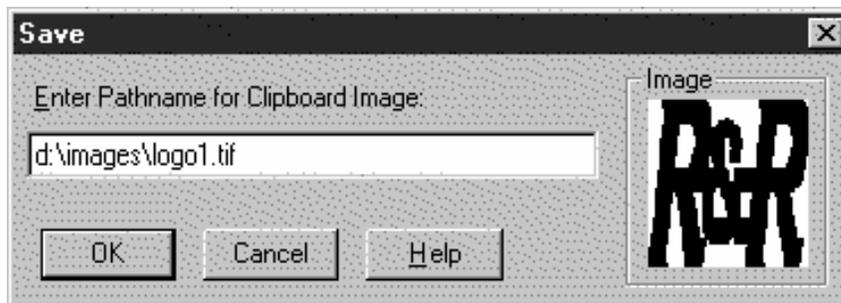
## ***Pasting an Image from the Clipboard***

You can also paste a static image from the Windows Clipboard into a report. To do so, follow these steps:

1. Copy or cut the image to the Clipboard; then switch to or start Report Designer.
2. Position the edit cursor at the place where you want the top left of the image to begin. Select Edit ⇒ Paste Clipboard Image.
3. Report Designer inserts the image at the specified location. You can then move or size the image as necessary.

When you save a report that contains an image pasted from the Clipboard, Report Designer displays the dialog shown in Figure 15.3. This dialog shows a "thumbnail" of the image and prompts you to supply a path and file name; this information is saved with the report. Initially, the edit box displays the name of the default image file directory (if one has been set in the Options ⇒ File Settings dialog).

The file extension you specify determines the graphic type of the saved image file. Supported image types for saved files are BMP, GIF, JPG, PCX, TGA, TIF, WMF, and WPG. If you do not specify an extension, the graphic will be saved in BMP format. For example, the file name specified in Figure 15.3 has a TIF extension; therefore, the graphic will be saved in TIF format.



**Figure 15.3 Save Report with Clipboard Image Dialog**

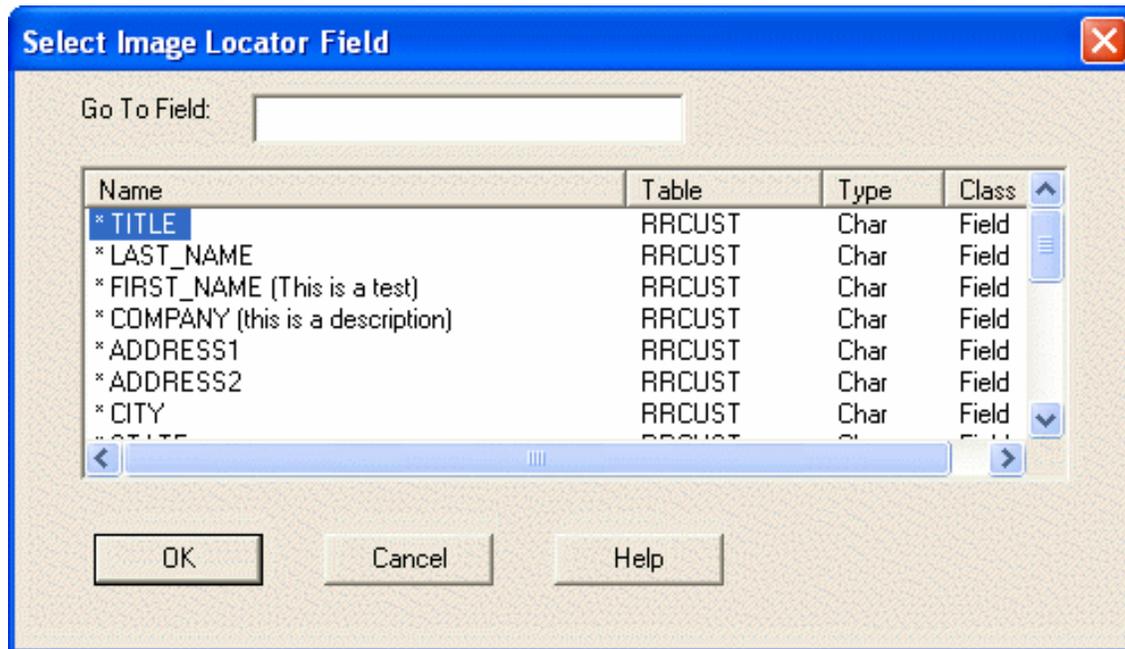
When you retrieve a report with a saved Clipboard image, Report Designer looks for the image file first in the current directory; if the file is not found, Report Designer then looks in the directory saved with the report. If the image file is in neither location, Report Designer looks in the default image directory.

## Inserting a Picture from Field

Selecting Insert Picture from Field displays the Insert Field dialog which allows you to select a database or calculated character field whose contents represent the path/filename of the picture to insert. To create a placeholder for the actual image file, a file called BLANK.BMP is installed in the R&R program directory. When the report is run, the contents of file referenced in the table will be used in the report. So if you have a parts database, you could place a partID field on the layout and then print an image of each part on a record band in the report.

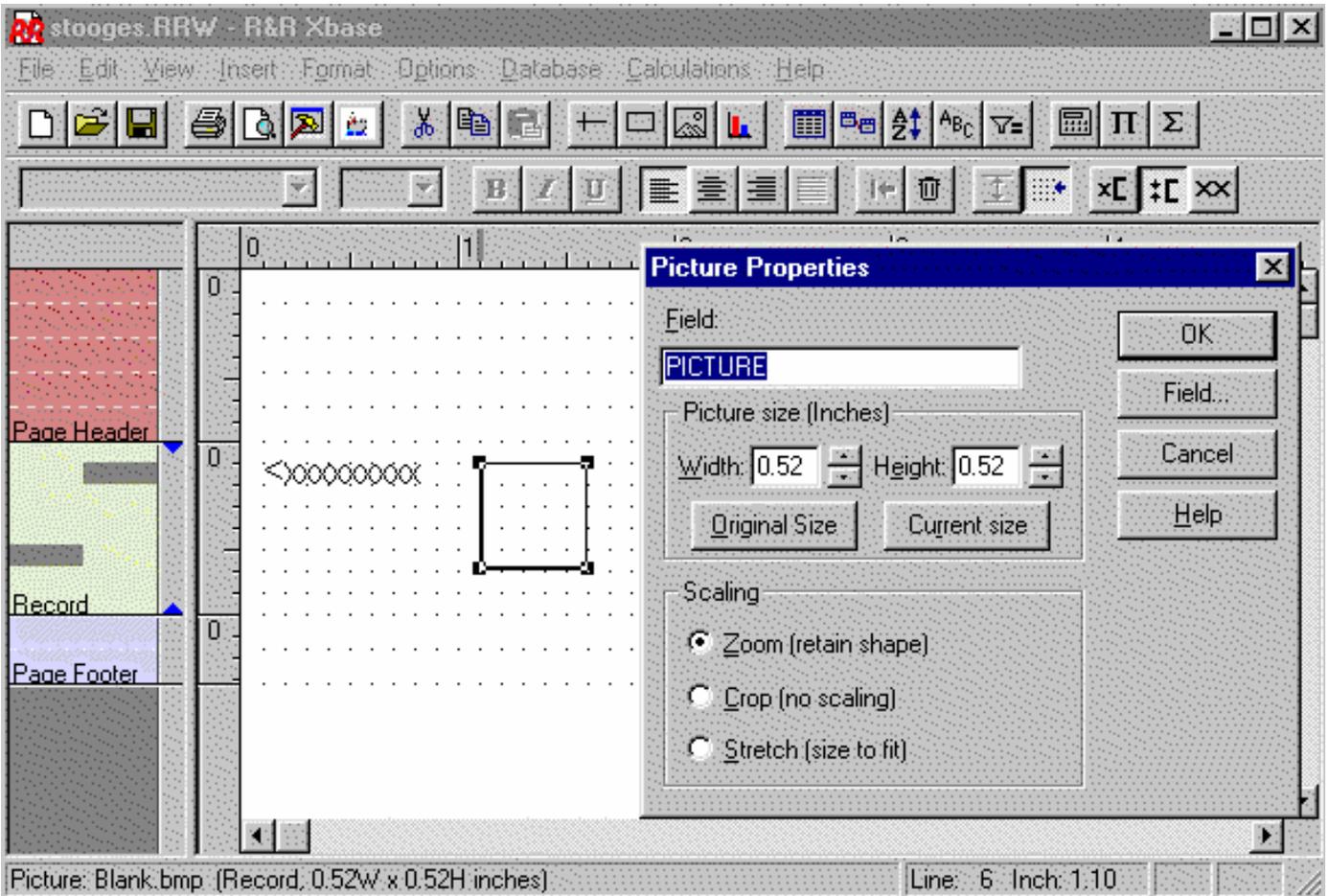
To insert a variable graphic image into a report, do the following:

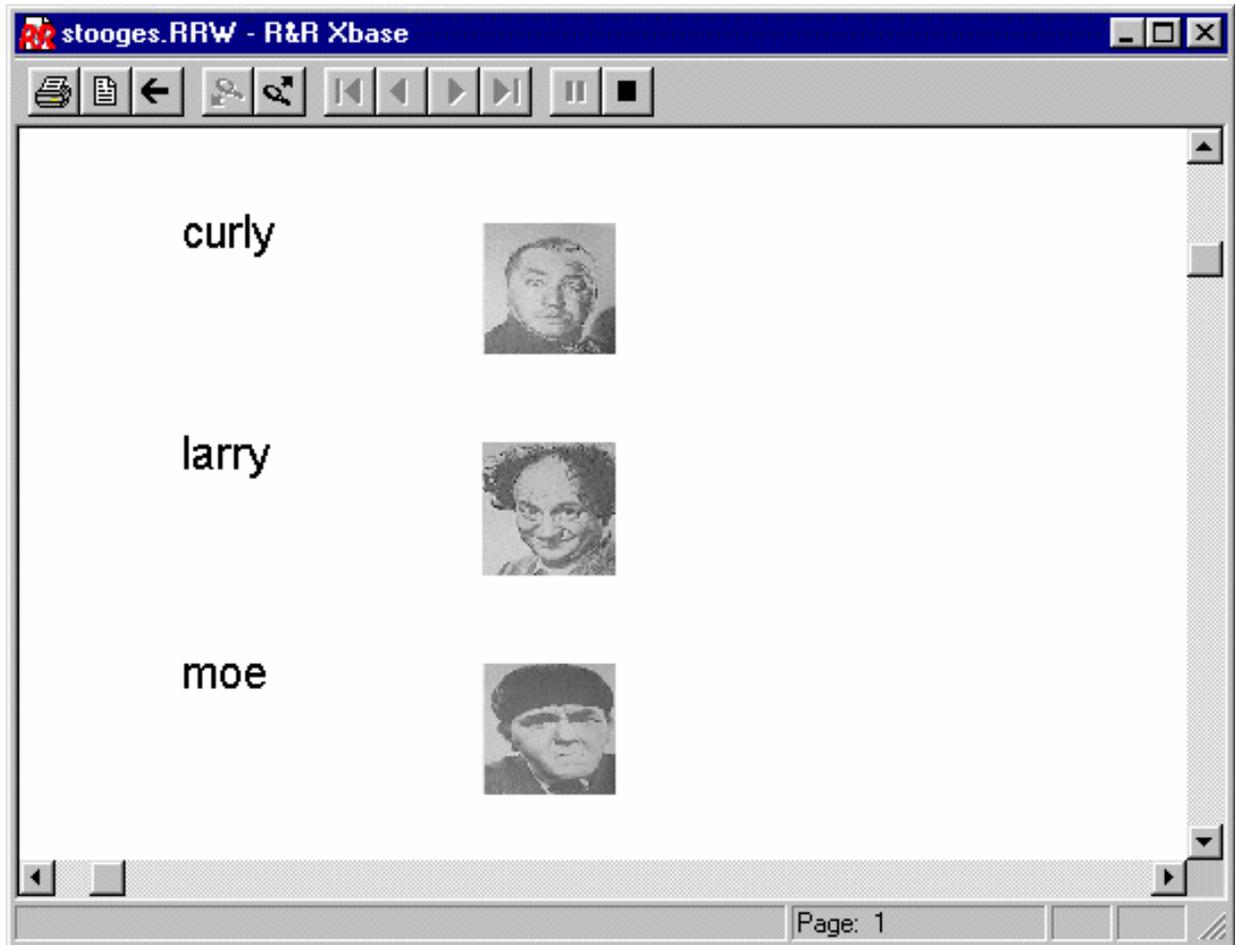
1. Select Insert ⇒ Picture From Field. The cursor changes to a combination of a crosshair and an outline of the Image button.
2. Position the crosshair of the Image cursor at the place where you want the top left of the image to begin. Click and drag the mouse down and to the right; Report Designer draws an outline representing the size and placement of the image.
3. When the outline is the desired size, release the mouse. The Insert Field dialog displays. Select a field from those listed.



1. Select Open. Report Designer inserts BLANK.BMP at the specified location as a placeholder for the actual image whose value will be determined at runtime.

Here is an example of report layout that produces output with names and a picture from file.





You can move, cut, copy, paste, or delete the inserted image just as you do any field on the layout (note that cutting, copying, and pasting are performed internally; the image is not placed in the Windows Clipboard). If you move the image to another band of the report (or if you Paste it in another band), you may have to adjust the band line height to accommodate the size of the image.

To move an image, first select it. Then click and hold the mouse anywhere on the image except at one of the "handles" around the edge. Drag the image to the new location and release the mouse.

## ***Placing and Sizing an Image on the Layout***

The band line in which you insert an image can have either an Automatic or a Freeform line height. Since Report Designer does not increase band line height to accommodate an inserted image, you may have to adjust band line height to prevent the image from overlapping other band lines. You may find it easier to use Freeform line height for band lines containing images, since you can adjust the height of such lines directly on the layout. See Chapter 3, "Working with Bands," for more information about Automatic and Freeform line heights.

After you have inserted an image on your report layout, you can change the size of the image as necessary.

Note that if the "Snap-To-Grid" setting (accessed by selecting Format ⇒ Snap To Grid or by pressing Shift+F8) is on, the image shape will "snap" to the horizontal and vertical ruler increments as you size the image.

For images with an Image Scaling setting of "Stretch" or "Crop," you can change one dimension without changing the other. However, you cannot change just one dimension of an image with a Scaling setting of "Zoom," since width-to-height ratio of such an image must be maintained. (See the **Selecting a Scaling Setting** section in this chapter for a full explanation of the Scaling settings).

To change both the width and the height of an image at the same time, follow these steps:

1. Click on the image to select it. "Handles" appear at the corners of the image (see Figure 15.4).



**Figure 15.4 Selected Image with Sizing Handles**

2. Click and drag a corner handle. For example, if you want to increase image size while maintaining the top left position, click and drag the bottom right handle.
3. When the outline is the desired size, release the mouse.  
To change only one dimension of an image (either width or height), do the following:
  1. Select the image and press F9. On the Picture Properties dialog, select "Stretch (size to fit)" as the Scaling setting. Select OK.
  2. The image now has four additional "handles" — one at the center of each side. Depending on which dimension you want to change, click and drag the top, bottom, or side handle as necessary. As you drag the handle, a dotted outline indicates the changing dimensions of the image.
  3. When the image outline is the desired size, release the mouse.

**Using the Picture Properties Dialog**

## Using the Picture Properties Dialog

Instead of sizing an image on the layout, you can use the Picture Properties dialog to specify image width and height. To display the Picture Properties dialog (see Figure 15.5), either select the image and press F9 or right-click on the image and then select "Properties."

You can also use the Picture Properties dialog to do the following:

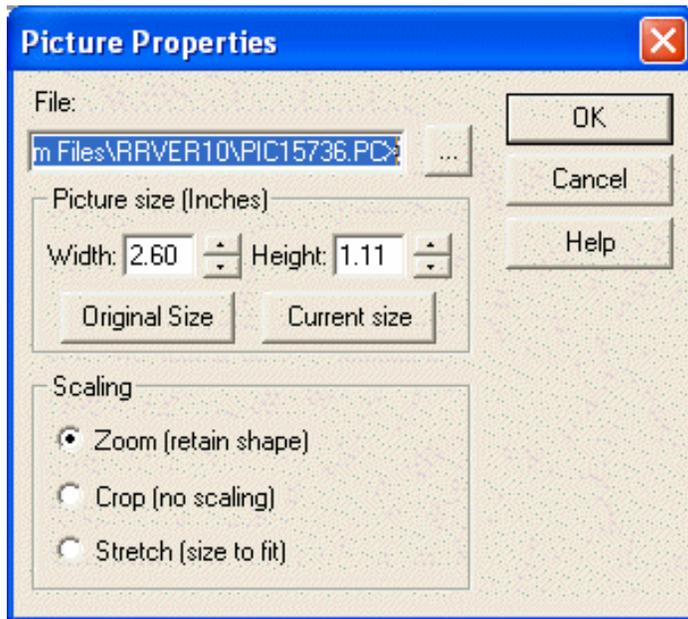
- Select a different image file to replace the current image;
- Select a Scaling option to control the image's aspect ratio.

The following sections explain how to manage inserted images using the Picture Properties dialog.

## Sizing an Image Using Picture Properties

To size an image using the Picture Properties dialog, do the following:

1. Select the image and press F9 to display the Picture Properties dialog. In the Picture Size box, the current dimensions of the image are displayed.
2. Enter or select the appropriate Width and Height settings. If you use the up and down arrows to select a size, the setting value increases or decreases in increments of one-tenth of an inch.
3. Select OK. Report Designer re-sizes the image based on the specified Width and Height settings. Note that if the Scaling setting is "Zoom" (the default), the image's original aspect ratio will be maintained even if you specified Width and Height settings with a different ratio.



**Figure 15.5 Picture Properties Dialog Box**

To reset the image to its original dimensions, select "Original Size" on the Picture Properties dialog. The original dimensions of the file are displayed in the Width and Height boxes. When you select OK, Report Designer increases or decreases the image size on the layout to match the original dimensions.

## *Selecting a Scaling Setting*

### ***Selecting a Scaling Setting***

Three Scaling settings are available on the Picture Properties dialog: "Zoom (retain shape)," "Crop (no scaling)," and "Stretch (size to fit)." The default setting of "Zoom" is appropriate in most instances. In those instances when you want to display or print only a portion of the image, change the setting to "Crop." In those instances when you want the image to fit within the dimensions you specify, regardless of the original aspect ratio, change the setting to "Stretch." The following sections explain each setting in more detail.

### ***Selecting the Zoom Scaling Option***

The default Scaling setting is "Zoom (retain shape)"; the image retains its original aspect ratio (ratio of width to height), regardless of the dimensions of the insertion rectangle drawn or of the width-to-height ratio as specified in the Picture Size box. With this scaling setting, the aspect ratio is maintained when you increase or decrease the image size.

### ***Selecting the Crop Scaling Option***

When Scaling is set to "Crop (no scaling)," the image is inserted at its original size, and no image scaling is performed. If the image is larger than the insertion rectangle drawn or if you enter Width and Height settings smaller than those of the original image, the image is cropped — that is, only the top left portion of the image that fits within the rectangle or specified dimensions is inserted.

### ***Selecting the Stretch Scaling Option***

When Scaling is set to "Stretch (size to fit)," the image is scaled to fit the insertion rectangle drawn or to fit the dimensions specified on the Picture Properties dialog. If the aspect ratio (the ratio of width to height) of the rectangle or of the specified Width and Height dimensions differs from the aspect ratio of the original, the shape of the image in the report will be distorted (either stretched or shrunk).

## *Specifying Alignment*

## ***Specifying Alignment***

Right-click on an image and select Alignment to specify Left (the default), Center, or Right alignment. Although the default setting is usually appropriate, you can change the alignment in order to provide more precise control over placement and sizing of the image.

*Selecting a Different Image File*

### ***Selecting a Different Image File***

To select a different image to replace the current one, select File or Field on the Picture Properties dialog. The Picture File selection dialog displays.

For pictures from file, it listing files in the default image directory that have the default image file extension (if no image directory or file extension defaults have been specified, Windows BMP files in the current directory are listed). To display image files of a different format, open the "List Files of Type" box and select a format. Then select a file from those listed.

For pictures from field, click the Field button and then select a field from those listed.

## Chapter 16 Printing Reports

## ***Introduction (Printing Reports)***

This chapter explains how to preview and print reports. This information is presented in the following sections:

- ❑ Overview of Print-Related Commands
- ❑ Defining Page Setup and Record Layout
- ❑ Previewing and Printing a Report
- ❑ Controlling Pagination

Report Designer provides the capability of selecting from a wide variety of Avery labels for printing. When you select an Avery label (using the "Label Type" setting on the Record Layout dialog), Report Designer automatically defines the appropriate page and record layout. See the **Multiple Columns** section of this chapter for details.

Also, Report Designer provides for the printing of "snaked-column" reports in which the report data flows from the bottom of one column to the top of the next (similar to the format of a telephone book). See the **Snaked-Column Reports** section of this chapter for information about this type of report.

## Overview of Print-Related Commands

The following commands display dialog boxes whose settings affect printed output:

- ❑ File ⇒ Print
- ❑ File ⇒ Page Setup
- ❑ Format ⇒ Record Layout
- ❑ Options ⇒ Preferences
- ❑ Options ⇒ Default Settings

Figure 16.1 briefly explains the settings in each dialog box.

| <b>Dialog</b>    | <b>Print Settings</b>   |
|------------------|---|
| Print            | Printer, item to print (Report, Test Pattern, or Specification) number of copies, page range, paper source, Print to file |
| Page Setup       | Paper size and source, margins, and orientation   |
| Record Layout    | Record layout; record width, height, copies, number of records across; settings for snaked column and Avery label reports |
| Preferences      | Display of colored left/right band line indicators in Print Preview   |
| Default Settings | Global settings for Paper Size, Margins, Font, and Ruler Spacing  |

**Figure 16.1 Summary of Settings that Affect Printed Output**

The Print, Page Setup, and Record Layout settings you specify apply only to the current report and will be saved with that report. Each time you create a new report, Report Designer will use the default Windows printer and the global layout settings specified in the Options ⇒ Default Settings dialog box. See Chapter 5, "Setting Defaults," for information about the Default Settings dialog box.

**Defining Page Setup and Record Layout**

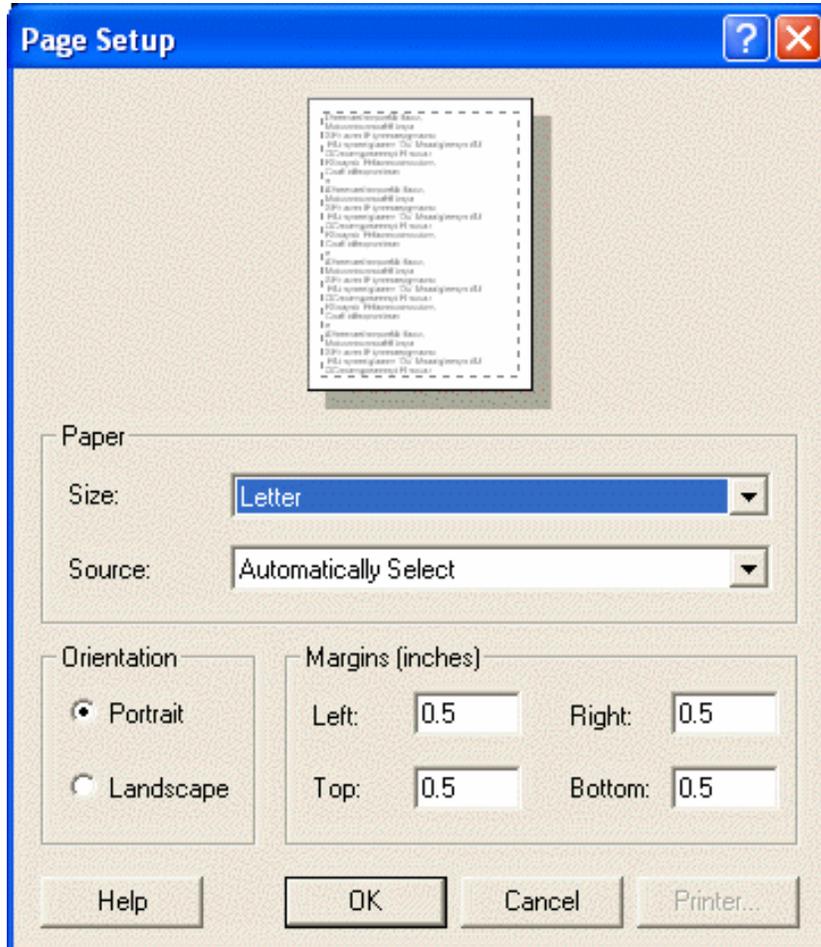
## **Defining Page Setup and Record Layout**

After you have selected a printer, you can specify settings to control paper size, margins, and orientation (portrait or landscape) and to define how records will be laid out. The following sections explain how to specify settings that control page and record layout.

## *Specifying Page Setup Settings*

## Specifying Page Setup Settings

To change paper size and/or source, margin, and orientation settings, select File ⇒ Page Setup (see Figure 16.2).



**Figure 16.2 Page Setup Dialog Box**

The unit of measurement (inches or centimeters) for paper size and margins depends on your Windows configuration and the paper size you select.

The Page Setup settings override the equivalent options on the Report Designer Default Settings dialog and the Windows Printer Properties tabbed dialog.

Note that the Page Setup settings are saved with each individual report. Changes to these settings do *not* affect other reports, new reports, or other Windows applications.

## ***Changing Paper Size***

Use this setting to specify paper size for printed output. The default is Letter. To change the Paper Size used for your report:

1. Select File ⇒ Page Setup to display the Page Setup dialog.
2. In the Paper group box, open the Size list and select a predefined paper size (the default is Letter).
3. Select OK.

The new paper size is applied to the report.

Some printers allow you to specify a custom paper size (instead of a predefined size). For those printers, you specify the dimensions for the custom size on the Paper tab of the Properties tabbed dialog for the printer (select File ⇒ Print ; then select the Properties button). Note that many Windows printer drivers do *not* support custom paper sizes.

The predefined paper size settings enable Report Designer to compute page length automatically based on the paper size and the Orientation setting. Selecting a predefined paper size also automatically determines the size of the page that displays when you use the File ⇒ Print Preview command.

## ***Changing Paper Source***

Many printers provide more than one paper source — some have upper and lower trays and envelope feeders, for example, and most provide the capability of manually inserting pages. If you will be printing using a paper source other than the default, use this setting to specify the source.

To change the paper source for printing a report:

1. Select File ⇒ Page Setup to display the Page Setup dialog box.
2. In the Paper group box, open the Source list (the items on this list depend on the currently selected printer). Select the appropriate paper source.
3. Select OK; the report will now be printed using the paper source you selected.

## ***Changing Page Orientation***

A report's orientation determines whether the report prints vertically (Portrait) or horizontally (Landscape). Portrait is the default.

To change a report's page orientation:

1. Select File ⇒ Page Setup to display the Page Setup dialog box.
2. In the Orientation group box, select "Portrait" or "Landscape."
3. Select OK; the new orientation is applied to the report.

Note that some printers do not support landscape printing.

## ***Setting Margins***

Enter values to specify the amount of white space at the top, bottom, left, and right of the report page. To set the margins for your report:

1. Select File ⇒ Page Setup to display the Page Setup dialog.
2. In the "Margins" group box, type the measurements you want to use in the "Top," "Bottom," "Left," and "Right" edit boxes.
3. Select OK.

The new margins are applied to the report.

On the layout, the right margin is indicated on the ruler by the letter **R**. The right margin setting controls where Report Designer places fields on left-, right-, and center-justified band lines. (Note that Report Designer does not prevent you from inserting a field so that it extends beyond the right margin, nor does it prevent such a field from printing beyond the right margin.)

## *Defining Record Layout*

## ***Defining Record Layout***

Select Format ⇒ Record Layout to control how records are laid out on the page (see Figure 16.3).

The following sections explain each of the settings in the Record Layout dialog box.

## Multiple Columns Settings

Use the settings in this group box to define layouts for reports requiring multiple columns, "snaked columns," or specific horizontal or vertical spacing of data on Record lines.

### Columns

Use this setting to specify how many records you want to print across the page. Enter a value in this field for reports in which you want to save space by printing records in two or more columns.

Note that when you print multiple records across, Report Designer does not insert additional lines for word-wrapped fields. A word-wrapped field will wrap to fill as many lines as are available, pushing fields below it down if necessary. Therefore, you should not use word-wrapped fields when printing more than one record across unless your Record band contains enough lines to accommodate the maximum length of any word-wrapped field(s) and any fields in the Record band beneath the word-wrapped field(s).

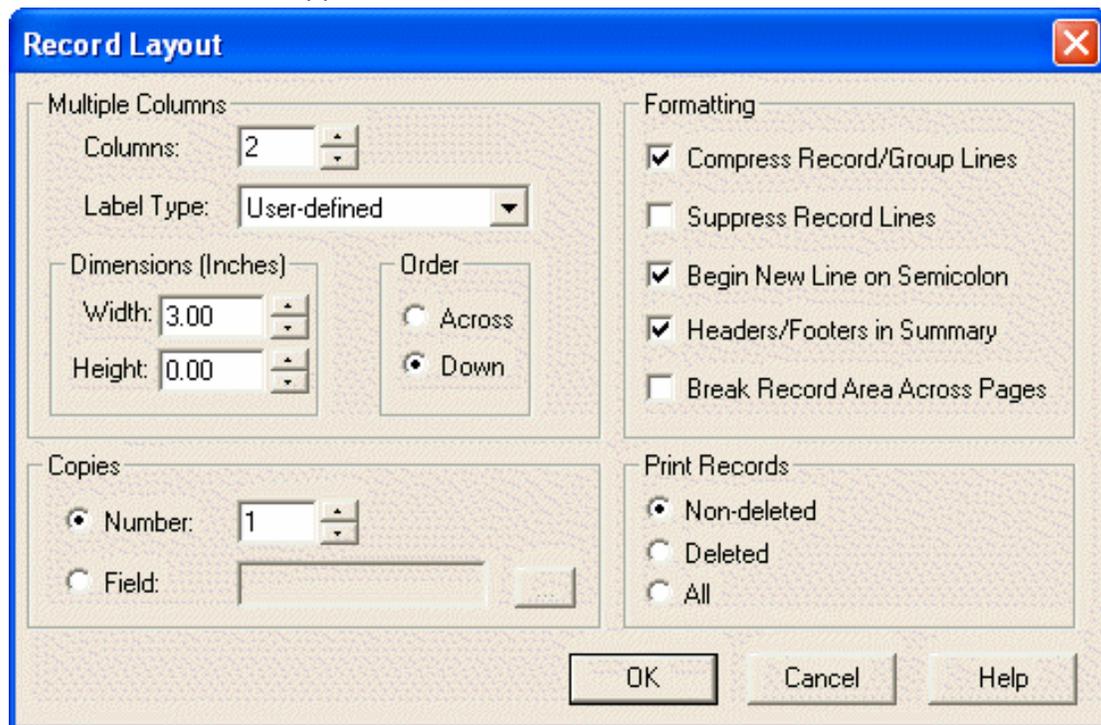


Figure 16.3 Record Layout Dialog Box

### Snaked-Column Reports

Use the "Columns" and "Order" settings on the Record Layout Dialog to design multi-column reports in which the records "snake" from the bottom of one column to the top of the next. All data on Record, Group Header, and Group Footer lines will flow from one column to the next when this setting is greater than 1.

To set up a "snaked" columnar report, do the following:

1. Set "Columns" to the number of columns you want horizontally across the page.
2. Enter a "Width" setting appropriate for the maximum width of the data in your records and the number of columns across.

3. Select Down in the "Order" box.

Figure 16.4 shows the top portion of a snaked-column report. The "Columns" setting for this report is 3, and the "Width" setting is 2.5 inches. As a result of these settings, the report data prints in three columns, flowing from the bottom of one column to the top of the next.

Untitled - R&R Xbase

| <u>CUSTNO</u> | <u>ORDNO</u> | <u>ORDRDATE</u> | <u>CUSTNO</u> | <u>ORDNO</u> | <u>ORDRDATE</u> |
|---------------|--------------|-----------------|---------------|--------------|-----------------|
| 10001         | 32201        | 2/10/2002       | 10001         | 32545        | 7/12/2001       |
| 10001         | 32226        | 11/27/2002      | 10001         | 32551        | 1/2/2006        |
| 10001         | 32245        | 5/4/2001        | 10001         | 32565        | 8/24/2000       |
| 10001         | 32261        | 7/25/2004       | 10001         | 32568        | 7/30/2005       |
| 10001         | 32264        | 12/23/2005      | 10001         | 32576        | 9/23/2002       |
| 10001         | 32266        | 6/8/2002        | 10001         | 32577        | 5/29/2005       |
| 10001         | 32274        | 7/1/2001        | 10001         | 32578        | 8/30/2004       |
| 10001         | 32275        | 8/12/2005       | 10001         | 32580        | 6/12/2004       |
| 10001         | 32280        | 1/1/2003        | 10001         | 32584        | 1/3/2001        |
| 10001         | 32283        | 11/24/2000      | 10001         | 32592        | 4/24/2001       |
| 10001         | 32287        | 2/23/2001       | 10001         | 32596        | 4/1/2002        |
| 10001         | 32292        | 12/5/2005       | 10001         | 32607        | 8/18/2002       |
| 10001         | 32299        | 12/2/2003       | 10001         | 32608        | 1/4/2004        |
| 10001         | 32309        | 9/7/2004        | 10001         | 32613        | 11/4/2005       |
| 10001         | 32311        | 5/29/2005       | 10001         | 32616        | 1/12/2004       |
| 10001         | 32319        | 4/18/2002       | 10001         | 32621        | 4/14/2004       |
| 10001         | 32320        | 8/30/2005       | 10001         | 32627        | 5/13/2003       |
| 10001         | 32324        | 10/21/2001      | 10001         | 32646        | 5/21/2001       |
| 10001         | 32330        | 10/2/2004       | 10001         | 32649        | 6/14/2003       |
| 10001         | 32333        | 3/2/2003        | 10001         | 32651        | 7/2/2001        |
| 10001         | 32352        | 2/12/2001       | 10001         | 32664        | 12/1/2000       |
| 10001         | 32358        | 9/18/2002       | 10001         | 32679        | 3/14/2002       |
| 10001         | 32359        | 12/18/2004      | 10001         | 32687        | 7/10/2005       |
| 10001         | 32361        | 1/23/2005       | 10001         | 32690        | 1/10/2005       |
| 10001         | 32364        | 2/25/2003       | 10001         | 32695        | 8/26/2001       |
| 10001         | 32365        | 3/11/2005       | 10001         | 32703        | 3/1/2004        |
| 10001         | 32369        | 5/30/2005       | 10001         | 32716        | 12/8/2000       |
| 10001         | 32377        | 1/3/2006        | 10001         | 32717        | 2/21/2002       |
| 10001         | 32384        | 10/10/2002      | 10001         | 32718        | 2/20/2001       |

Records Read: 523 Selected: 523

Figure 16.4 Top Portion of Snaked Column Report

### Label Type

Report Designer provides over 150 choices for printing a variety of labels (for

example, mailing labels) on commercially available Avery label stock. These settings are contained in a file named **RRLABELS.INI** that is installed in the Report Designer program directory.

Select "Label Type" on the Record Layout dialog to display a menu of label choices. When you select a label type, Report Designer automatically sets page size, margins, record width, and record height to the values appropriate for that label type.

### **Dimensions**

Use these settings to specify the dimensions (width and height) of the Record area when printing multiple records across. Enter values in these fields for reports in which the Record area must fit within a predefined horizontal area. If you are printing mailing labels, the value in this field should be the distance from the left edge of one label to the left edge of the adjacent label.

### **Copies**

Use this setting to specify how many copies of each Record area you want to print. You can specify the number of Record areas to print for each composite record in either of two ways:

- Enter a number in the Number edit box.
- Open the Field list box and select a numeric field whose value will control the number of Record areas printed. You can use any field except a total field or a calculated field that uses a total field or the PAGENO() function. If the value of the field is one, zero, or negative, Report Designer prints one copy of each Record area. If the setting is positive, Report Designer uses the integer part of the setting to determine the number of record copies to print.

## ***Record Formatting Settings***

The Formatting box contains check boxes for these settings: Compress Record/Group Lines, Suppress Record Lines, Begin New Line on Semicolon, Headers/Footers in Summary, and Break Record Area Across Pages.

### **Compress Record/Group Lines**

Use this setting to suppress printing of empty lines in the Record, Group Header, and Group Footer areas of a report. If you want empty lines in these areas to print, turn this setting Off.

When this setting is On, lines are suppressed if they consist entirely of empty fields of any sort, of database fields containing only spaces, or of non-underscored text fields consisting entirely of spaces. Because spaces in calculated fields are treated as "hard" spaces, lines with calculated fields will be suppressed only if those fields are empty.

### **Suppress Record Lines**

Use this setting to print a report that omits Record lines. For example, you can print a report that contains only totals (on lines other than Record lines). When this option is On, Report Designer ignores any Record lines. When this option is Off, Report Designer prints Record lines as usual.

### **Begin New Line on Semicolon**

Use this setting to specify whether semicolons included in word-wrapped character fields should be treated as line terminators. When this setting is On, Report Designer will begin a new line each time it encounters a semicolon in a word-wrapped character field (without printing the semicolon). When this setting is Off, Report Designer will print any semicolons in word-wrapped character fields without beginning new lines. (Note that this setting applies to character fields only; it has no effect on memo fields.)

### **Headers/Footers in Summary**

Use this setting to specify whether Page Headers and Footers will print or display on a page containing only Summary lines. When this setting is On, any Page Header and Footer lines you have defined will print on a page containing only Summary lines. When this setting is Off, Page Header and Footer lines will not print on a Summary-only page.

### **Break Record Area Across Pages**

If a record area takes up more than one line and cannot fit on the current page, you can use this option to tell Report Designer where you want the page break (this option also affects Report Designer's widow/orphan control). You can split the record area between two pages, or you can keep the record area together by printing the entire record on the next page.

To specify page break behavior for multiple-line record areas:

1. Select Format ⇒ Record Layout to display the Record Layout dialog box.
2. In the Formatting group box, check or uncheck the "Break Record Area Across Pages" box.

When this option is On (checked), a page break can occur within a multiple-line record area. Report Designer prints as many lines of the current

composite record as will fit on the current page; the rest of the record will be continued on the next page.

When this option is Off (unchecked), multiple-line records are kept together on the same page. If all the Record lines won't fit on the current page, the entire record will print on the next page.

3. Select OK.

## ***Print Records Setting***

Use this setting to specify which records to print.

- Select Non-deleted (the default) to print only composite records that have no component records marked for deletion in the database.
- Select Deleted to print only composite records that have all components marked for deletion.
- Select All to print all composite records.

**Previewing and Printing a Report**

## **Previewing and Printing a Report**

To print a report, you access the Print dialog by selecting File ⇒ Print. (You can also select the Print Report button on the Standard Toolbar to bypass the print dialog and print the report directly.)

## Print Dialog Settings

When you select File ⇒ Print, the Report Designer Print dialog displays (see Figure 16.9). Use this dialog box to specify report, test pattern, or report specification printing; to set the range of pages and number of report copies to print; and to specify printing to a file.

The settings in this dialog are saved with the report and override any corresponding settings in the Windows Properties tabbed dialog for the current printer.

By default, if you print multiple copies of a report, the pages will not be collated. To print collated multiple copies, turn on the "Collate Copies" setting on the Print dialog. Printing multiple copies will take longer when this setting is on, since Report Designer must process the entire report for each copy that is printed.

Figure 16.5 briefly explains each of the items in the Print dialog box.

| Item           | Purpose  |
|----------------|--|
| Printer        | Displays name and status of currently selected printer and enables selection of a different printer                          |
| Print to file  | Specifies that the report be printed to a file (with printer codes included); enter file path/name in "Print file" box below |
| Print range    | Selects a range of pages to print by setting beginning (From) and ending (To) numbers  |
| Copies         | Specifies how many report copies to print (default 1)  |
| Collate        | Specifies collating for multiple report copies   |
| Print what     | Specifies printing of Report (the default), Test Pattern, or Report Specification  |
| Print file     | Specifies output path and file name for printing to a file (when "Print to file" is On)                                      |
| Preview button | Displays Preview of current report   |

**Figure 16.5 Explanation of Print Dialog Box**

## Windows Printer Properties Dialog Settings

You can access the Windows Printer Properties tabbed dialog by selecting Printers on the Windows Control Panel and then selecting File ⇒ Properties for a specific printer. This dialog controls nearly all printer properties, including paper size, source, and orientation; graphics resolution; and font downloading options. Changes made using these dialogs will apply to any Windows application (including Report Designer) that uses this printer driver.

Remember, though, that the Paper Source, Paper Size, and Orientation settings you select in Report Designer for a particular report (using the Print and Page Setup dialogs) *override* the Windows Paper Source, Paper Size, and Orientation settings specified on the Paper tab of the Printer Properties tabbed dialog.

*Previewing a Report*

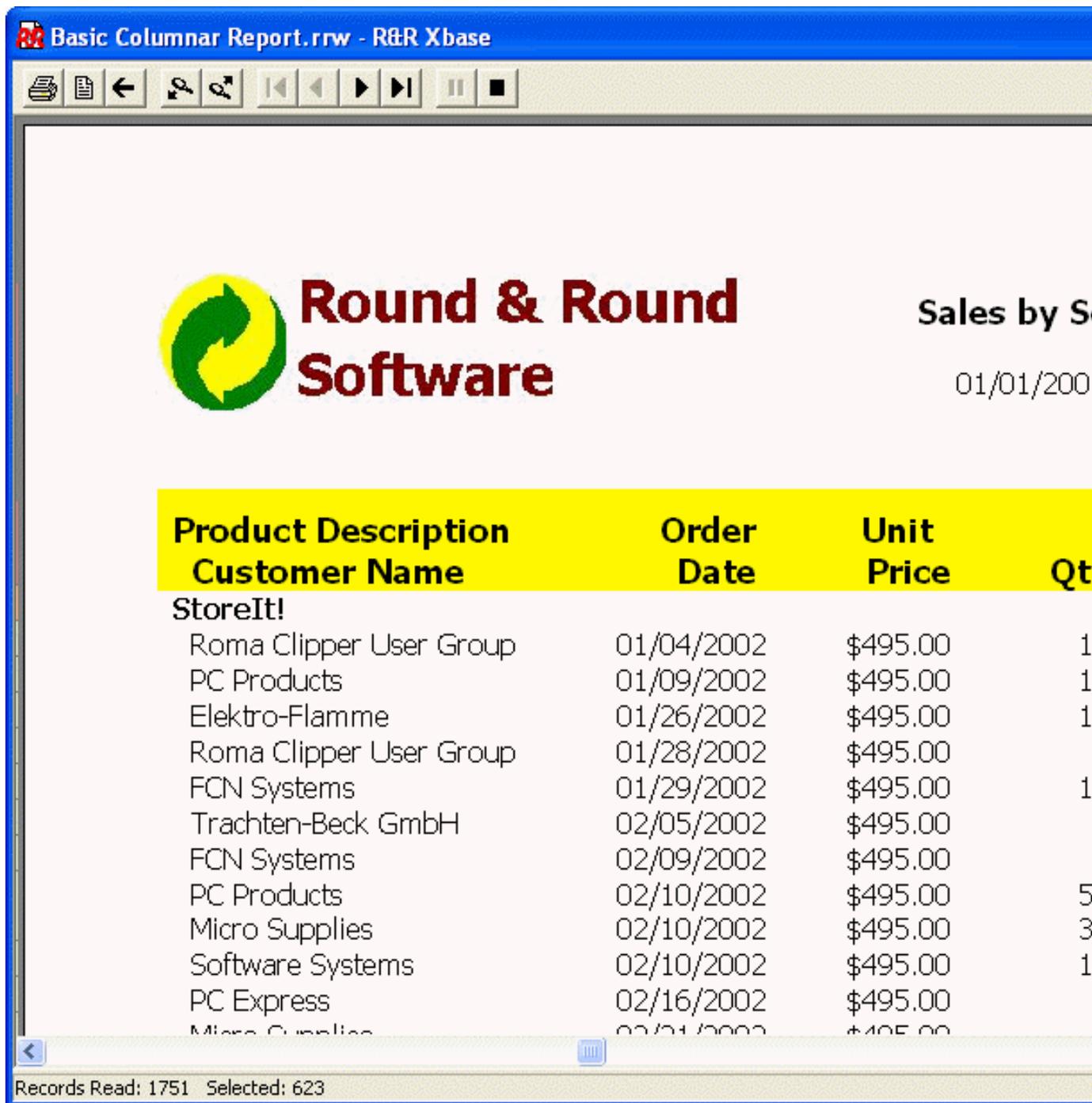
## ***Previewing a Report***

Before sending a report to the printer, you can preview it on screen to check fonts, field placement, page breaks, and other elements of the page setup. The Preview screen (see Figure 16.6) consists of a facsimile of the report page, with VCR-like buttons at the top that allow you to page forward and backward through a multi-page report, magnify portions of the page, print the current page or the entire report, and pause or cancel the Preview (you can also perform these operations using the function keys, as shown in Figure 16.8).

You can access the Preview screen in any of the following ways:

- Select File ⇒ Print Preview;
- Select the Print Preview button on the Formatting Toolbar;
- Select File ⇒ Print; then select the Preview button on the Print dialog box.

When you select any of these options, Report Designer displays the Print Preview window (see Figure 16.6). Note that if you have enabled Colored Bands/Preview on the Preferences dialog, the Preview window includes color-coding just outside the left and right Page Margins so that you can easily identify the band type that is displayed.



**Figure 16.6 Print Preview Display**

You can "zoom" the display simply by clicking at the desired location on the preview page. Note that the zoom level is maintained as you page through a report and will be retained if you exit and restart Preview.

You use the Preview buttons to move around in multiple-page reports and to close the Preview screen and return to the report layout. Figure 16.7 shows the Preview control buttons and lists the Shift + function key combination that corresponds to each. Figure 16.8 explains the purpose of each button.

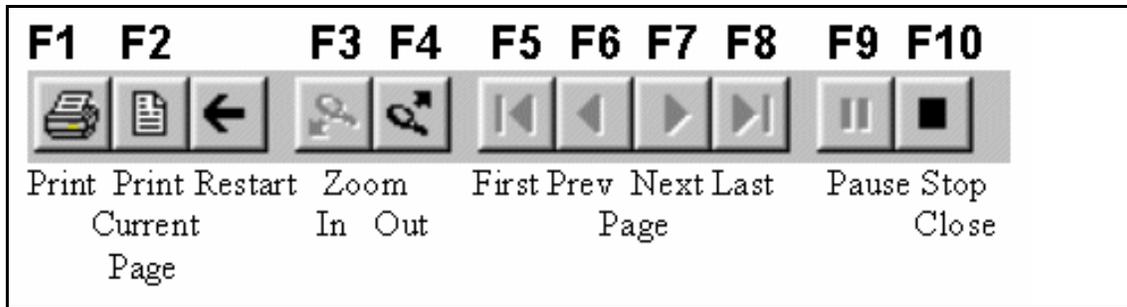


Figure 16.7 Preview Buttons (and Corresponding Function Keys)

| Button | Key:<br>Shift + | Purpose                                      |
|--------|-----------------|--|
|        | F1              | Prints report with current settings          |
|        | F2              | Prints currently displayed page              |
|        |                 | Restart printing                             |
|        | F3              | Displays magnified page preview              |
|        | F4              | Returns to previous magnification level      |
|        | F5              | Displays first page of multi-page report     |
|        | F6              | Displays previous report page                |
|        | F7              | Displays next page                           |
|        | F8              | Displays final report page                   |
|        | F9              | Pauses preview when positioning to last page |
|        | F10             | Closes Preview window                        |

Figure 16.8 Explanation of Preview Buttons

## ***Dealing with Low Memory During Preview***

When you page forward through a report in Preview, Report Designer keeps the previously viewed report pages in memory. If you have several other Windows applications running, you might reach a point when previewing a large report where there is not enough memory to store additional preview pages. If this occurs, Report Designer will display a Low Memory Condition dialog containing the message "Insufficient Memory to Continue Print Preview."

You can select one of three actions:

- Pause Print Process
- Free Earlier Pages
- Terminate Preview Process

### **Pause Print Process**

Selecting this option is equivalent to selecting the Pause button on the Preview screen. After pausing the preview, you can switch out of Report Designer and free up memory by terminating other Windows applications. You can then continue with the report preview.

### **Free Earlier Pages**

You can select this option to have Report Designer begin removing earlier report pages (beginning with the first page) from memory until enough memory has been freed up to continue the preview. After you select this option, Report Designer will continue to free earlier pages as necessary as you page forward through the report.

Once these earlier pages have been freed from memory, of course, you must cancel and then restart Preview in order to view them.

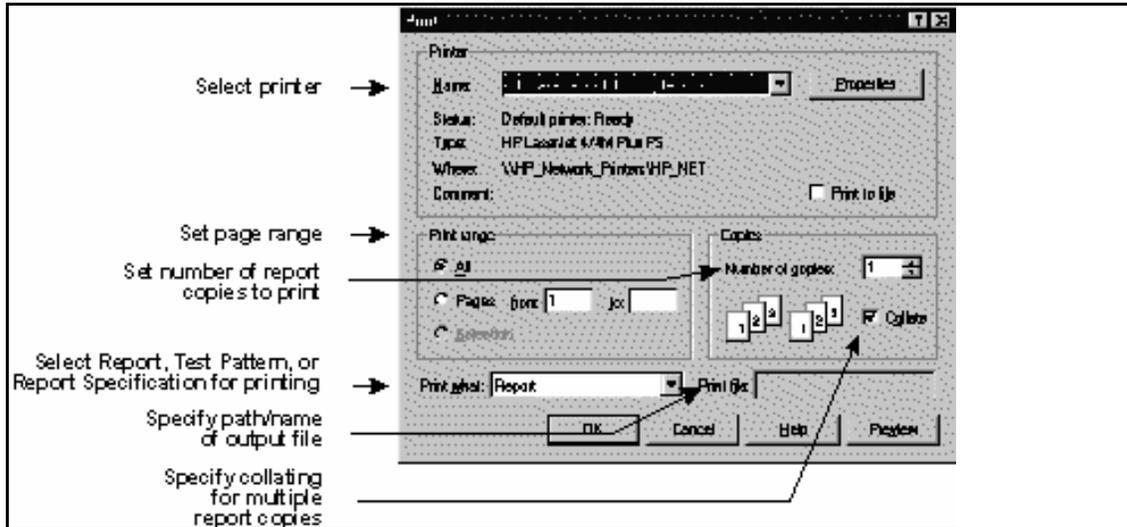
### **Terminate Preview Process**

Selecting this option is equivalent to selecting the Close button on the Preview screen. Report Designer returns to the layout window; if you select Print Preview again, the preview will begin at the first report page.

## *Changing the Print Settings*

## Changing the Print Settings

You can change any of the settings in the Print dialog box before printing. For example, you may want to print multiple report copies or specify a page range to print. You can also display the report on the screen using the Preview button or select a different printer.



**Figure 16.9** Print Dialog

The following sections explain the settings in the Print dialog box and describe how to change them.

### ***"Print What" List Box***

The Print What list box has three choices: Report (the default), Test Pattern, and Report Specification.

- Select Report to print or preview the current report.
- Select Test Pattern to print only Page Header, Page Footer, and Record areas of a report in the form of text fields and field symbols (for example, **AAAA**) that represent data fields. Printing a test pattern is useful for aligning forms or mailing labels before printing the actual report data.
- Select Report Specification to print or preview a complete description of the content and layout of the current report. (For an explanation of the Report Specification option, see Chapter 2, "Managing Reports.")

## ***Printing Multiple Report Copies***

By default, Report Designer prints one copy of all report pages. To print multiple report copies, enter or select the number of copies to be printed in the Copies edit box.

Note that in order to avoid having to process a report multiple times when the "Collate" setting is off, Report Designer takes advantage of the ability of some printer drivers to print multiple uncollated copies. Printing multiple copies will take longer when the "Collate" setting is on, since Report Designer must process the entire report for each copy that is printed.

### ***Changing the Print Range Setting***

To specify a range of report pages to print, select Pages in the Print Range box; then enter or select the beginning page number in the "From" box and the ending page number in the "To" box. In each case, "page number" is the number of a physical page rather than a printed page number; that is, you must take into account *all* report pages, even if page numbering does not begin on the first page.

*Printing to a File*

## ***Printing to a File***

To print a report to a file rather than to the printer, do the following:

1. Select File ⇒ Print to display the Print dialog.
2. Check the "Print to File" check box.
3. Enter the name of the output file (optionally including a path) in the Print File edit box. If you do not include a path, the file will be output to the current directory.
4. Select Print to send the output to the specified disk file. To return to the report layout without outputting the report, select Close; the print-to-file settings will be retained.

**NOTES** The output file will include printer codes for the currently selected Windows printer. To output to a plain text file with no printer codes, use the File ⇒ Export command.

The print-to-file setting is saved with the report. To remove this setting so that print jobs will be sent to a printer rather than a file, select File ⇒ Print and turn off "Print to File." Then select Close.

*Printing to a PDF File*

### ***Printing to a PDF file***

To send the fully formatted output of your report to a PDF file that can be viewed with the Adobe Acrobat reader, use the following steps.

1. Select File ⇒ Print.
2. In the Printer Name box choose R&R PDF Export.
3. Check the Print to File Box.
4. In the Print File box, enter the path/name of the file you wish to create including the .PDF extension.
5. Select OK.

R&R will then output your report including all formatting to the named PDF file.

*Printing a Report Specification*

## ***Printing a Report Specification***

To print a detailed specification of your report:

1. Select File ⇒ Print to display the Print dialog.
2. In the "Print What" list, select the "Report Specification" option.
3. Select OK.

For details on the format and content of a Report Specification option, see Chapter 2, "Managing Reports."

*Printing a Test Pattern*

## ***Printing a Test Pattern***

A test pattern helps you align forms or mailing labels for printing by showing where data for the fields on the report's Record lines will appear on the page. The test pattern consists of text fields and field symbols that represent the data on the Record lines.

To print a test pattern showing the placement of data in your report:

1. Select File ⇒ Print to display the Print dialog.
2. In the "Print What" list, select the "Test Pattern" option.
3. Select OK.

**Controlling Pagination**

## Controlling Pagination

The following features affect how Report Designer determines where to place page breaks in your report:

- Page Setup settings (Paper size, margins, and orientation);
- Record Layout settings;
- Fields with word-wrap format;
- Line heights calculated automatically or specified with the Band Line Properties "Freeform" setting;
- New-page lines inserted on the report layout;
- Report Designer's automatic widow/orphan control.

## **Page Setup Settings**

When Report Designer prints your report, it uses the current Paper Size, Margins (Top and Bottom), and Orientation settings in the File ⇒ Page Setup dialog box to determine how much remaining space is available on the page.

## Record Layout Settings

The Format ⇒ Record Layout settings determine record layout and control which records and lines will be printed. All of these settings affect where Report Designer will place page breaks, especially "Compress Record/Group Lines," "Suppress Record Lines," and "Break Record Area."

When calculating the number of lines that can fit on the page, Report Designer ignores blank Record, Group Header, and Group Footer lines compressed by the "Compress Record/Group Lines" setting. In addition, it ignores Record lines suppressed by the "Suppress Record Lines" setting and any lines whose printing is suppressed with the Band Line Properties "Logical Field" setting.

Report Designer uses the "Break Record Area" setting to determine whether to allow page breaks to occur within Record areas that occupy more than one line.

Note that when printing more than one record across the page, Report Designer controls pagination by using the actual number of Record lines, not taking into account blank line compression or line logical conditions.

## Inserting a Page Break

You can specify where page breaks should occur on your report by inserting a new-page line anywhere on the layout except in a Page Header or Page Footer band.

To insert a page break in your report:

1. Select Insert ⇒ Create Band Line (or press Ctrl+F11) to display the Create Band Line dialog.
2. In the "Line Placement" group box, specify where you want the new-page line to be inserted (Above Current Line, Below Current Line, or in any band except a Page Header/Footer or a swapped Group Header/Footer).
3. Turn on the "New Page Line" setting at the bottom of the dialog; an X appears indicating that the line you are inserting is a new-page line.
4. Select OK.

Report Designer inserts a dashed line in the specified area of the layout, indicating a page break.

When you output your report, Report Designer starts a new page at that line. All lines following the page break line are printed starting on the next page.

You can move, copy, or delete a new-page line just like any other line on the report layout.

Figure 16.10 explains several areas where new-page lines can be inserted to produce page breaks in different places in your report.

| <b>Position of New-Page Line on Report Layout</b> | <b>Resulting Page Break in Report</b> |
|---|---------------------------------------|
| Last line in Title band                           | After title                           |
| Last line in Group Footer band                    | After group                           |
| Last line in Record band                          | After each record                     |
| First line in Summary band                        | Before summary                        |

**Figure 16.10 Location of New-Page Lines**

## **Word-Wrapped Fields**

If your report includes word-wrapped fields in the Title, Record, Group Header, Group Footer, or Summary band, pagination may be affected by the number of lines the data in these fields occupies. You can control the length of a word-wrapped field by using the Width tab on the Properties tabbed dialog to change the width within which the data wraps. See Chapter 4, "Working with Fields," for more information.

## **Line Heights**

Report Designer determines how many lines it can fit on a page by taking into account the height of each band line in the report. For band lines that have been assigned an Automatic height, line heights are calculated automatically based on the largest font on each line. To set a specific height, select Freeform on the Band Line Properties dialog and specify a height in inches or points.

## Widow/Orphan Control

Report Designer has automatic widow/orphan control that prevents a Group Header from appearing at the bottom of a page when there is not enough room for the Record area of at least one record.

In addition, for reports that have the following features, Report Designer prevents a Group Footer from appearing at the top of a page unless it is preceded by the Record area of at least one record:

- A Record band that does not contain any new-page lines.
- A Group Footer band containing at least one field.
- The following Format ⇒ Record Layout settings:
  - Break Record Area = Off
  - Suppress Record Lines = Off
  - Records Across = 1
- "Reset Page," "Swap Header," and "Swap Footer" Group Order settings turned Off for all group fields.

## Chapter 17 Exporting Data

## ***Introduction (Exporting Data)***

This chapter explains how to export report data to a variety of export file formats. There are two separate menu choices for exporting data.

**File->Export** allows you to create the following formats:

### **Multiple Band Export Formats**

Multiple band export formats include information from all band lines in the report.

The available multiple band export formats are:

- Text
- Rich Text RTF

### ***HTML***

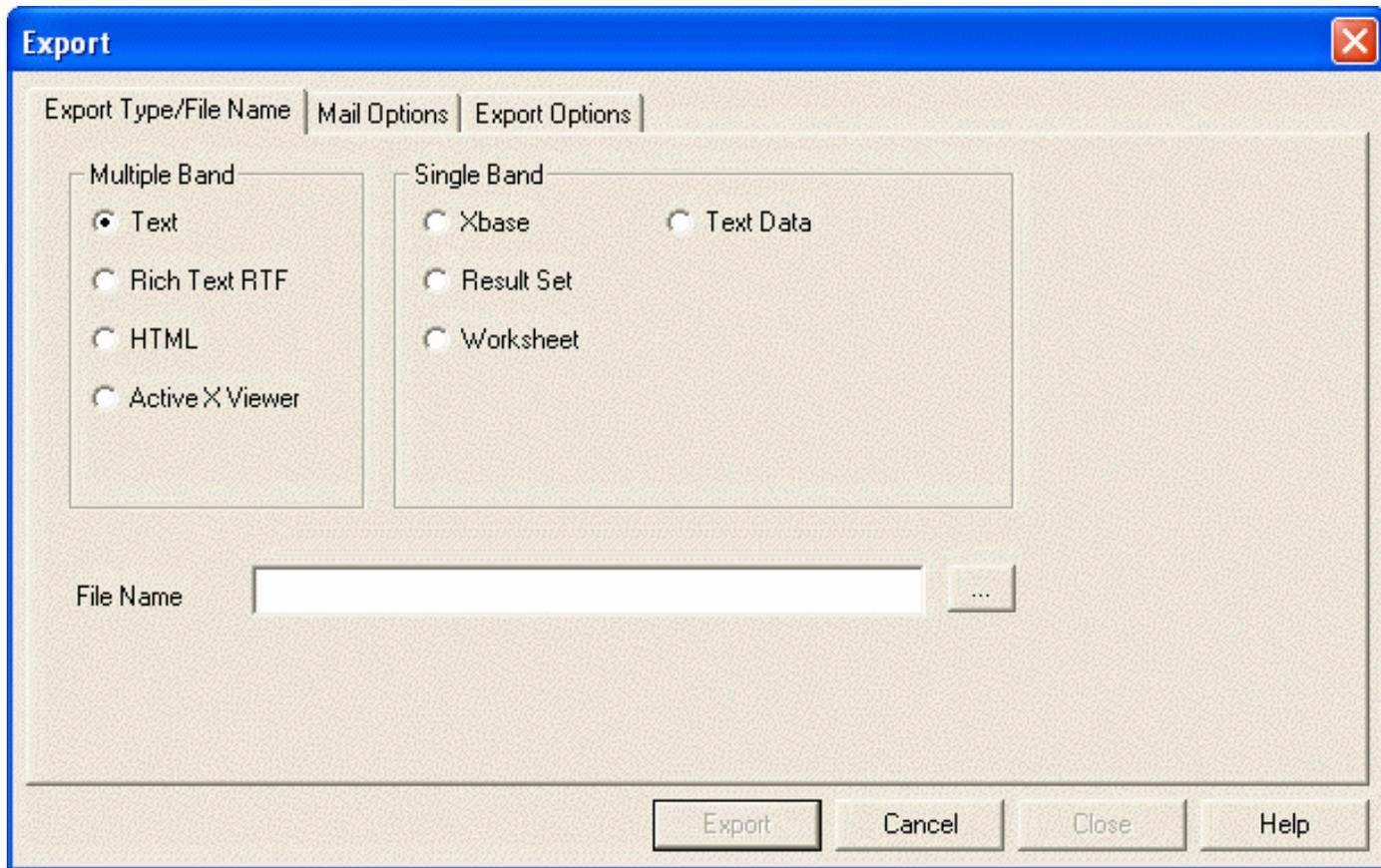
- Active X Viewer

### **Single Band Export Formats**

Single band export formats are columnar style formats where each export line conforms to specific defined format.

The available single band export formats are:

- Xbase (DBF) file
- Xbase Result Set (DBF)
- Worksheet (XLS)
- Text Data (Comma Delimited, Tab Delimited, Character Delimited, SDF Fixed Width)



**Figure 17.1 Export Dialog**

### ***Email Options and Bursting***

If your system has a MAPI (Messaging Applications Programming Interface) compliant mail client installed, then you will additionally be able to directly send the export file to an email recipient. This option is available only if you have MS Outlook or another email application that supports MAPI. When you select the Send via MAPI checkbox on the Mail Options tab, R&R will start up or switch to your email application and attach the exported file to a mail message. The Mail tab allows you to set advanced MAPI properties such as automatically sending a report in the background or bursting sections of a report to different mail recipients.

**File->Export OLE** allows you to create the following formats:

#### **OLE Export Formats**

- Excel Chart
- Excel Pivot Table

Note that in order to export the Excel OLE formats, you must have Excel 5.0 (or later) installed on your system since the report output is sent via OLE (Object Linking and Embedding) to an Excel window so that it can be modified and saved in Excel.

Each of these export formats is explained in more detail below.

## Multiple Band Export Formats

*Exporting to a Text File*

## ***Exporting to a Text File***

Use this option to export report data to an unformatted text file. When you export to a text file, Report Designer exports all the data on every line of the report, including text and memo fields. It does not include any lines/boxes/images/OLE objects.

To create an Text file:

On the File>-Export dialog box, select the Text radio button.

In the File Name box of the Input tab, enter a name for the output text file. You can alternatively use the button to the right of the text box to select a directory or filename.

The **Export Options** tab to allows you to select additional Text Options.

Check the Carriage Returns Once per Band box to insert a hard return after each band area in the report output. If this box is not checked, R&R will to insert a hard return after every line in the report output.

Check the No margins/page breaks box if you want to create a text file with no top or left margin and no blank lines between pages.

Check the Use DOS (PC) Character Set box to enable the DOS (PC) character set in place of the Windows (ANSI) character set.

Click the Export button to create the text file.

*Exporting to a Rich Text Format (RTF) File*

## ***Exporting to a Rich Text Format (RTF) File***

Use this export option to export report data to a Rich Text Format file. Most popular word processing programs can import Rich Text Format files.

To create an RTF file:

On the File>-Export dialog box, select the ActiveX Viewer radio button.

In the File Name box of the Input tab, enter a name for the output file (default extension is PDI). This file will serve as the input for the Viewer control. You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

### **Note the following restrictions and behaviors of RTF:**

- RTF export conforms to the RTF 1.0 standard.
- Lines, boxes, and images are not included in an RTF export.
- Text/data within Freeform lines will be positioned at the bottom of that line.
- For snaked-column reports, data will be exported in a single column; you can then edit the RTF file using a word processor to restore the desired format.
- Swapping of headers and footers is ignored; page and group headers/footers will be output without regard to swapping.
- Page setup settings such as margins and page size are included in an RTF export; therefore, select an appropriate printer before exporting.
- Reports without page footer band lines sometimes do not paginate correctly.

There are no available settings on the Options tab when RTF is selected as the export file type.

*Exporting to HTML*

## ***Procedures for Exporting to HTML***

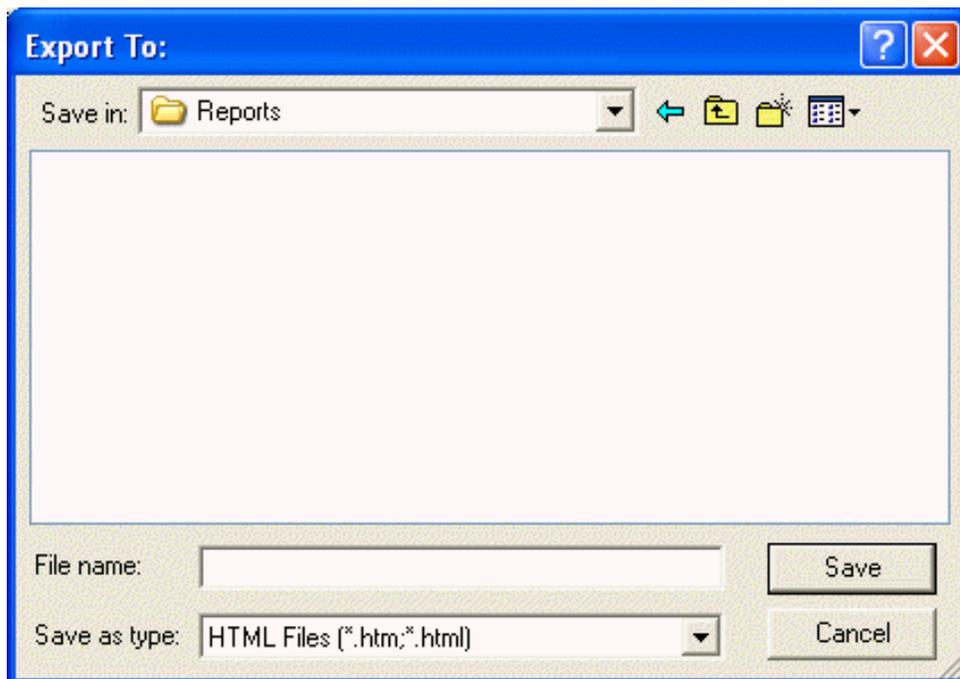
Use this export option to export report data to an HTML file. HTML (Hypertext Markup Language) is the format used for presenting information on the World Wide Web. You can generate files suitable for inclusion on a web page directly from Report Designer.

Note that lines and boxes on the report layout are not included in the HTML output, and that in certain cases there may be some loss of text formatting. R&R uses tables as the primary structure within the output HTML file.

### **HTML File Definition**

---

You can export report data to an HTML file by selecting the HTML radio button on the Export Type/File Name tab and then entering the HTML file name in the File Name box. You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

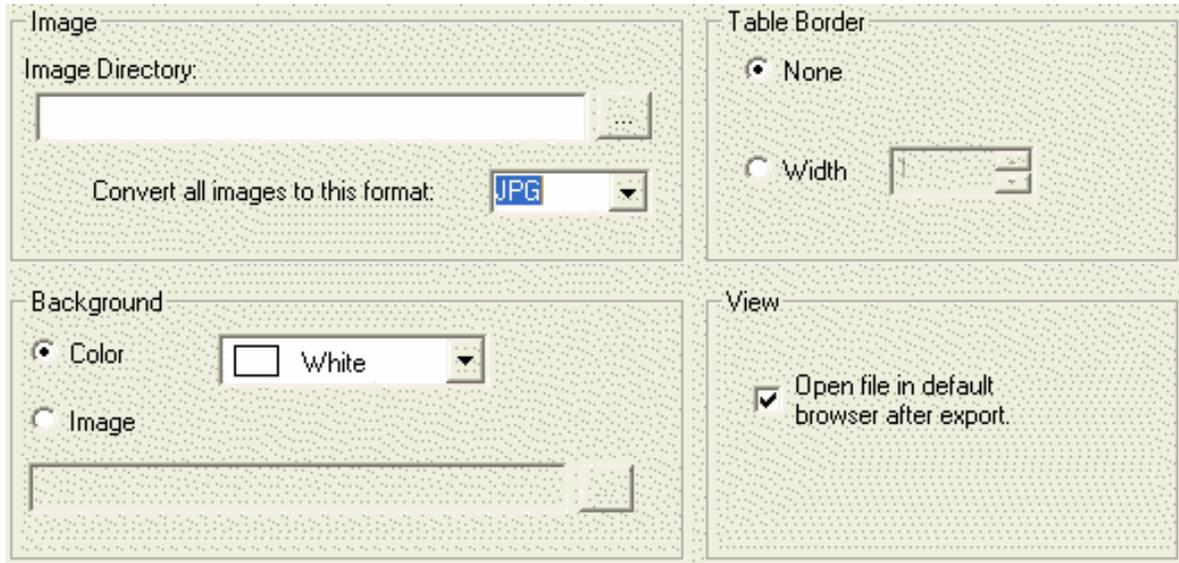


You can then click Export to create the file.

### **HTML Export Options**

---

You also can select the Export Options tab to optionally specify a background color or image and inclusion of a border grid to enclose field values.



**Figure 17.6 HTML Options Dialog**

### Image

Any OLE objects or charts in the original report are converted to image files and saved to the same directory as any images in the report. By default, the image directory is a subdirectory of the HTML file location, and the directory name is the root of the HTML file name. For example, if the report is exported to **c:\work\exportfile.html**, the image directory will be **c:\work\exportfile**. The directory path will appear in the Image Directory box on the Location tab, and the sample below will show what the HTML tag will look like. In this example, an image named **picture.gif** would be referenced as **exportfile\picture.gif** in the HTML.

The Convert all images to this format drop down list allows you to select the format (BMP, GIF, or JPG) to which all images (including charts and OLE objects, which are saved as images) contained in the report will be converted upon export.

### Background

To specify a solid color background for the HTML page, click the Color radio button and select a color from the drop-down list at the right.

To specify an image to serve as the page background, click the Image button and enter the name and directory location of the image file. As an alternative, you can click the ellipsis button at the right to select an image file from a specific folder.

### Table Border

Click the Border tab. To specify that the exported data be enclosed in a border grid on the HTML page, click the Width button and enter or select a border thickness.

### View

Check this box to open the report in your system's default web browser immediately after the file has been exported.

*Exporting to an ActiveX Viewer Control File*

## ***Exporting to an ActiveX Viewer Control File***

When you select this export option, you can create a report file that will be written to a proprietary file format. To view a PDI file, you create an HTML container file. The HTML container includes a pointer to the R&R ActiveX Viewer control (RRPRVIEW.CAB) along with a pointer to the generated PDI. When the HTML file is opened in a web browser that supports ActiveX such as Microsoft Internet Explorer the report is displayed in a viewer window.

Unlike some reports exported to HTML, a report exported using this option will look the same when accessed through the Viewer control as it does when previewed or printed, including lines, boxes, images, and formatting. Note that the Viewer control can be used only with browsers that support ActiveX controls.

The example below shows a PDI file displayed in an HTML container. The report appears in a viewer window that allows you to scroll through the report and send it to the local printer.

Report Viewer Control Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media NewsStand Preferences

Address C:\UserFiles\Reports\PDISample.htm Go Links

Page: 1 of 1

| Date       | DOW | Call        | Onsite      | Complete    | Call Came in AfterHours? | Total Time On Site |         | Overtime OT Time On Site |         |
|------------|-----|-------------|-------------|-------------|--------------------------|--------------------|---------|--------------------------|---------|
|            |     |             |             |             |                          | Hours              | Minutes | Hours                    | Minutes |
| 06/08/1903 | Mon | 8:07:00 am  | 8:30:00 am  | 9:01:00 am  |                          |                    | 31      |                          |         |
| 08/01/1903 | Sat | 10:25:00 am | 11:00:00 am | 11:30:00 am |                          |                    | 30      |                          |         |
| 06/22/1904 | Wed | 1:50:00 pm  | 2:56:00 pm  | 10:00:00 am |                          | 19                 | 4       | 10                       |         |
| 09/03/1904 | Sat | 8:00:00 am  | 8:30:00 am  | 8:50:00 am  |                          |                    | 20      |                          |         |
| 11/10/2004 | Wed | 5:30:00 pm  | 7:00:00 pm  | 8:30:00 pm  |                          | 1                  | 30      | 1                        | 30      |
| 11/10/2004 | Wed | 3:30:00 am  | 4:30:00 am  | 6:30:00 am  | YES                      | 2                  |         | 1                        | 30      |
| 11/10/2004 | Wed | 3:30:00 am  | 4:30:00 am  | 7:00:00 pm  | YES                      | 14                 | 30      | 2                        | 30      |
| 11/11/2004 | Thu | 5:00:00 pm  | 6:00:00 pm  | 4:00:00 am  |                          | 10                 |         | 10                       |         |
| 11/12/2004 | Fri | 4:00:00 pm  | 4:30:00 pm  | 7:30:00 pm  |                          | 3                  |         | 1                        | 30      |
| 11/12/2004 | Fri | 6:00:00 pm  | 6:30:00 pm  | 9:30:00 pm  | YES                      | 3                  |         | 3                        |         |
| 11/12/2004 | Fri | 4:00:00 am  | 4:30:00 am  | 10:00:00 am | YES                      | 5                  | 30      | 1                        | 30      |
| 11/13/2004 | Sat | 2:00:00 pm  | 2:30:00 pm  | 5:00:00 pm  |                          | 2                  | 30      | 2                        |         |
| 11/13/2004 | Sat | 2:30:00 pm  | 3:30:00 pm  | 4:00:00 pm  |                          |                    | 30      |                          | 30      |

Done

And here is the HTML source code for the above page.

```
<HTML><HEAD>
<TITLE>Report Viewer Control Document</TITLE>
</HEAD><BODY>
<OBJECT WIDTH=75% HEIGHT=75%
  CLASSID="CLSID:66960E23-DE25-11CF-876F-444553540000"
  CODEBASE="rrprview.cab#Version=2,0,0,5">
  <PARAM NAME="LanguageID" VALUE="0409">
  <PARAM NAME="ReportURL" VALUE="PDISample.pdi">
<EMBED WIDTH=85% HEIGHT=85%
  CLASSID="CLSID:66960E23-DE25-11CF-876F-444553540000"
  CODEBASE="rrprview.cab#Version=2,0,0,5"
  TYPE="application/oleobject"
  PARAM_ReportURL="PDISample.pdi">
</OBJECT>
</BODY>
</HTML>
```

### ***Procedures for Exporting to a Viewer Control File***

Follow these procedures to export report data to a Viewer control file:

On the Export dialog box, select the ActiveX Viewer radio button.

In the File Name box of the Input tab, enter a name for the output file (default extension is PDI). This file will serve as the input for the Viewer control. You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

This will allow you to create the PDI output file.

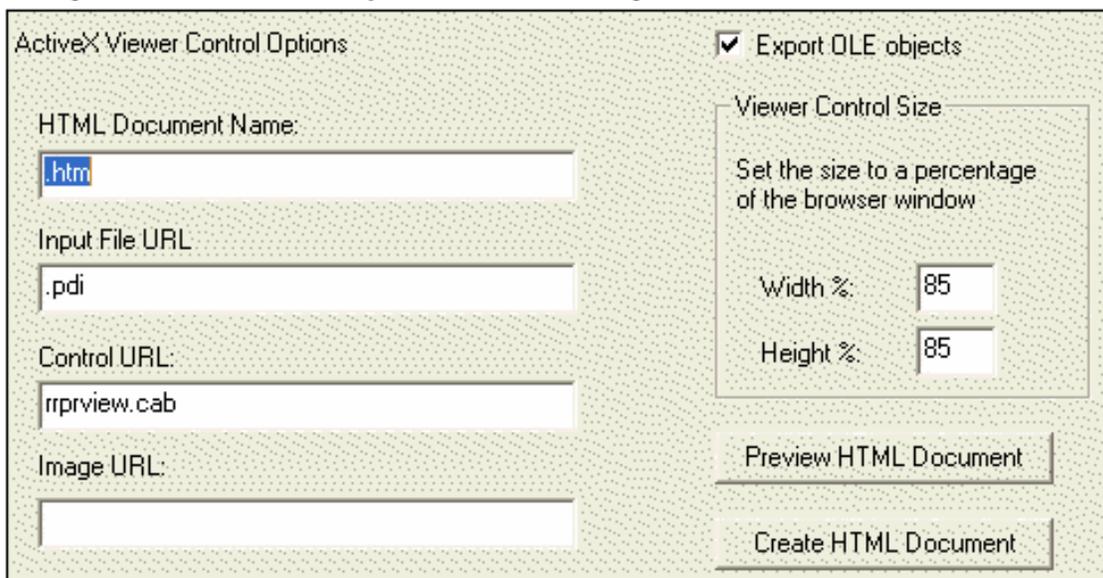
## Embedding the Viewer Control in an HTML File

## Embedding the Viewer Control in an HTML File

In order to make the PDI output file accessible to a browser, you must embed the Viewer control in an HTML file. You can use either of the following methods to create this container HTML file and embed the Viewer control in it:

- Select the Export Options tab to create a basic HTML container file and then edit that file as necessary.
- Create an HTML file from scratch using the syntax explained in this section.

This section provides instructions for using the Export Options to create a basic container file, explains the various elements of the dialog, and illustrates the syntax for embedding the control.



The screenshot shows the 'ActiveX Viewer Control Options' dialog box. It has a light green background with a dotted pattern. On the left side, there are four text input fields: 'HTML Document Name:' containing 'htm', 'Input File URL:' containing '.pdi', 'Control URL:' containing 'rrpreview.cab', and 'Image URL:' which is empty. On the right side, there is a checked checkbox labeled 'Export OLE objects'. Below it is a section titled 'Viewer Control Size' with the instruction 'Set the size to a percentage of the browser window'. This section contains two input fields: 'Width %:' with the value '85' and 'Height %:' with the value '85'. At the bottom right, there are two buttons: 'Preview HTML Document' and 'Create HTML Document'.

**Figure 17.8 Active X Options Tab**

## Using the HTML Export Options Tab

The best way to create the HTML container file for the Viewer control is to enter the necessary information on the Export Options tab (see Figure 17.8), create the document, and edit the resulting file as necessary.

The following steps describe how to create a basic HTML container document using this dialog.

- In the HTML Document Name box, enter a name and, optionally, a path for the HTML container document.
- In the Input File URL box, enter the path and name of the exported report file (the PDI file created using the Report Viewer Control Export dialog).
- In the Control URL box, enter the location of the Viewer control file (RRPRVIEW.CAB) on your Web server, either as a full or relative path (see the **Syntax for HTML Container File** section in this chapter for details about the Control URL entry).
- If the images used by the exported report will not be in the same folder on the web site as the PDI file, enter the location of the image folder in the Image URL box as you would like it to appear in the HTML document.
- If the report contains any embedded OLE objects, the Export OLE objects checkbox will be enabled.
- In the Viewer Control Size box, enter Width and Height settings (as percentages of the browser window) to establish the dimensions of the Viewer control window.
- The Preview HTML button will allow you display a window displaying the HTML content that will be generated.
- When you are finished entering information on the dialog, select the Create HTML Document button to create the HTML container.

## Syntax for the HTML Container File

A file created using the Object Tag dialog contains the necessary HTML tags to embed the Viewer control and to specify the exported report file as input to the control. Here is a sample of the HTML created for such a file:

```
<HTML><HEAD>
<TITLE>Report Viewer Control Document</TITLE>
</HEAD><BODY>
<OBJECT WIDTH=75% HEIGHT=75%
CLASSID="CLSID:66960E23-DE25-11CF-876F-
444553540000"
CODEBASE="rrprview.cab#Version=2,0,0,5">
<PARAM NAME="LanguageID" VALUE="0409">
<PARAM NAME="ReportURL" VALUE="PDISample.pdi">
<EMBED WIDTH=85% HEIGHT=85%
CLASSID="CLSID:66960E23-DE25-11CF-876F-
444553540000"
CODEBASE="rrprview.cab#Version=2,0,0,5"
TYPE="application/oleobject"
PARAM_ReportURL="PDISample.pdi">
</OBJECT>
</BODY>
</HTML>
```

The Viewer control is embedded in the file using the <OBJECT> tag. These are the attributes and parameters that are defined in the <OBJECT> section of the file:

- The WIDTH and HEIGHT attributes set the size of the control window on the HTML page. In the example, the unit of measure is pixels. To set width and height as a percentage of the HTML page instead, enter a value followed by a percent sign (%) in each.
- The CODEBASE attribute identifies the location of the Viewer control. This file is packaged in a "cabinet" file named RRPRVIEW.CAB that is installed in the ActiveX subfolder of your program installation folder. Copy the cabinet file to your Web server and reference that location using the CODEBASE attribute. You can use either a full URL path or one that is relative to the location of the HTML container document. If the cabinet file and the HTML container file are in the same folder, you can reference just the file name (for example, CODEBASE=RRPRVIEW.CAB).
- The Version attribute indicates the software version of the Viewer control. Do not change this attribute; use the version

as it was exported or as it appears in the Preview HTML Document window.

- The ReportURL parameter specifies the exported report file that will serve as input for the Viewer control (the file created using the Input File tab). You can use either a full URL or one that is relative to the HTML container file.

**Single Band Export Formats**

*Exporting to an Xbase File*

## ***Exporting to an Xbase File***

Export to DBF enables you to export a single band line type to an Xbase (\*.DBF) table. Xbase export allows you to create a DBF file that can then be used as the basis of a new report.

To create an Xbase file:

On the File>-Export dialog box, select the Xbase radio button.

In the File Name box of the Input tab, enter a name for the output file.

You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

### **Xbase Options**

---

#### **Export Band**

Choose the radio button that corresponds to the export band line. For headers and footers you will also select a Group field.

#### **Notes:**

Xbase export only includes the computed and data fields that are on the selected band line. It does not include any memo fields. Since a standard Xbase table only supports 10 character field names, R&R may need to truncate the field names. If there are fields on the selected export band line where the first 10 characters of the field name are duplicated, before the Export is performed, R&R will issue a warning dialog that will list the duplicates that will not be exported. You can then alternatively cancel the export, create calculated fields to replace the duplicate fields and then perform the export again.

Xbase export is limited to 255 fields, maximum field name length of 10 characters, and a maximum field size of 254 characters.

Click the Export button to create the Xbase file.

## *Exporting to a Result Set*

## ***Exporting to Result Set (.dbf)***

A result set consists of **all** of the active report fields from composite records that are built internally by Report Designer. The result set export proceeds like the Xbase export function in that it creates a DBF output file, except that all of the fields in use within the report are generated, not just those placed within the layout on a designated band.

To export report data to a Result Set database, do the following:

On the File>-Export dialog box, select the Result Set radio button.

In the File Name box of the Input tab, enter a name for the output file.

You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

### **Result Set Options**

---

#### **Export Band**

Choose the radio button that corresponds to the export band line. For headers and footers you will also select a Group field. For a result set, the values of the exported fields will be derived as if they were actually placed on the export band line even though their actual usage may be in another part of the report.

#### **Note:**

Result set export only includes the computed and data fields that are used in the report. It does not include any memo fields. Since a standard Xbase table only supports 10 character field names, R&R may need to truncate the field names. If there are fields on the selected export band line where the first 10 characters of the field name are duplicated, before the Export is performed, R&R will issue a warning dialog that will list the duplicates that will not be exported. You can then alternatively cancel the export, create calculated fields to replace the duplicate fields and then perform the export again.

Click the Export button to create the Result Set file.

Additional information about exporting to result set is provided in the following sections:

- Using the Result Set Viewer
- The Result Set Database

## ***Using the Result Set Viewer***

When you are working in Report Designer, the layout screen allows you to place and format fields and Print Preview allows you to preview the resulting field output. But sometimes it is useful in the design process to be able to view the all the data elements that contribute to the report in a tabular format.

The result set viewer can assist both novice and experienced users to understand how various reporting functions (sorting, linking, grouping, calculations, etc.) impact the finished report. For example you may be developing a report that contains summary information by department any may want to verify the detail records that are contributing to the totals. Since group totals are shown, as well as all the detailed data on which the report is based, you can observe how each final piece of information within the report is derived. Since you can easily add fields to the result set (by simply placing the desired field on the report layout) this feature provides added flexibility. By providing a viewing utility for all fields in use, consultants, developers and technical support personnel can better troubleshoot reports.

- Viewing the Result Set
- The Result Set Browser Window

## ***The Result Set Database***

The Result Set Browser will only allow you to read records. No changes to the result set data records can be made. The column names for the result set do not include the file alias qualifiers that Report Designer assigns to field names that appear in more than one table used in the report. If there is more than one instance of a field name, the Result Set Browser will contain only the first occurrence of that field name.

For example, if the same field name exists in more than one tables within a report, and both are used, a Duplicate field warning dialog will be displayed and only the first occurrence based on the Result Set Browser engine will be placed in the result set. Also, if the same field is presented in the report more than once, but with different properties (such as different field widths), the first occurrence in band order will take precedence.

Fields appear in the result set in the order they appear on the report, from top-left to bottom-right. The Result Set will also include any fields that are used within the report but not on the layout such as within Sort, Group or Query.

The result set field sizes correspond to the R&R presentation widths, and values in undersized numeric fields will present as "\*\*\*\*", as will invalid data. Dates are presented as MM/DD/YYYY (or alternate DD/MM/YYYY based on your regional setting). Memo fields are not included. The Result Set Browser is limited to 255 fields, maximum field name length of 10 characters, and a maximum field size of 254 characters.

Since the Result Set Browser is an extension of the DBF export function, the default band line that is presented in the Result Set Browser is a record band. If your report does not contain a record band line, the result set browser will display only field names with empty detail lines. To avoid this problem you can add a record band line to the report and then use either the menu choice Format Record

Layout to Suppress Record Band Lines or Click the  button on the Formatting Toolbar so that this band is not actually printed.

## *Exporting to a Worksheet File*

## ***Exporting to a Worksheet File***

Export to DBF enables you to export a single band line type to a Worksheet (\*.XLS) table. You can then use this worksheet in spreadsheet program such as Microsoft Excel.

To create an Worksheet file:

On the File>-Export dialog box, select the Worksheet radio button.

In the File Name box of the Input tab, enter a name for the output file.

You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

### **Worksheet Options**

---

#### **Export Band**

Choose the radio button that corresponds to the export band line. For headers and footers you will also select a Group field.

#### **Note:**

Worksheet export only includes the computed and data fields that are on the selected band line. It does not include any memo fields. The exported worksheet is done as data only and will not include any font/format information from the report.

Click the Export button to create the worksheet file.

*Exporting to a Text Data File*

## ***Exporting to a Text Data File***

Export to Text Data File enables you to export a single band line type to a structured columnar text file using one of several separators or delimiters.

To create a Text Data file:

On the File>-Export dialog box, select the Text Data radio button.

This will enable an additional set of radio buttons where you can select a text data file type.

|                     |   |
|---------------------|---|
| Comma Delimited     | Each field on the line is separated by a single comma                             |
| Tab Delimited       | Each field on the line is separated by a single tab                               |
| Character Delimited | Each field on the line is separated by the character specified in the Options tab |
| SDF Fixed Width     | Data will be exported using the field widths defined in the report                |

In the File Name box of the Input tab, enter a name for the output file.

You can also use the [...] button to bring up an Export To: file dialog box so that you can select the name and location of the Export file.

### **Text Data Export Options**

---

#### **Export Band**

Choose the radio button that corresponds to the export band line. For headers and footers you will also select a Group field.

#### **Text Options**

Check the Add Quote Delimiter box to surround each exported field value in quotes.

Check the Use Field Names on First Line box to include field names as column headings on the first line of the export file.

Check the Use DOS (PC) Character Set" box to use the DOS character set instead of the Windows (ANSI) character set.

If Character Delimited was selected as the export type, enter the character separator that will be placed between each field.

Note that all numeric data is exported in Fixed numeric format and all date/datetime data is exported in Windows International format. To retain either numeric or date/datetime field formats as they are specified in the report, you can include one or both of the following entries in the [Export] section of RRW.INI:

CSVKeepNumFormats=1

CSVKeepDateFormats=1

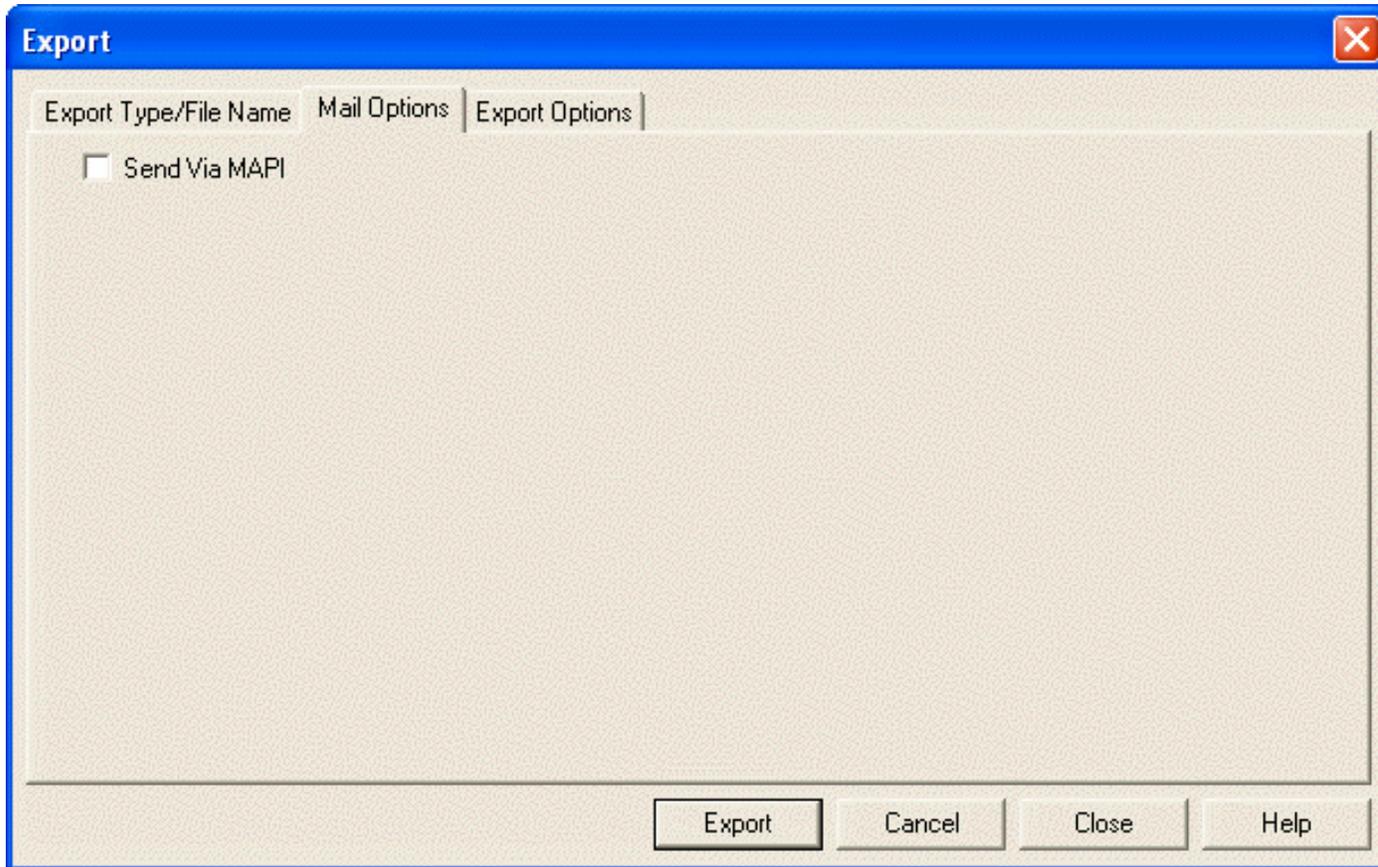
Click the Export button to create the text data file.

**Setting Mail Options**

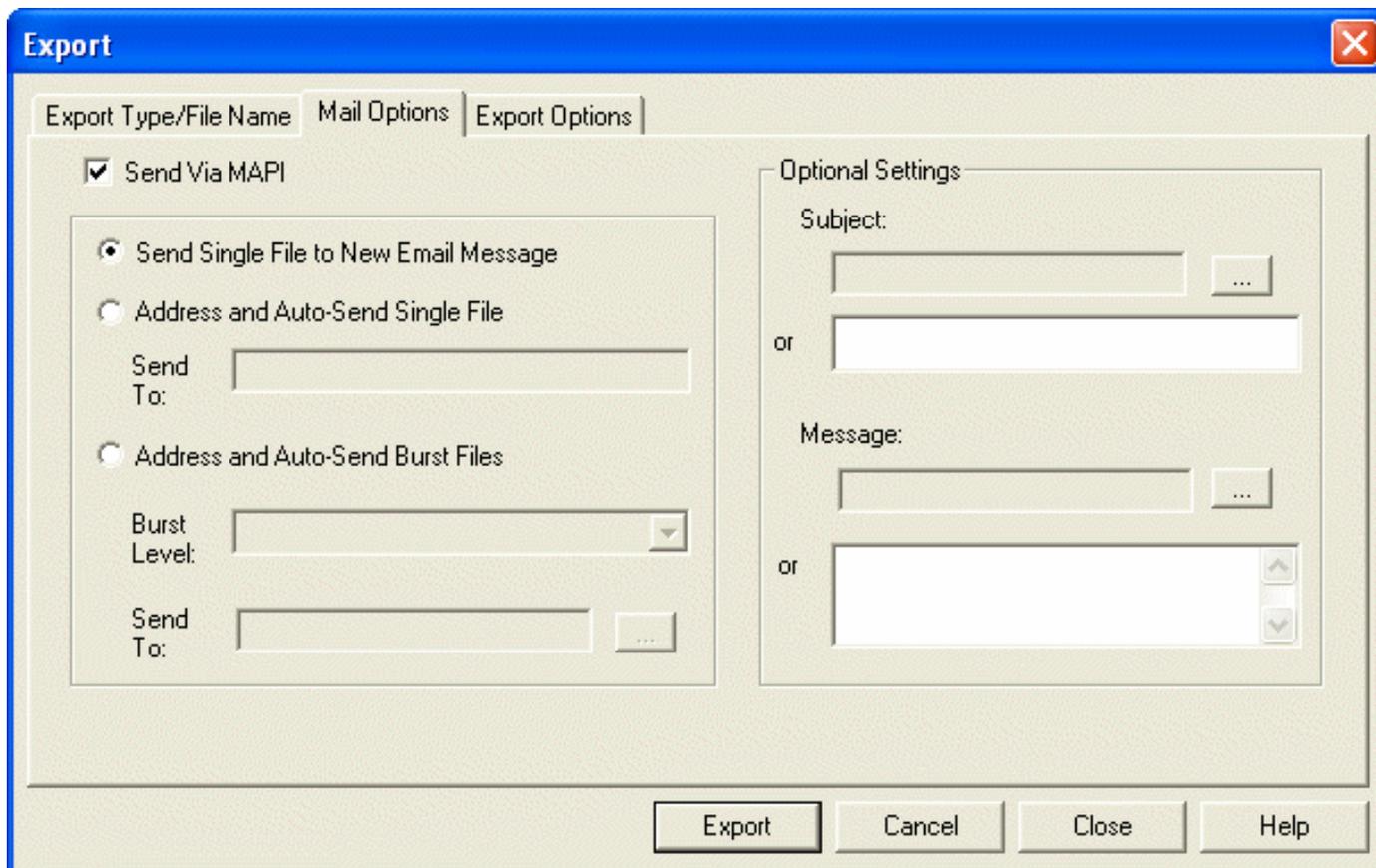
## Setting Mail Options

The Send via MAPI checkbox on the Export Mail Options tab enables you to export HTML, Result set, Text, RTF, Word Merge, Xbase, or worksheet files as mail attachments.

This option is available only if you have MS Mail or another email application that supports MAPI (Messaging Applications Programming Interface). This box will be dimmed if you do not have MAPI available on your machine.



By checking this box the Mail Options dialog expands to provide a number of options that will cause Report Writer to invoke your mail application and attach the exported file to a mail message. Using the choices on this tab you can enable advanced MAPI properties such as automatically sending a report in background or bursting sections of a report to different mail recipients.



When you then select the Export file button, the file is created just as it would be if MAPI were not enabled. But once the file is complete, it is then send to the MAPI package where an email message is created with the export file as an attachment.

### **Email Address/Send Options**

There are 3 available addressing radio buttons.

#### **Send Single File to New Email Message**

Select this option send the entire report to a single email message.

When the file export is complete mail message is created automatically and is sent to your default MAPI client application as a new but un-sent message that includes the exported file.

#### **Address and Auto-Send Single File**

When this option is selected, the entire report is sent to a single email message that is immediately sent to the Outbox of the default MAPI client. The Send To recipient is specified in the Send To: box that is immediately below the Address and Auto Send radio button.

In the Send To : box you can enter a single recipient or can enter a list of email recipients separating each one with a semicolon.

Examples:

[jsmith@xyenterprise.com](mailto:jsmith@xyenterprise.com)

[jsmith@xyenterprise.com;hglennon@xyenterprise.com;lnelson@bnet.co.uk](mailto:jsmith@xyenterprise.com;hglennon@xyenterprise.com;lnelson@bnet.co.uk)

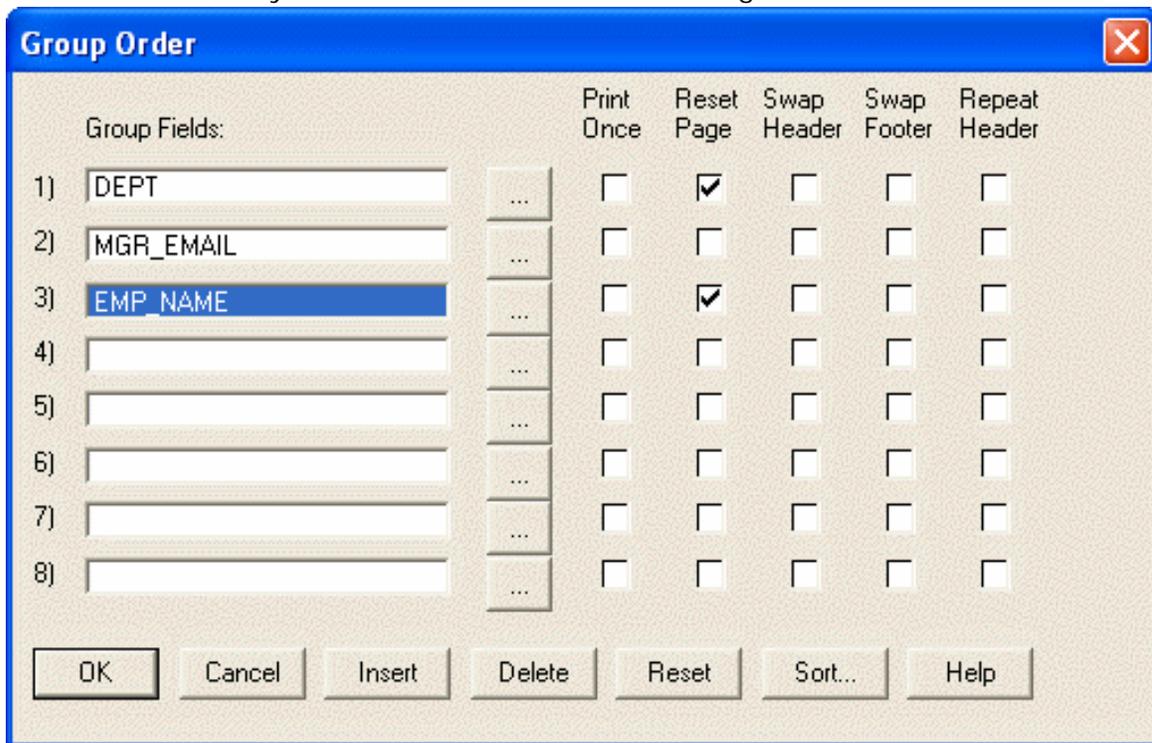
When the Export button is selected from the export dialog, the export file will be created and when complete will be attached to the mail message using the Send to recipient and will immediately sent for delivery without first presenting the mail message to the display.

### Address and Auto-Send Burst Files

The Address and Auto-Send Burst Files radio button will only be available if the report has at least one Group level set with the Reset Page Option checked. (This requirement allows Report Designer to determine the break point for each mail attachment.) Note that these buttons will only appear for if the current selected export format is HTML, RTF and Text.

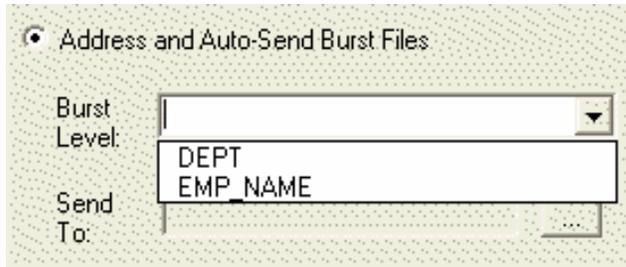
The Burst Level drop down boxes allows you to select the break point for reports that will be sent as multiple mail messages.

The criterion Report Designer uses to determine how to divide a report into sections is to evaluate the Group field option of Reset Page as a bursting flag. The Send Burst Report radio button will only be available if the report has at least one Group level set with the Reset Page Option checked. In the example below there are 3 group fields; however, only two of these fields have Reset Page enabled.



**Figure 17.19 Group Order with Reset Page Enabled**

The Mail Options Burst Level choices then become the two Reset Page Group levels.



**Figure 17.20 Send Burst Report Enabled**

The Send To text box below the burst level allows you select a field that contains a valid email address. The Send To field works in conjunction with the group Burst level. The Burst level determines the break point for creating a new report attachment and email message. The value of the Send To field at that break point will determine the Send to address for that portion of the report. The value of the Send To field will be the value of the field as it would appear in the Group footer for that Group level. The contents of the field selected as the Send To field should be a valid email address or list of email addresses separated by a comma. If an empty field is encountered during export execution, an error message will appear. In a burst report, each section of the report is automatically sent to a specific email recipient. For example, you might run a weekly sales by division report and want to email the figures for each division to the sales manager for that region. Burst reports require two basic elements. The first is to determine how to section the report into separate mail messages. The second is to determine the mail recipient for each of those sections.

When sending a burst report, there are several report elements that will behave differently than if each group report were created separately.

These differences are:

- Any title band will be included only with the first burst file.
- Any summary band information will not be included in a burst report.
- Any group footers at a higher level than the burst level will be ignored.
- Page headers/footers will be included.

When the Export button is selected from the export dialog, the export file will be created for the first burst level and when complete will be attached to the mail message using the Send to recipient and will immediately sent for delivery. This process will then be repeated for each burst field value with the same export file name being re-used but with its contents updated for each burst field value.

When the Export completes, the contents of the export file will be that of the last burst field grouping.

If you are bursting a lengthy report and want to verify the contents of the file attachments, you may want to configure your MAPI software so that contents are held for delivery in the Outbox. This will allow you to view the contents/addresses of the Report Designer mail messages prior to sending them.

**NOTE:** If you make MAPI selections and then close and re-open the Export dialog, the Send via MAPI box will return to the default value of unchecked. However any Mail Options are retained. If you again check the Send via MAPI box and return to the Mail Options screen, your last selections will still be present. These settings will also be retained when you save and re-open the report.

### **Optional Subject and Message Settings**

---

The optional subject and message settings can be used with any of the available Send/Address options.

You can use the [...] field selection buttons to select a character field whose value will be used for the subject and message in the generated email or you can manually enter a subject and message into the available text boxes.

The field selection feature is particularly useful in burst reports since it allows you to create a custom subject and message for each email recipient.

**Exporting to OLE**

*Exporting to an Excel 5.0 Chart*

### ***Exporting to an Excel 5.0 Chart***

Report Designer also employs Object Linking and Embedding (OLE) automation to coordinate with Excel 5.0 in the creation of charts. When you select Excel Chart as the export type and specify the data elements of the chart, Report Designer generates the data and causes a chart to be created in Excel.

## General Procedures

Follow these general procedures to export report data to an Excel 5.0 Chart (details on some of these steps are provided in the next section):

1. On the File->Export OLE menu, select Excel Chart.
2. On the Excel 5.0 Chart Specification dialog (see Figure 17.2), highlight a field in the Fields list that will supply the category (x-axis) values for the chart. Click the right arrow button next to the Categories box to insert this field name there.
3. Highlight a field in the Fields list that will supply the values (y-axis) for the chart. Click the right arrow button next to the Values box to insert this field name there.
4. In the Value Type list box, highlight the total type that you want applied to the field value.
5. By default, "Export Summary Information Only" is selected. To export only summary field data, leave this box checked; to export data for all records, click the check box to remove the check mark.

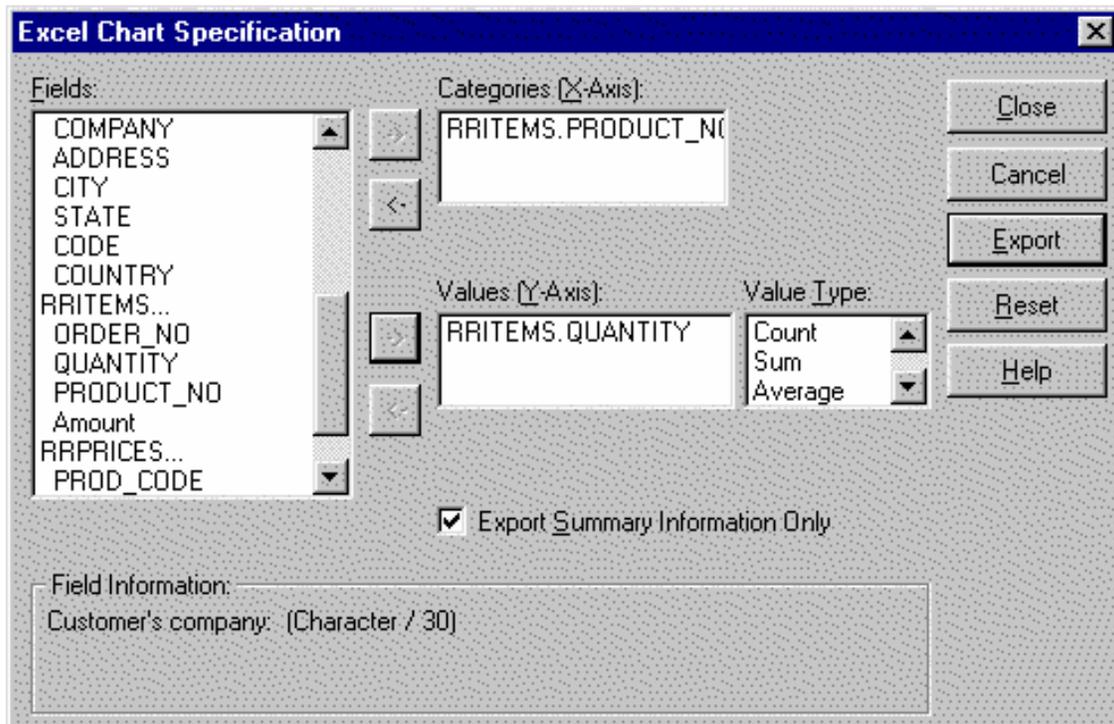


Figure 17.2 Excel 5.0 Chart Specification Dialog

If you export only summary field data, Report Designer performs the necessary totaling and passes only the total data to Excel; this method is efficient but limits how much additional manipulation of the data you can perform in Excel. If you export all field data, Report Designer passes all of the specified record data to Excel and Excel performs the totaling; this method is less efficient but allows greater flexibility in working with the exported data in Excel.

6. Select Export. Report Designer exports the data to a temporary file,

starts Excel (or switches to Excel if it is already running), and creates the chart in Excel.

7. Modify the chart as necessary; then save the Excel workbook file. See your Excel documentation for detailed information about using Excel.

Note that the Excel 5.0 Chart settings are saved with the report, but that any changes you make to the chart in Excel will not be reflected in the report.

## Specifying Data Elements for a Chart

Suppose you want to create a chart that shows the total quantity ordered for each product number. You create a report using the tables RRITEMS and RRORDERS; two of the fields in the report are PRODUCT\_NO and QUANTITY. To create a chart from this data, you would do the following:

1. Select File ⇒ Export and specify "Excel Chart" as the export type. Select Edit.
2. Highlight PRODUCT\_NO in the Fields list. Click the right arrow button next to the Categories box to insert this field name there.
3. Highlight QUANTITY in the Fields list and click the right arrow button next to the Values box to insert this field name there.
4. Highlight Sum in the Value Type box; then select Export.

An Excel worksheet is displayed, with the exported data arranged as a chart (see Figure 17.3). Use Excel to modify, format, and print the chart.

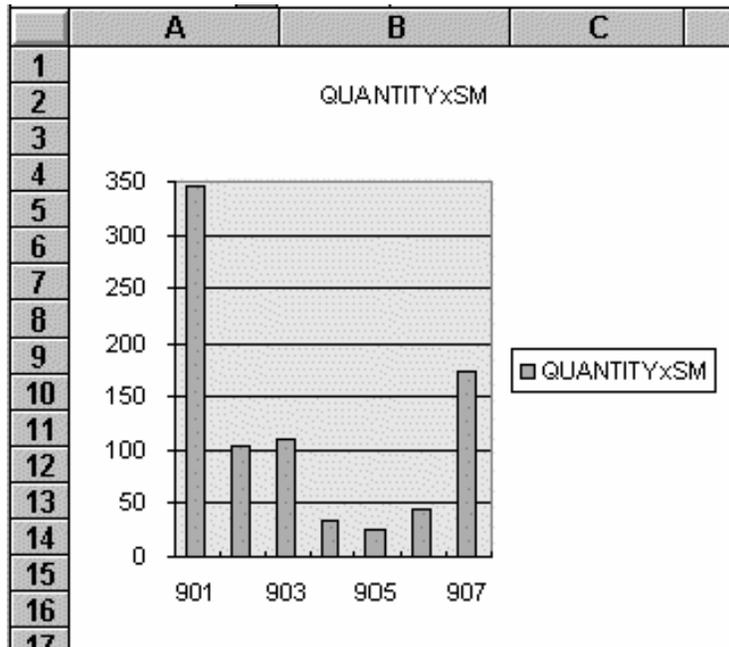


Figure 17.3 Portion of Excel 5.0 Chart after Export

*Exporting to an Excel 5.0 PivotTable*

### ***Exporting to an Excel 5.0 PivotTable***

Report Designer employs Object Linking and Embedding (OLE) automation to coordinate with Excel 5.0 in the creation of crosstab reports. When you select Excel PivotTable as the export type and specify the data elements of the crosstab, Report Designer generates the data and causes a PivotTable to be created in Excel.

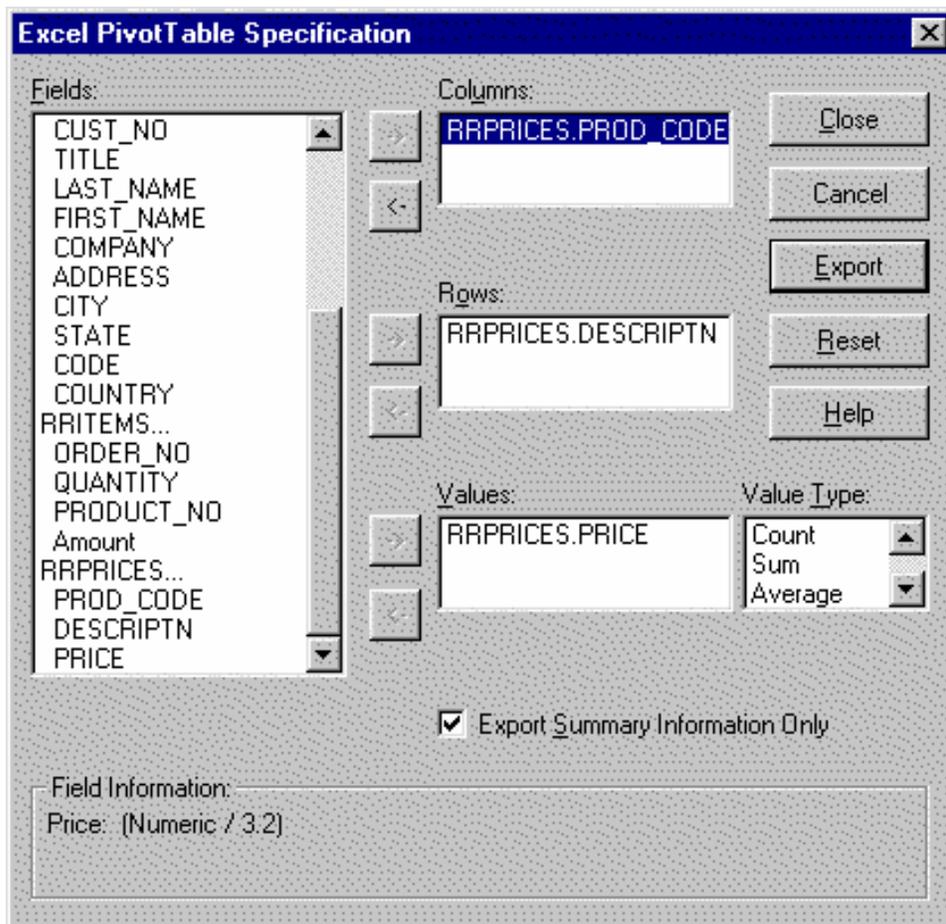
## General Procedures

Follow these general procedures to export report data to an Excel 5.0 PivotTable (details on some steps are provided in the next section):

5. On the Export dialog box, highlight "Excel PivotTable" in the list box and select Edit.

The Excel PivotTable Specification dialog shown in Figure 17.4 displays.

6. Select one or more fields in the Fields list box to be inserted as a Row label, Column label, or table cell value in the crosstab (see the next section of this chapter for information on each of these steps).



**Figure 17.4 Excel PivotTable Specification Dialog**

7. By default, "Export Summary Information Only" is selected. To export only summary field data, leave this box checked; to export all field data, click the check box to remove the check mark.

If you export only summary field data, Report Designer performs the necessary totaling and passes only the total data to Excel; this method is efficient but limits how much additional manipulation of the data you can perform in Excel. If you export all field data, Report Designer passes all of the specified record data to Excel and Excel performs the totaling; this method is less efficient but allows

greater flexibility in working with the exported data in Excel.

8. Select Export. Report Designer exports the data to a temporary file, starts Excel (or switches to Excel if it is already running), and creates the PivotTable in Excel.
9. Modify the PivotTable as necessary; then save the Excel workbook file. See your Excel documentation for detailed information about using Excel.

Note that the Excel 5.0 PivotTable settings are saved with the report, but that any changes you make to the PivotTable in Excel will not be reflected in the report.

## ***Specifying Labels and Cell Data for the Crosstab***

The fields that you select using the buttons next to the Columns and Rows boxes on the PivotTable dialog become the labels for the x axis (Columns) and y axis (Rows) of the resulting crosstab. The combination of the field that you insert in the Values box and the Value Type you specify for that field supplies the values for the crosstab cells.

Take the simple example of a report that draws data from three tables, RRORDERS, RRPRICES, and RRITEMS. Suppose you want to create a crosstab that uses product descriptions as the row labels and order dates as the column labels. Suppose also that you have defined a calculated field call ORDER\_TOT that multiplies quantity times unit price.

Your goal is to create a crosstab that uses product descriptions as the row labels and order dates as the column labels and that inserts the total order amount for each date in the crosstab cells.

After creating a report that provides the necessary field values, you would do the following to create such a crosstab:

1. Select File ⇒ Export and specify "Excel PivotTable" as the export type. Select Edit.
2. On the Excel PivotTable Specification dialog (see Figure 17.4), all fields from the report's composite record structure are shown in the Fields list box. In the Fields list box, highlight the field that you want to supply values for the Column labels (in this case, the DATE field) and click the right arrow button next to the Columns box.
3. In the Fields list box, highlight the field that you want to supply values for the Row labels (in this case, the DESCRPTN field, which contains the product names) and click the right arrow button next to the Rows box.
4. In the Fields list box, highlight the field that you want to serve as the basis for the crosstab cell data (in this case, the ORDER\_TOT field) and click the right arrow button next to the Values box. Then in the Value Type box select the total type that you want applied to the field value (in this case, Sum).
5. Select Export. Report Designer exports the data to a temporary file and launches Excel (or switches to it if it is already running). The OLE Driver dialog displays a series of informational prompts ("Starting PivotTable Module," "Reading in Exported Data," and "Creating PivotTable") as the crosstab is set up in Excel.
6. An Excel worksheet is displayed, with the exported data arranged as a PivotTable (see Figure 17.5). Use Excel to modify, format, and print the crosstab.

|    | H                    | I       | J       | K       | L       | M      | N      | O        |
|----|----------------------|---------|---------|---------|---------|--------|--------|----------|
| 1  | Sum of Order to Ship | DATE    |         |         |         |        |        |          |
| 2  | DESCR FTN            | 2/10/94 | 2/16/94 | 2/22/94 | 3/2/94  | 3/6/94 | 3/8/94 | 3/10/94  |
| 3  | FC Curr              | 1398    | 0       | 1498.5  | 2197.5  | 999    | 999    | 219.75   |
| 4  | FC Database          | 1320    | 0       | 9505    | 3600    | 6705   | 3720   | 1450     |
| 5  | FC Graphics          | 0       | 4500    | 0       | 0       | 1245   | -      | 0        |
| 6  | FC Project Planner   | 0       | 1491    | 2200    | 0       | 0      | 2200   | 0        |
| 7  | FC Publisher         | 0       | 1245    | 0       | 0       | 1245   | -      | 0        |
| 8  | FC Spreadsheet       | 1400    | 1400    | 6705    | 0       | 1400   | 2235   | 0        |
| 9  | FC Word Processor    | 0       | 4980    | 0       | 0       | 1245   | -      | 11205    |
| 10 | Grand Total          | 15408   | 4188    | 21123.5 | 12182.5 | 12929  | 3194   | 12944.75 |

Figure 17.5 Portion of Excel 5.0 PivotTable After Exporting

## Chapter 18 Creating Multiple-Scan Reports

## ***Introduction (Multiple-Scan Reports)***

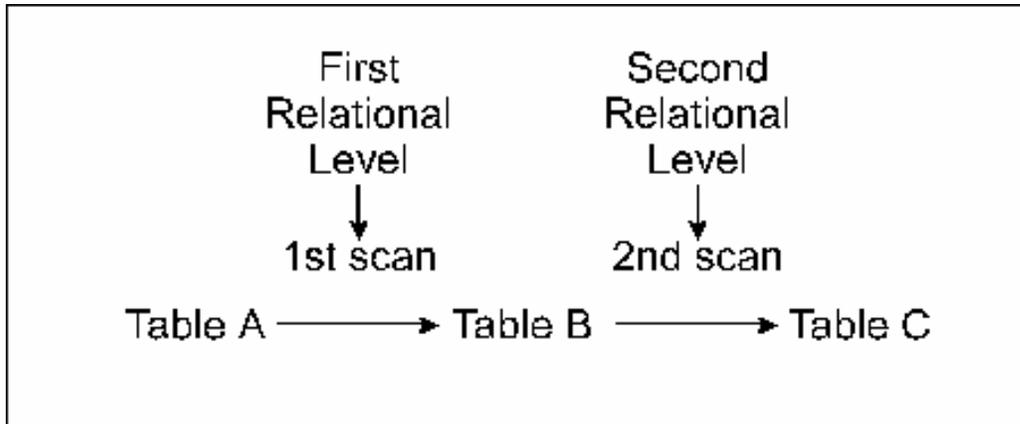
This chapter explains how to create multiple-scan reports, in which two or more tables are scanned by the same controlling table. The explanation of multiple-scan reports is presented in these sections:

- ❑ Conventional v. Multiple-Scan Reports
- ❑ Multiple Scanning and Composite Records
- ❑ Multiple Scanning and Report Layout
- ❑ Tools for Creating Multiple-Scan Reports

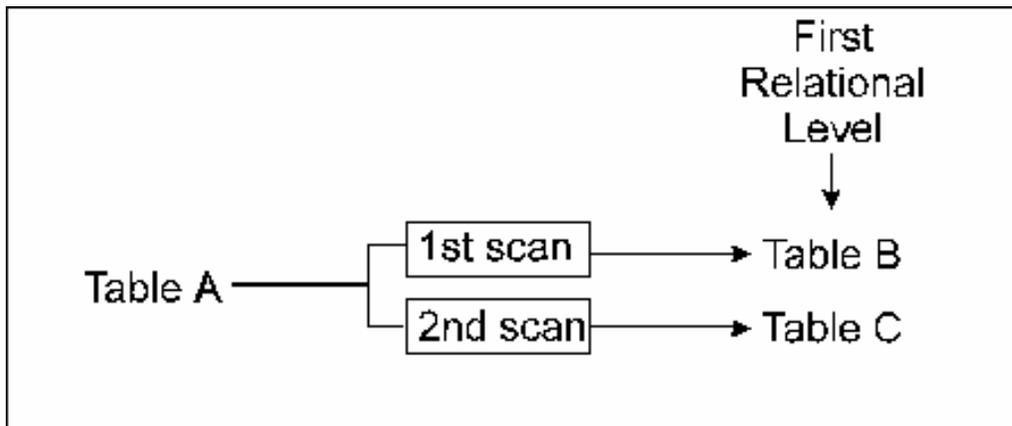
### ***Conventional v. Multiple-Scan Reports***

In a multiple-scan report, the same controlling table is used to scan several other tables in sequence. Unlike conventional reports in which table A scans table B, which then scans table C, multiple-scan reports use table A to scan both tables B and C, one after the other. In other words, more than one scan happens at the same relational level.

Figures 18.1 and 18.2 illustrate the difference between conventional and multiple-scan reports by showing how scans occur at different relational levels.



**Figure 18.1 Conventional Report**



**Figure 18.2 Multiple-Scan Report**

## Multiple Scanning and Composite Records

Creating a multiple-scan report is different from creating a report in which only one table is scanned at a given relational level. Because several tables are being scanned in sequence (that is, at different times), the composite records do not always contain values for all fields.

When table B is being scanned, it (and any other tables it looks up or scans) supplies data to the composite records created during that scan. When table C is being scanned, it supplies data from itself and any other tables it looks up or scans. At any given time, some fields in the composite record do not contain data.

Suppose you have a customer table (RRCUST.DBF) with name and address information; a charges table (RRCHGS.DBF) with customer numbers, order numbers, total invoice amounts, and invoice dates; and a payments table (RRPAYS.DBF) with customer numbers, payment amounts, and payment dates.

To report both charges and payments for each customer, you can use the customer table to scan first the charges and then the payments table. The customer number field in the customer table is used to locate every charge record belonging to that customer in the charges table. Then the same field is used to locate every payment record belonging to the same customer in the payments table.

When the charges (RRCHGS.DBF) table is being scanned, the composite records look like the sample record in Figure 18.3.

```
Fields from RRCUST.DBF  CUSTNO 10001
  COMPANY Micro Supply
  ADDRESS 12 Exchange St.
  CITY Birmingham
  STATE AL
  ZIP 35244

Fields from RRCHGS.DBF  CUSTNO 10001
  ORDERNO 0901
  TOTALAMT 250.55
  CHGDATE 04/10/2002

Fields from RRPAYS.DBF  CUSTNO -----
  PAYDATE -----
  AMT -----
```

**Figure 18.3 Composite Record During First Scan**

When the payments table (RRPAYS.DBF) is being scanned, the composite records look like the sample record in Figure 18.4.

```
Fields from RRCUST.DBF  CUSTNO 10001
  COMPANY Micro Supply
  ADDRESS 12 Exchange St.
  CITY Birmingham
  STATE AL
  ZIP 35244

Fields from RRCHGS.DBF  CUSTNO -----
  ORDERNO -----
  TOTALAMT -----
  CHGDATE -----
```

```
Fields from RRPAYS.DBF  CUSTNO 10001  
PAYDATE 05/10/2002  
AMT 345.55
```

**Figure 18.4 Composite Record During Second Scan**

**Multiple Scanning and Report Layout**

## Multiple Scanning and Report Layout

When you place a field on a report layout, you must consider when data will be available for the field. If the field comes from one of the scanned tables (or a table that is scanned or looked up by these tables), data will be available only when that table is being scanned. At other times the field will not contain data. You can avoid having empty fields on your report in one of two ways:

- ❑ Use the Band Line Properties "Scan Table" setting to specify that a line or lines print only when a selected table is being scanned.
- ❑ Create calculated fields that will always contain data, no matter which table is being scanned.

The first approach enables you to segregate data from the scanned tables. For example, you can design a report in which data gathered by scanning Table B prints with one set of Headers and Footers, while data gathered by scanning Table C prints with different Headers and Footers. The second approach enables you to print data drawn from all the scanned tables in the same area of the report, even on the same line, sharing the same Headers and Footers.

## Using Scan Tables to Print Conditionally

One way to lay out a report that scans both a charges and a payments table for each customer is to use the Band Line Properties "Scan Table" setting. This setting enables you to indicate that some lines should print when the charges table is being scanned, and others should print when the payments table is being scanned. As the sample layout and report in Figures 18.5 and 18.6 illustrate, this approach may require paired Header, Record, and Footer lines. The first member of each pair will print when the charges table is being scanned; the second member will print when the payments table is being scanned. A calculated field called SCAN, whose value changes as the scanned table changes, triggers printing of the second-level Headers and Footers. See the section in this chapter on multiple-scan tools for an explanation of how the SCANNING function can be used in a calculated group field.



Payments

07/01/2002 521.52

09/17/2002 100.00

Total Payments: 621.52

**Figure 18.6 Sample Output with Scan Table Setting**

## Using Calculated Fields to Conditionally Print

A second way to report charges and payments for each customer is to use the SCANNING function to create fields that will always contain data, no matter which table is being scanned. This approach combines payments and charges, sorting them together by date rather than printing them under separate headers on the report.

In the report layout and sample report illustrated in Figures 18.7 and 18.8, a SORTDATE field has been created so that when the charges table is being scanned, the SORTDATE field contains the charge date, and when the payments table is being scanned, the SORTDATE field contains the payment date. The expression for SORTDATE is:

```
IIF(SCANNING(RRCHGS),CHGDATE,PAYDATE)
```



|          |        |
|----------|--------|
| 06/16/02 | 521.52 |
| 07/01/02 | 521.52 |
| 08/15/02 | 155.55 |
| 09/17/02 | 100.00 |

Total Charges: 677.07 Total Payments: 621.52

**Figure 18.8 Sample Report Using Calculated Fields**

In a multiple-scan report, Report Designer creates a separate composite record for each scan. As a result, in the report output the charges and payments values are on separate lines, even though the charges and payments data fields appear on the same Record line in the layout.

## Tools for Creating Multiple-Scan Reports

## Tools for Creating Multiple-Scan Reports

Several features will help you create multiple-scan reports:

- ❑ The Band Line Properties "Scan Table" setting enables you to indicate when lines should print.
- ❑ The Band Line Properties dialog box shows you when each line on the report will print.
- ❑ The Database ⇒ Relations Group command specifies the order in which related tables will be scanned.
- ❑ The SCANNING function allows you to create calculated fields that help you sort and group data.

## **Scan Table Setting**

The Band Line Properties "Scan Table" setting enables you to select a table that controls printing of any line or lines in your report. The Scan Table list box displays the names of the tables that will be scanned to create the report. By selecting a table, you indicate when the lines you select will print (only when that table is being scanned).

## Band Line Properties Dialog Box

Right-clicking in the Band Area opens the Band Line Properties dialog illustrated in Figure 18.9. The "Scan Table" list box displays the alias of the table assigned to the current line. If the Scan Table box displays "(None)," the line will always print (assuming no Logical Field expression has been attached to the line).

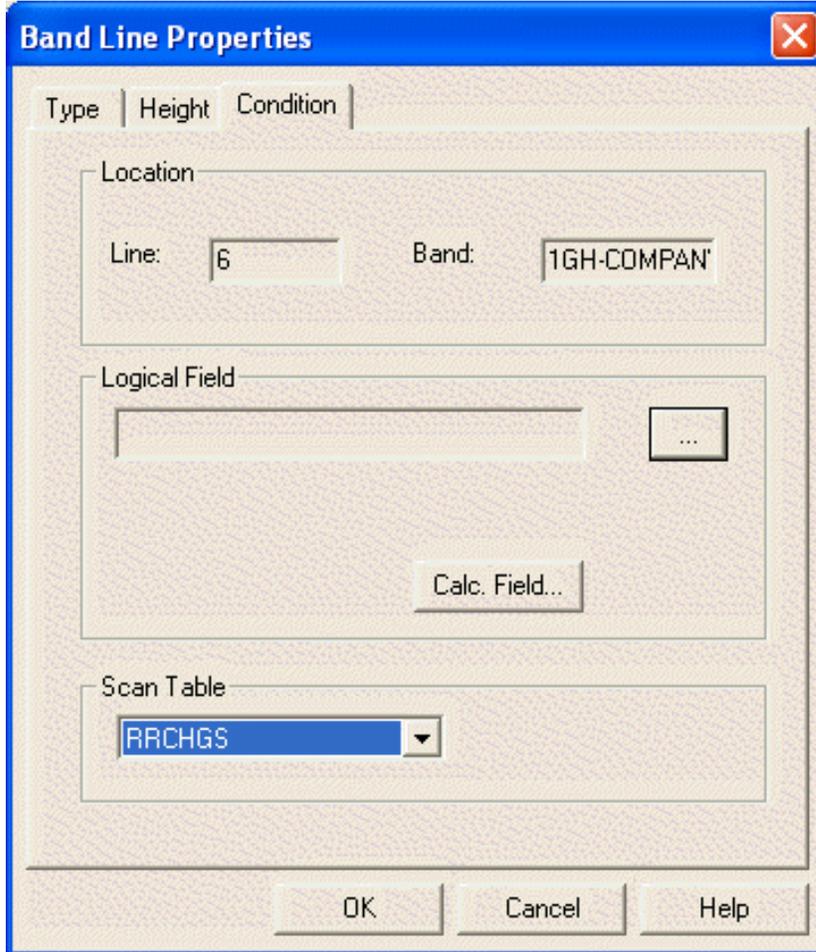


Figure 18.9 Band Line Properties Dialog Box

## Scan Group Dialog

Using the Scan Group dialog box (accessed by selecting the Group button on the Relations dialog), you can specify the order in which related tables will be scanned. Records will appear in this order on the report, unless you have selected sort fields.

Since the scan order determines when data is available, this command can help you order report records without sorting. For example, you can use the Scan Group dialog to change the charges/payments order of the report illustrated in Figure 18.10 without using any sort fields.

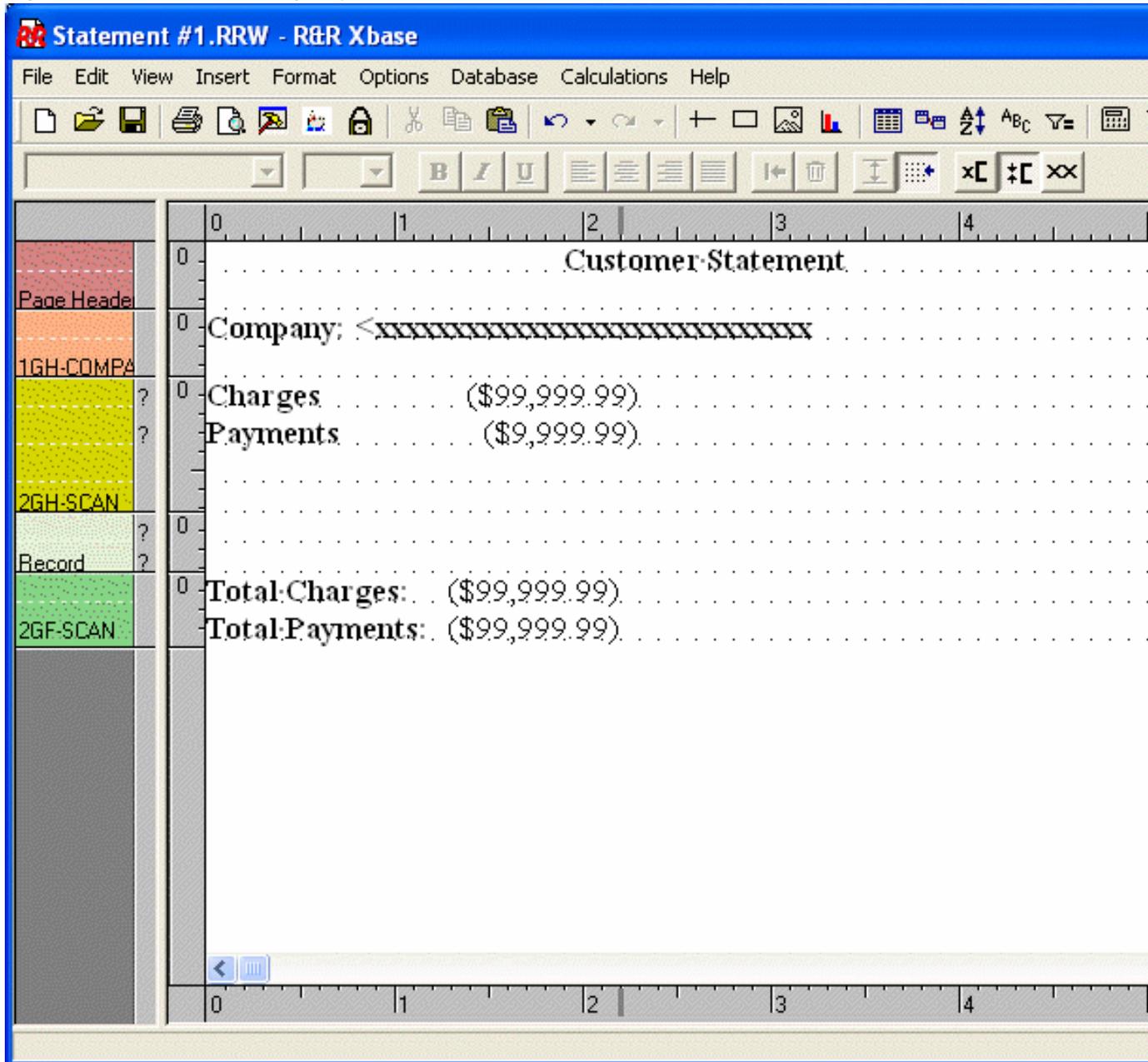


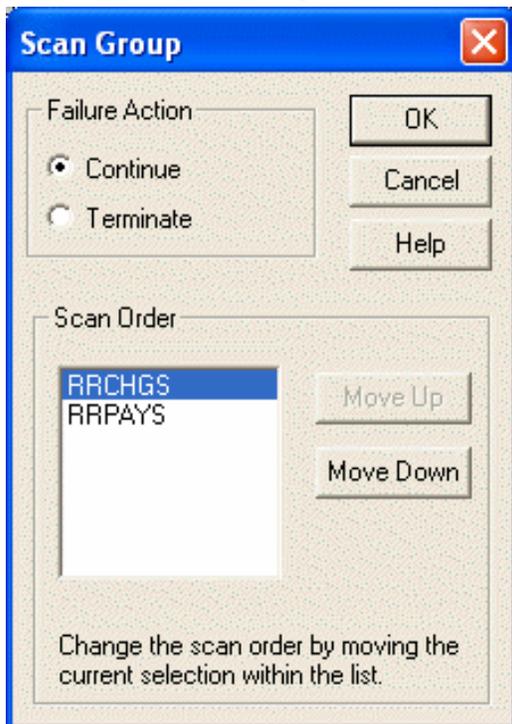
Figure 18.10 Sample Multiple-Scan Report

Assume that for each customer you want a chronological list of charges followed by a chronological list of payments. If the records in both the charges and payments table have been entered in date order, you will be able to order the report by indexing RRCHGS.DBF and RRPAYS.DBF on the CUSTNO field and by using the Scan Group dialog.

In order to set database relations, you must select a linking field to scan the indexes. Since the indexes use CUSTNO as their key expression, the linking field from RRCUST.DBF must also be CUSTNO.

Once this linking field and the two customer number indexes have been established, Report Designer can use RRCUST.DBF to scan both RRCHGS.DBF and RRPAYS.DBF, reading each table by customer number.

In order to print charges before payments, you can select Database ⇒ Relations and then select Group to specify which table is scanned first. If RRCHGS.DBF is scanned first, each customer's charges will print before his or her payments. The charges will be in chronological order, since they have been entered that way in the table. If RRPAYS.DBF is scanned first, each customer's payments will print before his or her charges, also in chronological order.



**Figure 18.11 Scan Group Dialog**

The Scan Group dialog also allows you to select a Failure Action to specify what action should be taken if no records are found in scanning any tables in the group. To generate this report, you would probably select "Continue", since some customers may have neither charges nor payments for the period for which you are generating the report.

## The SCANNING Function and Group Fields

In order to print the appropriate Headers and Footers in the report in Figure 18.10, Report Designer needs two group fields: one group field to control printing of the company name and a second to control printing of the Charges/Payments and Total Charges/Total Payments lines.

You can use CUSTNO or COMPANY as the first group field: every time the value in this field changes, Report Designer will print the first level company Header. To determine when to print the second level Headers and Footers, Report Designer needs a group field whose value changes when the scanned table changes. This field can be created using the SCANNING function.

The SCANNING function, SCANNING(alias), returns a true value when the table with the specified alias is being scanned. In this report, you can use a calculated field with the expression SCANNING(RRPAYS) or SCANNING(RRCHGS) to trigger printing of second-level Headers and Footers. Each time the value in this field changes, in other words each time the scanned table changes, Report Designer prints a Group Header. Body lines are printed until the scanned table changes again, and then a Footer is printed.

In addition to setting up an appropriate group field, you must also use the Band Line Properties "Scan Table" setting to attach print conditions to second-level Header and Footer lines. This setting will cause the charges lines to print when the charges table is being scanned, and the payments lines to print when the payments table is being scanned. Without this setting, Report Designer will print both members of the Group Header and Footer pairs each time the value of the group field changes.

You can also use a field based on the SCANNING function as a group field in reports that scan more than two tables at the same relational level. For example, if you use a customer table to scan three related tables — service charges (RRSCHGS.DBF), material charges (RRMCHGS.DBF), and payments (RRPAYS.DBF) — you will need a group field that combines the SCANNING function with the IIF function. The expression below will return a unique value (0, 1, or 2) for each table being scanned:

```
IIF(SCANNING(RRSCHGS),0,IIF(SCANNING(RRMCHGS),1,2))
```

Grouping on a field with this expression works the same way as grouping on SCANNING(RRPAYS): each time the value in the group field changes, the associated Headers and Footers print.

## The SCANNING Function and Sort Fields

You can use the SCANNING function to sort as well as group reports. For example, charges will print before payments in the report illustrated in Figure 18.10 if the sort field expression is SCANNING(RRPAYS). All the composite records containing 'F' in this field (that is, all the records created by scanning the charges table) will print first, because false values sort before true.

If a report scans more than two tables at the same relational level, data from the different tables can be sorted by using a sort field expression that combines the SCANNING function with the IIF function. The sample IIF expression above can also be used as the expression for a sort field.

## Using SCANNING to "Swap" Data

Finally, the SCANNING function is useful when you want to "swap" the contents of a data field depending on which table is being scanned. To take the example used earlier, suppose you want to sort each customer's charges and payments together by date, printing a date followed by a charge or payment amount. If you want the date to print in the same position on the report, regardless of whether it is a charge or payment date, you must create a calculated field that will return either date, depending on the table being scanned. This field can also be used to sort the report. The expression for such a calculated field would be similar to the following:

```
IIF(SCANNING(RRCHGS),CHGDATE,PAYDATE)
```

When you place this calculated field on the report, it will supply a date value regardless of which table is being scanned.

## Chapter 19 Creating Form Letter Reports

## ***Introduction (Creating Form Letter Reports)***

This chapter explains how to create reports that merge data from your tables into text stored in text files or table memo fields. This merge feature is useful for applications such as "mail merge" form letters. Information on creating form letter reports is presented in the following sections:

- ❑ Introduction to Merging
- ❑ Preparing Text for Merging
- ❑ Attaching Files for Merging
- ❑ Creating Merge Report Layouts
- ❑ Features Affecting Merge Reports

## ***Introduction to Merging***

A merge report is like any other report: you create it by selecting a master table that will provide data such as names and addresses, by defining database relations as necessary to make information from other tables available, and by creating a report layout.

The unique feature of these reports is that in addition to having database fields, they also include memo fields drawn from either text files or table memo files. These memo fields can be straight text or, more commonly, they can be text combined with data drawn from your tables.

The text used in a merge report can come from either or both of the following sources:

- One or more memos stored in an unformatted text file;
- One or more memo fields stored in tables.

In order to provide text for a report, the text stored in either type of file must follow the conventions explained in this chapter. The file must also be associated with the report using either Insert ⇒ Text File (for text memo files) or Database ⇒ Relations (for memo fields in tables other than the master table).

After a text file or memo-field table has been associated with a report, the text it contains becomes one or more memo fields available for use in the report.

The following sections explain how to prepare text for merging, associate text files and memo-field tables with your report, and insert the resulting memo fields on your report layout.

**Preparing Text for Merging**

## **Preparing Text for Merging**

Text included in a report, for example the text that provides the body of a form letter, can be provided either by a single, unformatted text file or by one or more table memo fields. Both methods are explained in the following sections.

## Text Files

A text memo file can contain one or more memos. If your file contains only a single memo to be included in your report, you need not observe any special conventions in entering it. If your file contains more than one memo, you must follow the conventions listed below in order for Report Designer to identify each memo:

- Identify each separate memo in the file by a name up to ten characters long. Precede the name with a period and enter it on a separate line before the text.
- Use the left brace, {, to mark the beginning of each memo and a right brace, }, to mark the end. The left brace must be the first character on the line that follows the memo field name.

For example, the first few lines of the FIRST memo might look like this:

**.first**

**{ This is the text that will be used as the first memo field  
of a form letter. The text can be as long as you like. }**

You can have any number of separate memos of any length in a text file. Be sure to give each memo a unique name.

## **Table Memo Files**

Text included in a report can also be provided by one or more table memo fields. The conventions you observe in entering text in these fields depend on the kind of memo editor you use: that provided by your database software or another memo editor.

## Including Field Data in Text

You can merge data from your tables into your memo text by including field names. You can also include the names of any non-memo calculated or total field. For example, the text for a form letter based on a customer table can include a reference to each customer's state of residence in the body of the letter, as long as the composite record contains a state field. A form letter based on orders, items, and prices tables can include a reference to the total amount of each customer's orders, as long as the amount is a field in your database or a calculated or total field.

To include a field name in text, simply type the field name in the place where you want the data to appear. Enclose the field name within backslashes (e.g., \STATE\) so that Report Designer will be able to tell the field names from the text. If you have more than one field with the same name in the tables used in your report, precede the name of each database field with the table alias (for example, \CUSTOMER->STATE\).

For example, to include the city and state name from a customer table in text that will be used in a form letter report, you might create a memo like the one illustrated in Figure 19.1 (the embedded field references are shown in bold for clarity).

In July, Eastern Computer Supply is offering a series of training seminars for all corporate customers in the **\CITY\**, **\STATE\** area. The seminars will be held at the Hynes Convention Center in Boston on July 15-19. Each session will provide an introduction to one of our PC software products. For more information about the seminars, please fill out and return the enclosed information request form.

**Figure 19.1 Sample Text with Field Names**

When you include this text in your report, the name of each customer's city will replace \CITY\ and the state name will replace \STATE\. By creating a query that selects only those customers who live in or near Boston (STATE in the list ("MA", "CT", "RI", "VT", "NH", "ME")), you can send personalized form letters to those customers who might be able to attend. Figure 19.2 shows the type of letter that will result.

Eastern Computer Supply, Inc.  
04/29/2002  
William Hickock  
18 Cambridge Avenue  
Waltham, MA 01254  
Dear William,  
In July, Eastern Computer Supply is offering a series of training seminars for all corporate customers in the Waltham, MA area. The seminars will be held at the Hynes Convention Center in Boston on July 15-19. Each session will provide an introduction to one of our PC software products. For more information about the seminars, please fill out and return the enclosed information request form.  
Sincerely,

Joseph Wilson  
Training Coordinator

421 Park Avenue Worcester, MA 01615 508-345-6686

**Figure 19.2 Sample Merge Report**

## Formatting Text: Line Endings

Unless you indicate where line endings should occur, Report Designer will word-wrap text within the width of the memo field, determining its own line endings. To preserve line endings, follow these rules:

- ❑ If you are using an Xbase memo editor (for example, the dBASE III or IV editor) to create/edit a table memo field, indicate where you want line endings to occur in your memo text by placing a carriage return at the end of each line. Report Designer maintains these line endings when it formats the memo field.
- ❑ If you use any other word processor/editor to create text files or table memo fields, precede each carriage return with a line ending code, <R> or <r>. The initial return and any that immediately follow cause Report Designer to begin a new line.

For example, the memo field excerpt illustrated in Figure 19.3 produces the form letter excerpt illustrated in Figure 19.4. Notice that the <R> code is not required when a carriage return is immediately followed by another carriage return to indicate a blank line.

You can also indicate where you want line endings followed by blank lines by including *multiple* carriage returns. For example, in Figure 19.3, the series of two carriage returns following the first sentence results in a line ending and a blank line. (Note that Report Designer preserves blank lines in memo fields only when the fields have a word-wrap format. If you apply a format other than word-wrap, Report Designer changes blank lines in memo text into a single space.)

The enclosed software demonstrates the following features of our new word processor:

Support for PostScript printers<R>  
Graphics import capability<R>  
Automatic table of contents generation<R>  
Automatic index generation

We hope that this demonstration disk will encourage you to try PC Word Processor. For more information about this and other software from Eastern Computer Supply, return the enclosed postcard to request our free catalog.

**Figure 19.3 Text with Line Ending Codes**

The enclosed software demonstrates the following features of our new word processor:

Support for PostScript printers  
Graphics import capability  
Automatic table of contents generation  
Automatic index generation

We hope that this demonstration disk will encourage you to try PC Word Processor. For more information about this and other software from Eastern Computer Supply, return the enclosed postcard to request our free catalog.

**Figure 19.4 Text as Printed in Report**

## Formatting Text: Horizontal Spacing

If you want Report Designer to preserve horizontal spacing such as paragraph indentations in your text, use the spacebar or the tab key depending on what kind of word processor or editor you use:

- ❑ Use the spacebar if your word processor or editor represents a tab as the tab character (as does the dBASE IV memo editor). Report Designer treats a tab character as a single space, so that space represented in your memo text as one or more tab characters will not be preserved in your report.
- ❑ Use the tab key if your word processor or text editor represents a tab as a number of spaces (as does the dBASE III memo editor). Report Designer preserves spaces inserted in your memo text when these spaces are at the beginning of a paragraph (as in a paragraph indentation). Spaces that are inserted elsewhere in your text are preserved, unless Report Designer's word-wrap places them against the left margin of your report. In this case, the spaces are eliminated.

*Formatting Text: Fonts and Styles*

### ***Formatting Text: Fonts and Styles***

You can include special codes that apply fonts and/or styles to portions of the text or to data fields included in the text. Any fonts or styles specified in the text itself will override fonts or styles applied to the memo field on the report layout.

Note that Report Designer does not preserve any fonts or styles you have applied in your word processor.

## Fonts Codes in Text

To apply fonts to selected text and/or data fields, follow the rules explained below. You can apply any font available on the currently selected Windows printer.

Applying a font will not affect the style currently in effect.

- ❑ To turn on a selected font, include the font code <F*typeface*> or <f*typeface*> in your text, where *typeface* is the typeface name (for example, Times) of the font you want applied. You can enter the typeface name in upper, lower, or mixed case.
- ❑ To turn off a selected font, specify another font with another font code or use <D> or <d> to return to the font and attribute applied to the memo field on the report layout.

For example, in the text illustrated in Figure 19.5, the <FTimes> code applies the Times font to the entire text.

```
<FTimes>In July, Eastern Computer Supply is offering a series of training seminars for all corporate customers in the \CITY\, \STATE\ area. The seminars will be held at the Hynes Convention Center in Boston on July 15-19. Each session will provide an introduction to one of our PC software products. For more information about the seminars, please fill out and return the enclosed information request form.
```

**Figure 19.5 Embedded Font Codes (1)**

When this memo field is inserted in a report, the text will print in the normal attribute of Times font (if this font is available on the current printer). This font will override any font applied to the memo field on the layout. However, if a style is applied to the memo field on the layout, Report Designer will try to combine that style with the specified font.

In the text illustrated in Figure 19.6, Times has been applied to the entire text, but Helvetica has been applied to the embedded data fields. Note that font codes supersede each other, and that Times must be respecified for the text that follows the embedded data fields.

```
<FTimes>In July, Eastern Computer Supply is offering a series of training seminars for all corporate customers in the <FHelvetica>\CITY\, \STATE\  
<FTimes>area. The seminars will be held at the Hynes Convention Center in Boston on July 15-19. Each session will provide an introduction to one of our PC software products. For more information about the seminars, please fill out and return the enclosed information request form.
```

**Figure 19.6 Embedded Font Codes (2)**

To specify point size, insert a second entry consisting of the letter "p" or "P" followed by a number indicating the point size. For example, to apply 10-point Times, include these codes: <FTimes> <P10>.

The point size code can also be used by itself to change the point size of a previously specified font. For example, including <P14> in your text would change the size of the font currently in effect to 14 point. Point sizes can have up to three integer places and one decimal place.

## ***Style Codes in Text***

To apply styles such as bold, italic, and underscore to words and/or fields in your text, follow these rules:

- ❑ To turn on a selected style, include one of the following style codes in your text:

- <B> or <b> for bold
- <I> or <i> for italic
- <U> or <u> for underscored
- <N> or <n> for normal

You can also combine codes other than N within angle brackets, for example <BI> for bold and italic.

- ❑ To turn off a selected style, specify another style with another style code or use <D> to return to the font and style applied to the memo field on the report layout.

You can apply underscore to words and/or fields that print in any font. You should apply the normal, bold, italic, and bold/italic styles only to text and/or fields that print in fonts for which these styles are available.

In the text illustrated in Figure 19.7, Times has been applied to the entire text, and bold has been applied to the embedded data fields. Note that style codes supersede each other, and that the Normal style must be specified for the text that follows the embedded data fields.

<FTimes>In July, Eastern Computer Supply is offering a series of training seminars for all corporate customers in the <B>\CITY\, \STATE\ <N> area. The seminars will be held at the Hynes Convention Center in Boston on July 15–19. Each session will provide an introduction to one of our PC software products. For more information about the seminars, please fill out and return the enclosed information request form.

**Figure 19.7 Embedded Font and Style Codes**

Applying a style will not affect the font currently in effect.

As long as no other style is applied to the memo field on the report layout, this memo field will print in the normal style of the Times font. However, the embedded data fields will print bold style, assuming this style is available for Times.

Note that you can include style codes without using font codes. In this case, Report Designer will combine the specified style with the font that is applied to the field on the report layout.

### ***Formatting Text: ASCII Characters***

Note that Report Designer ignores all ASCII control characters (such as tabs or form feeds) included in your text except carriage returns.

**Attaching Files for Merging**

## **Attaching Files for Merging**

After you have prepared a text file or table memo field, you are ready to create your form letter report. The first steps are the same as with any report:

- ❑ Select a master table for the report, often the one that will provide names and addresses for the letters.
- ❑ Optionally set database relations that join any other tables that will provide information for the report.

The next step varies depending on the type of memo file you use.

*Using a Text Memo File*

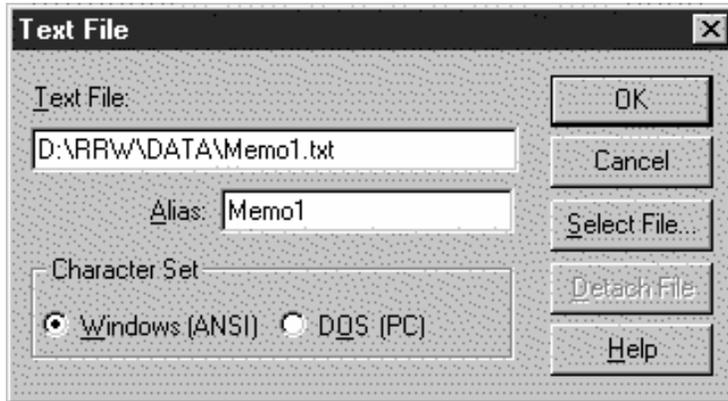
### ***Using a Text Memo File***

If you are storing memos in a text memo file, you must tell Report Designer which file contains the memo(s) that will provide the text of the form letter.

## Attaching a Text Memo File

To select a memo file, do the following:

1. Select Insert ⇒ Text File. On the Text File dialog (see Figure 19.8), either enter the name of the text file or choose Select File and choose from the listed files.



**Figure 19.8** Insert Text File Dialog Box

2. Choose Select File to display the Text File selection dialog.
3. Enter or select the name of a text file that contains one or more memos. Report Designer assigns a default alias to the file; you can retain the default as long as no table used by the current report has the same alias. If the alias conflicts with a table alias, type a different alias in the Alias edit box.
4. Select OK. The path, name, and alias of the text memo file are displayed.
5. If the text file uses extended characters (such as currency symbols or foreign characters), select either Windows (ANSI) or DOS (PC) from the Character Set group box. In general, you should select Windows (ANSI) for text files created with a Windows word processor and select DOS (PC) for text files created with a DOS-based word processor or text editor.
6. Select OK to return to the report layout. The name of each memo in the text file will now appear in the field list (under the name of the master table) when you select Insert ⇒ Field or press Ins.

You can select only one text memo file at a time, so all the memos you want to include in a letter must be in the same file. Within this file, you may have many named memos, one or more of which can be included in your report. See the section in this chapter on preparing memo files for information about including more than one memo in a memo file.

When you save your report, your memo file selection will be saved just like your database relations.

## ***Detaching a Text Memo File***

To detach a text memo file from a report:

1. Select Insert ⇒ Text File to display the Text File dialog. The currently attached text memo file and its alias are displayed.
2. Select Detach. Report Designer displays the names of all fields that will be removed from the report when you detach the memo file.
3. Select OK to detach the file and remove the listed fields or select Cancel to leave the memo file attached and retain the fields.

*Using a Table*

## ***Using a Table***

If you are using memo fields from a table other than the master table, you must use this table in your report by creating a database relation that relates the table containing the memo field(s) to one of the other tables used in the report.

For example, you might generate a variety of form letters to send to customers by relating a table containing memo fields for each paragraph of each letter (MEMO.DBF) to a master customer table containing one record for each customer (CUSTOMER.DBF). If the memo table has no fields in common with the CUSTOMER table, you can define this database relation using a calculated linking field to provide a record number as follows:

1. Create a calculated linking field whose expression results in a number corresponding to the number of the record in MEMO.DBF containing the memo(s) you want to include in the form letter.
2. Set an exact-lookup database relation between the CUSTOMER and the MEMO tables, selecting the calculated field you just created as the linking field and Record Number as the related table Link Control.

Note that the value for the calculated linking field can be a constant if you have stored all your memos as memo fields in a single record.

Note also that you may relate more than one table to provide memo fields for a report.

## ***Memo Fields***

After you have associated a memo file with your report using either of the procedures explained previously, the memos in the files are available as fields to be used in the report. They display in the Field list as follows:

- ❑ Memo fields provided by inserted text files display in the Field list as [*memo name*].  
If your memo file has only one unnamed memo, that memo appears as [*memo file alias*].
- ❑ Memo fields provided by related tables will display in this list as [*table file alias*]->[*memo field name*].

**Creating Merge Report Layouts**



## Memo Field Symbol

Note the line of **m**'s marking the memo field location. These **m**'s represent a memo field that will appear as a paragraph of text.

Since the number of lines that memo fields contain when printed varies, each memo field appears on your screen as a single line of **m**'s. The default format of the memo field (indicated by the **<<** that precedes the **m**'s) is left-justified word-wrap. This format causes all the text in the memo field to word-wrap within the maximum report width, 254 columns (when Ruler Spacing is set to 10). After you insert a memo field, use Format ⇒ Properties to set a width appropriate for your report.

## **Generating Merge Reports**

To generate a merge report such as a series of form letters, simply click on the Print button on the Standard Toolbar or use the Print dialog. Before you print, you can use the Database ⇒ Sort Order and Query dialogs to sort the report and print only selected records, if necessary.

## Features Affecting Merge Reports

## Features Affecting Merge Reports

A number of features have special relevance to merge reports. Although each of these features is discussed at length elsewhere in the manual, this section briefly explains five important features:

- ❑ Word-wrap format and width of memo fields;
- ❑ Field width and format of embedded data fields;
- ❑ Functions that conditionally include memo fields;
- ❑ Options that control printing of blank lines;
- ❑ Page breaks.

## Word-Wrap Format of Memo Fields

When you first insert a memo field in a report, it defaults to left-justified, word-wrap format. While you can change the justification of the field to right or full, you will probably not want to change the word-wrap format. (Only if the field is word-wrapped can you be sure to print all the text from the memo field.) As you insert the memo field on your report layout, you should be aware of the characteristics of this format, which are summarized in the following paragraphs.

- ❑ If you place a word-wrapped memo field in a Page Header/Footer or swap Header/Footer band, Report Designer wraps the text only until it encounters the end of the area, as these areas are fixed in length. Any data that does not fit in the area will not print.
- ❑ If you place a word-wrapped memo field in any band *other than* a Page Header/Footer or swap Header/Footer, Report Designer wraps the text until the entire contents of the memo field have been printed, causing these areas to vary in length.

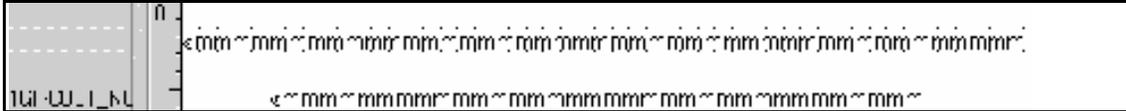
For more information on word-wrapping and justification, see Chapter 4, "Working with Fields." For a definition of swap Headers/Footers, see Chapter 11, "Sorting and Grouping Data."

*Field Width of Memo Fields*

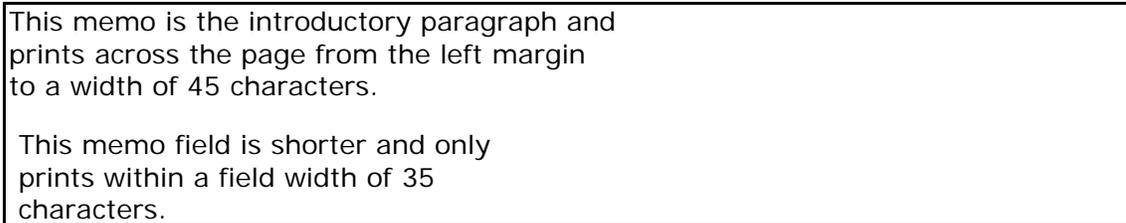
## ***Field Width of Memo Fields***

The width of the memo field determines the horizontal area within which Report Designer wraps the text. The maximum width of a memo field is 254 characters. If you want to indent the memo text on the report, you can use the Width tab on the Properties tabbed dialog to specify memo field width in characters or inches; then move the field into position on the layout. For more information on controlling field width, see Chapter 4, "Working with Fields."

For example, the layout shown in Figure 19.10 produces the report shown in Figure 19.11.



**Figure 19.10 Report Layout with Two Memo Fields**



**Figure 19.11 Report Output with Two Memo Fields**

### ***Field Width and Format of Embedded Data Fields***

Numeric, date, and logical fields embedded in a memo field appear with the same width and format that has been assigned to the fields in the report. To change the field width or format of a numeric, date, or logical field that has been embedded within a memo field but not inserted on the report layout, insert the field anywhere on the report. Use the Width/Format tab on the Properties tabbed dialog (select the field and press F9) to change the field width or format. Then erase the field from the report layout. When the field is merged with the memo field in your report, it will have the width and format you assigned it.

Note that the entire contents of an embedded character field are printed, with leading and trailing spaces removed.

*Conditionally Including Memo Fields*

## ***Conditionally Including Memo Fields***

If your merge report is composed of several memo fields, you can use the IIF or CASE function to conditionally include memo field text. For example, if you want to print the PAYUP memo field only if the addressee balance is past due, you can create a calculated field with the following expression:

```
IIF(PASTDUE,PAYUP,"")
```

This expression means that if the value in the PASTDUE field is true, the PAYUP memo field will be printed. Otherwise, nothing will be printed. The empty quotation marks return an empty memo field without the need for you to have such a field in your memo file. (Note that the quotation marks indicating the empty memo field must be the second return value in the expression.)

Once you have created this field, you can insert it in your form letter where you want the memo text to appear. Customers with a past due balance will receive letters including the text of PAYUP; paid up customers will receive letters without this text.

The CASE function can be used in a similar way to select from a series of memo fields. For example, to print different memo fields depending on the length of time customers' bills are overdue, you might proceed as follows. First, create an OVERDUE field that contains a 0 if the bill is not overdue, 1 if it is between 30 and 60 days overdue, and a 2 if it is more than 60 days overdue.

Create corresponding memos named THIRTY and SIXTY in a text file. Then create a calculated field with the following expression:

```
CASE(OVERDUE,2,SIXTY,1,THIRTY,"")
```

This expression means that if the value in the OVERDUE field is 2, print the SIXTY memo field; if the value in the OVERDUE field is 1, print the THIRTY memo field; if the value is 0 or any other value, print no memo field. Note that the quotation marks indicating the empty memo field must not be the first result in the expression.

Note also that you can use the Band Line Properties dialog to assign a logical condition that will conditionally print lines in any report. See Chapter 3, "Working with Bands," for more information.

## ***Blank Lines***

You can print blank lines in any report simply by inserting them on the report layout. In the Title, Record, Group Header/Footer, or Summary bands, Report Designer always places blank lines where you have inserted them relative to word-wrapped fields. For example, if a layout contains two memo fields separated by a blank line, as shown in Figure 19.10, Report Designer prints all the text in the first field, leaves a blank line, and then prints the second memo field (see Figure 19.11).

You can control the printing of lines in which all fields are empty by using the Compress Record/Group Lines setting in the Format ⇒ Record Layout dialog. Turning this setting Off forces the printing of a Record, Group Header, or Group Footer line in which all fields are empty. The initial setting for this option is On, which suppresses printing of lines in which all fields are empty. If you have used an IIF or CASE expression as explained previously to conditionally exclude memo fields, you should retain the default of On.

## ***Page Breaks***

When printing a merge report such as a series of form letters in which you want to start a new page for each record or group, insert a new-page line as the last line before the Page Footer. For information on inserting new-page lines, see Chapter 3, "Working with Bands."

## Chapter 20 Embedding or Linking Objects

## ***Introduction (Embedding/Linking Objects)***

This chapter explains how to embed or link information, or *objects*, from other applications.

You can embed or link objects from any OLE server-enabled application. When you embed an object, the object becomes a part of the report and is not affected by changes to the source data. When you link an object, the report contains a link to the source; if the source changes, those changes are reflected in the report.

Explanations of object linking and embedding in Report Designer are presented in the following sections:

- Embedding Objects
- Linking Objects

## Embedding Objects

## Embedding Objects

When you embed an object created in another application (such as a graphic, a chart, or a text selection), the object becomes part of the report. You can edit the object "in place" in the report; when you double-click on the object, Windows launches the source application. When you finish editing and return to Report Designer, the changes are reflected in the embedded object. (Note that embedding increases the size of a report, since the object is saved with the report.)

You can embed an object using any of the following methods:

- Select Insert ⇒ Object and either create or select an object;
- In the source application, highlight the information you want to embed and select either Cut or Copy; in Report Designer, select Edit ⇒ Paste Special;
- Drag an object from another application or from the Windows Explorer.

The following sections explain these procedures in detail.

## Embedding an Object Using Insert Object

Follow these steps to embed an object in a report using the Insert Object dialog (see Figure 20.1):

1. Place the edit cursor at the place on the report layout where you want the top left corner of the embedded object to be positioned. Select Insert ⇒ Object.

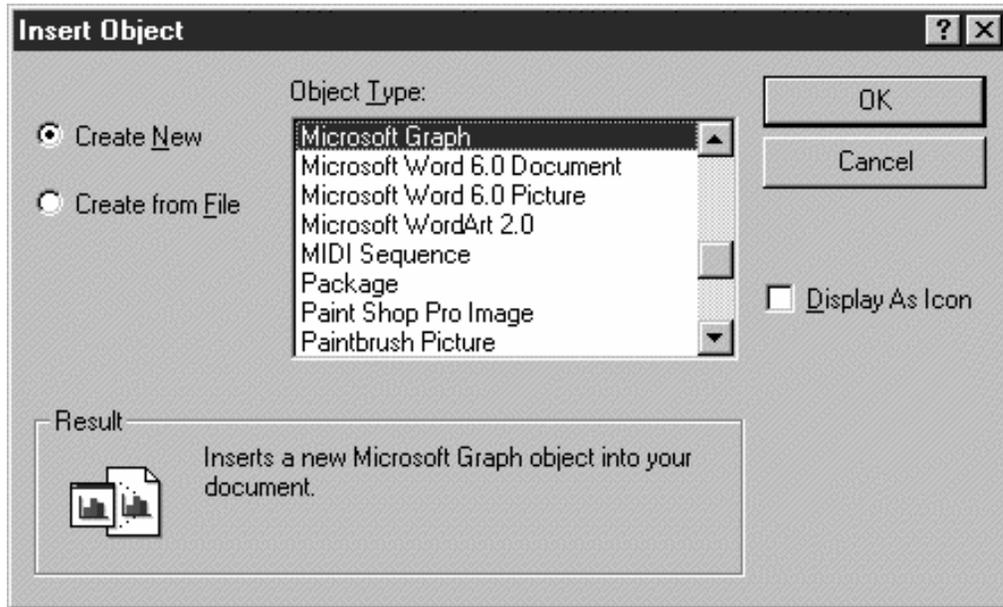


Figure 20.1 Insert Object Dialog

2. By default, the Create New option button is selected, and the OLE-enabled applications available on your system are shown in the Object Type box. You can either create a new object to be embedded or turn on the Create from File option button to embed an existing object.
  - To create a new object to embed in the report, leave the Create New button selected. In the Object Type box, highlight the source application for the object to be created and select OK to launch that application.
  - To embed an existing object, select the Create from File button. Enter the name (and path, if necessary) of the object to be embedded and select OK. You can use the Browse button to search for the file to be embedded.
3. If you created a new object and the source application was launched in a separate window, select File ⇒ Exit in that application to return to Report Designer. If prompted to update the object, select Yes.

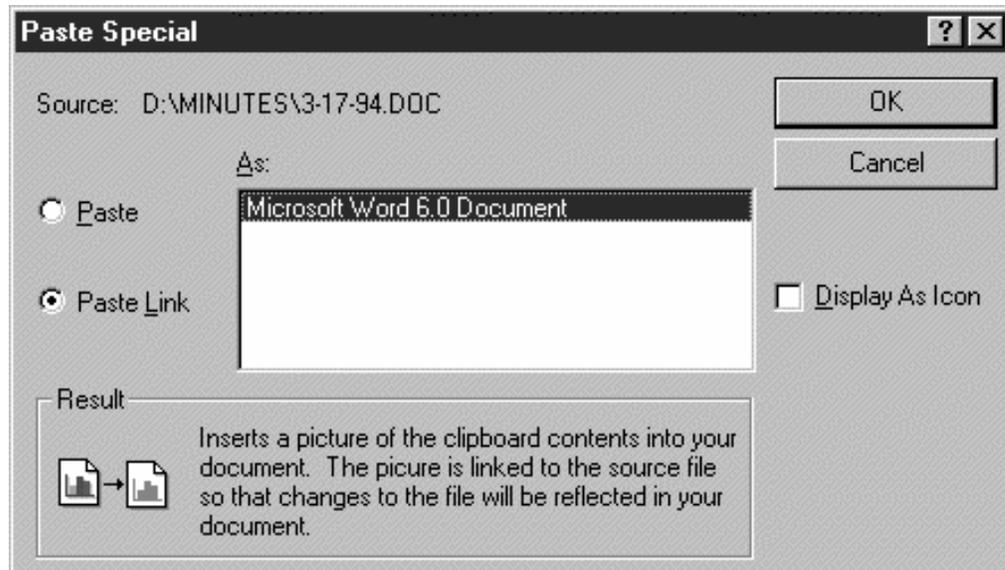
If you created a new object and the source application simply replaced some of Report Designer's menus and toolbars, click anywhere outside the object (or press Esc) to return to Report Designer.

As noted previously, an embedded object does not reflect any changes made in the source application to the file or object; however, you can directly edit the object from within Report Designer (as explained in the **Modifying an Embedded Object** section of this chapter).

## Embedding an Object Using Paste Special

Follow these steps to embed an object in a report using the Paste Special dialog (see Figure 20.2 for an example; actual contents of the dialog will depend on the type of information on the clipboard):

1. In the source application, open the file that contains the information to be embedded. Highlight the portion that you want to embed and select Edit ⇒ Copy.
2. In Report Designer, place the edit cursor where you want to place the embedded object and select Edit ⇒ Paste Special.



**Figure 20.2 Paste Special Dialog**

3. On the Paste Special dialog, make sure the Paste option button is on (the Paste Link option is used to link objects and is available only for applications that are OLE linking servers, such as Microsoft Excel). To embed the object, select OK.

## *Modifying an Embedded Object*

### ***Modifying an Embedded Object***

After you have embedded an object in a report, you can modify the object in place using the source application. You can also re-size the object using the Object Properties dialog.

## ***Modifying the Content of an Embedded Object***

To modify the content of an embedded object, do the following:

1. Double-click the object. Depending on the source application used to create the object, either the application is launched in a separate window or some of the menu and toolbar items in Report Designer are temporarily replaced by those from the source application.
2. Modify the object as necessary.
3. If you are editing the object in a separate window, exit the source application and return to Report Designer; if prompted to update the object, select Yes.

If you are editing the object "in place" on the report layout, click on the layout anywhere outside the embedded object (or press Esc) to return to Report Designer and restore its menus and toolbar items.

Note that you can also edit an object by right-clicking and selecting the object name (for example, "Bitmap Image Object") at the bottom of the menu. If both an Edit and an Open command appear, select Edit to edit the object directly on the layout; select Open to edit the object in the source application window.

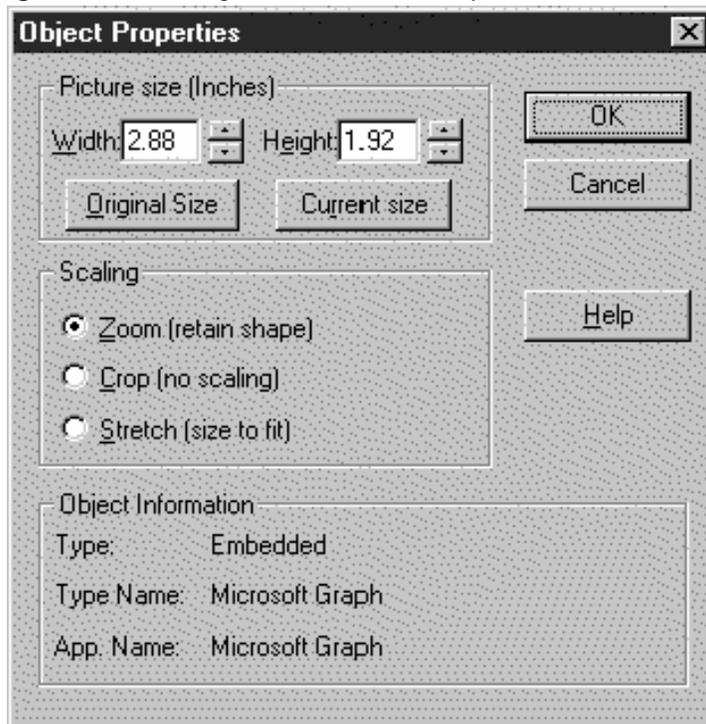
## Changing the Size of an Embedded Object

You can change the size of an embedded object either directly on the layout or with the Object Properties dialog (see Figure 20.3) Note that with the exception of the static text in the Object Information box identifying object type and source application, the Object Properties dialog is the same as the Picture Properties dialog explained in Chapter 13, "Inserting Bitmapped Images."

To change the size of an embedded object directly on the layout, first select it. Then click and drag one of the "handles" at the corners of the object to increase or decrease the object dimensions as necessary.

To change the size of an embedded object using the Object Properties dialog, do the following:

1. Use any of the following methods to open the Object Properties dialog:
  - Select the object and choose Format ⇒ Properties;
  - Select the object and press F9;
  - Right-click the object and select Properties



**Figure 20.3 Object Properties Dialog**

2. Enter or select settings for Width and Height as necessary.
3. Optionally change the scaling setting as explained in the **Selecting a Scaling Setting** section of Chapter 13, "Inserting Bitmapped Images."
4. When you are finished making changes, select OK.

## Linking Objects

## Linking Objects

As noted previously, when you link an object, the report contains a link to the source that is updated when the source changes. You can create a link between Report Designer and any OLE server-enabled application.

The procedures for editing or re-sizing a linked are the same as those for editing or re-sizing an embedded object.

You can use either of the following methods to create a link to an object:

- Select Insert ⇒ Object and select an object;
- In the source application, highlight the information you want to embed and select either Cut or Copy; in Report Designer, select Edit ⇒ Paste Special.

Note that when you use the first method (selecting Insert ⇒ Object), you can create a link only to an entire file; with the second method, you can create links to a selected portion of the source file.

The following sections explain these procedures in detail.

## Creating a Link Using Insert Object

Follow these steps to create a link using the Insert Object dialog (see Figure 20.1):

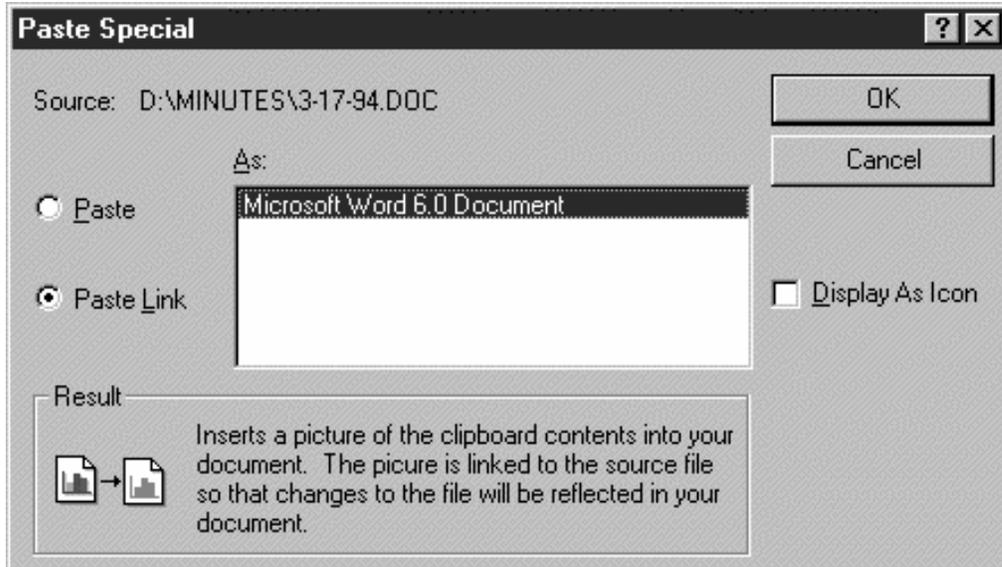
1. Place the edit cursor at the place on the layout where you want the top left corner of the linked object to be positioned. Select Insert ⇒ Object.
2. Turn on the Create from File option button. In the File Name box, enter or select the name of the object to be linked.
3. Click the Link to File check box; then select OK.

By default, the link is created as an Automatic one — that is, the object will automatically be updated if the source changes. You can also choose to update links manually; see the **Updating Links** section of this chapter for information.

## Creating a Link Using Paste Special

Follow these steps to create a link using the Paste Special dialog (see Figure 20.4 for an example; actual contents of the dialog depend on the type of information on the clipboard):

1. In the source application, open the file that contains the information to be linked. Highlight the portion to be linked and select Edit ⇒ Copy.
2. In Report Designer, place the edit cursor where you want to place the linked object and select Edit ⇒ Paste Special.



**Figure 20.4 Paste Special Dialog (Linking)**

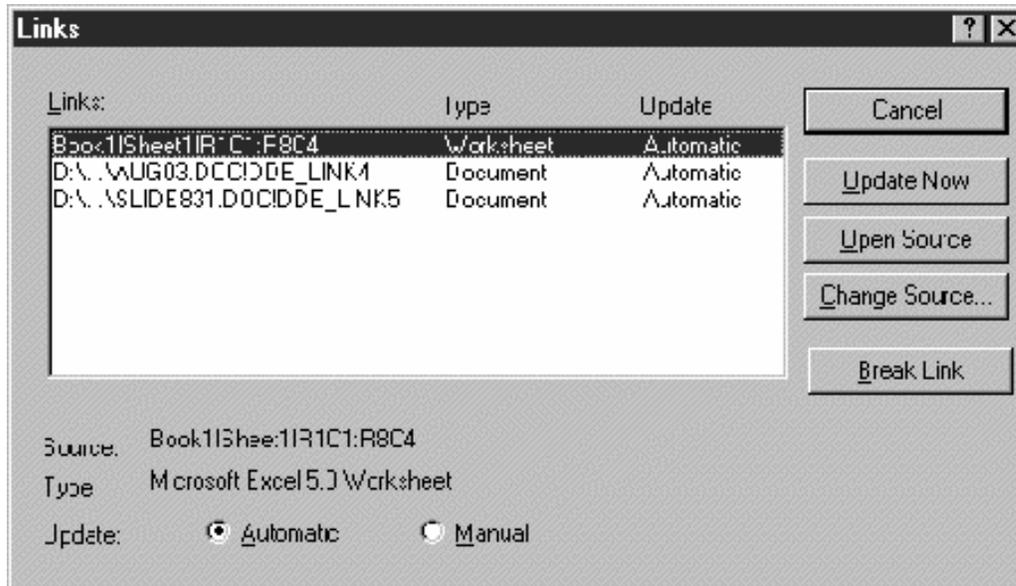
3. On the Paste Special dialog, click the Paste Link button. To create the link, select OK.

## Updating Links

Initially a link is created as Automatic — if a source changes, those changes are automatically reflected when you open the report that contains a link to that source.

Follow these steps to change the update setting to Manual so that the link will be updated only when you specify:

1. Select Edit ⇒ Links. The Links dialog (see Figure 20.5) lists all links to the current report and identifies the object type and update setting for each.



**Figure 20.5 Links Dialog**

2. To change the Update status, highlight one or more links (to highlight multiple links, either click and drag or Ctrl-click on each link). To change an Automatic link to Manual, click the Manual option button.
  - If Update is set to Automatic, changes to the source will be reflected when you open the report;
  - If Update is set to Manual, changes to the source will *not* be reflected in the report unless you select Update Now on the Links Dialog.
3. Select OK.

## INI File Settings

## Introduction

R&R has several available initialization files that can be used to tailor your working environment. This section describes the following list of files. Each one is a plain text file that can be viewed and modified in any text editing program such as Notepad or Wordpad.

- RRW.INI
- RRW.SRT
- RRWFIF.INI
- RRWLINK.INI
- RL.INI

## RRW.INI

RRW.INI is the primary R&R initialization file. When you install R&R, RRW.INI is created in your Windows folder. If you are upgrading a machine that already has an installed INI file, the installer will change the PROGDIR32 setting to point to updated installation directory.

Each time you open the Report Designer, default settings are read from the RRW.INI that impact its behavior. A number of settings can be directly modified by making menu selections in the Report Designer. Other settings (such as the size of the Designer window) are written to the INI based on indirect actions. There are also some settings that can only be made by directly editing RRW.INI with a text editing program. Many settings also have a default value that will be used when a value is not explicitly set.

The structure of RRW.INI is a standard windows initialization with bracket named sections followed by one or more lines of settings.

The following describes the available RRW.INI settings, their default values and the method used to edit them.

| <b>Section/Setting</b> | <b>Purpose</b>                                    | <b>Default Value</b> | <b>Available Values</b> | <b>Source</b>             |
|------------------------|---|----------------------|-------------------------|---------------------------|
| <b>[Defaults]</b>      |   |                      |                         |                           |
| ProgDir32              | Location of designer and runtime executable files |                      |                         | Created by setup          |
| AllowW                 | Allow other users to update tables                | 1                    | 1=Yes<br>0=No           | Options->Default Settings |
| BotM                   | Default Bottom Margin                             | 50                   |                         | Options->Default Settings |
| Color                  | Default Font Color                                | 0                    | 0=Black                 | Options->Default Settings |
| DataDir                | Default data directory                            |                      |                         | Options->File Settings    |
| DefMeas                | Default measurement system                        | 1                    | 1=inches<br>0=metric    | Windows control panel     |
| FaceName               | Default font for inserted fields                  | Arial                |                         | Options->Default Settings |
| ImgDir                 | Default image directory                           |                      |                         | Options->File Settings    |
| IndExt                 | Default index file extension                      |                      |                         | Options->File Settings    |
| LeftM                  | Default Left Margin                               | 50                   |                         | Options->Default Settings |
| LogF                   | Logical False                                     | F                    |                         | Options-                  |

|                  |  |     |  |                               |
|------------------|--|-----|--|-------------------------------|
|                  | string   |     |  | >Default Settings             |
| LogT             | Logical False string                                   | T   |  | Options->Default Settings     |
| LookupDir        | Default parameterRR lookup table directory             |     |  | Options->File Settings        |
| MemExt           | Default text file extension                            |     |  | Options->File Settings        |
| PgLM             | Default Paper Size                                     | 1   | 1=Letter<br>5=Legal<br>7=Executive<br>9=A4<br>256=Custom | Options->Default Settings     |
| Pts              | Default font size                                      | 120 |  | Options->Default Settings     |
| RightM           | Right Margin   | 50  |  | Options->Default Settings     |
| RulPit           | Horizontal Ruler Pitch                                 | 10  |  | Options->Default Settings     |
| SnapTo           | Snap to Grid   | 1   | 1=Yes<br>0=No  | Options->Default Settings     |
| TemplateLib      | Default Template Directory                             |     |  | Options->File Settings        |
| TopM             | Top Margin   | 50  |  | Options->Default Settings     |
| VRulPit          | Vertical Ruler Pitch                                   | 10  |  | Options->Default Settings     |
| CharFldWidthSize | Size of character field width field in DBF header info | 1   | 1<br>2   | Manual edit to change default |
| IgnoreU          | Show file contains unknown file type error             | 0   | 0=Show error<br>1=Ignore                                 | Manual edit to change default |
| Librarian        | Report Librarian                                       | ON  | ON=Use<br>OFF=Disable                                    | Manual edit to change default |
| PDFDriver        | PDF Printer Driver                                     | ON  | ON=Use<br>OFF=Disable                                    | Manual edit to change default |

|                          |  |          |   |                               |
|--------------------------|--|----------|---|-------------------------------|
| Printer                  | Use named printer instead of reading saved printer when opening a report |          | Can be set to DEFAULT or an available printer name  | Manual edit to change default |
| FloatCompTolerance       | Used to specify method for comparing floating-point values.              | 3        | Acceptable values are in range -10 to -30 and greater than 1. Values more negative than about -16 are equivalent.                               | Manual edit to change default |
| SoftenDBFields           | Used to parse index keys   | 1        | 1=turn space dots into spaces<br>0=make no conversion   | Manual edit to change default |
| NoRecHDR                 | Controls no records found behavior                                       | 1        | 1 or absent= Runtime honors no records found band line<br>0=Runtime prints all title/Summary bands when no records are found (Pre-V11 behavior) | Manual edit to change default |
| PromptForFlexLinkRebuild | Prompt for rebuild of an existing Flexlink index                         | N        | N or absent= prompt dialog will not appear in the Report Designer.  | Manual edit to change default |
| FLTimeOut                | Time to wait for user to respond to Flexlink prompt                      | nSeconds | When the prompt for rebuild dialog appears, it will by default wait 10 seconds for the user to respond. If there is no                          | Manual edit to change default |

|                   |  |                              |  |   |
|-------------------|--|------------------------------|--|---|
|                   |  |                              | response, the default is to rebuild the indexes (as if the user had clicked the "Yes" button.) You can set a value in FLTimeOut to change the default wait period to a different number of seconds. To disable the timeout and force a response, you can change the nSeconds value to 0. |   |
| FLPromptThreshold | Index size below which the flexlink prompt will not appear | nbytes                       | For small indexes, it is faster to simply rebuild the indexes without providing the prompting dialog. Setting a FLPromptThreshold value allows you to control the index size below which the prompt dialog will not appear. If not explicitly set, the default value is 10 MBytes.       | Manual edit to change default                 |
| <b>[Export]</b>   |  |                              |  |   |
| Export1           | Add Excel PivotTable as Export choice                      | Excel PivotTable, RRXTAB.DLL |  | Set by SETUP when Excel is present on machine |
| Export2           | Add Excel Chart as Export                                  | Excel Chart, RRXCHART.DLL    |  | Set by SETUP when Excel is                    |

|  |  |   |  |  |
|--|--|---|--|--|
|  | choice   |   |  | present on machine   |
| <b>[Frame]</b>                                   |  |   |  |  |
| Left   | Left edge of window                            |   |  | Size and placement of Report Designer is saved in INI and re-used when report is re-opened |
| Top  | Top edge of window                             |   |  |  |
| Right  | Right edge of window                           |   |  |  |
| Bottom   | Bottom edge of window                          |   |  |  |
| Show   | Show state of the window                       |   |  |  |
| <b>[MRU_Files]</b>                               |  |   |  |  |
| MaxMRUFiles                                      | Max number of recently used files in File menu | 4 | Value between 4 and 9  | Manual edit to change default  |
| MRU_File1<br>MRU_File2<br>MRU_File3<br>MRU_File4 | Most recently used filename                    |   |  | List internally updated as reports are opened  |
| <b>[Preferences]</b>                             |  |   |  |  |
| FieldLists                                       | Display format for field names                 | 0 | 0=Field Names<br>1=Dictionary<br>2=Both  | Options->Preferences   |
| FileNew  | Format for new reports                         | 0 | 0=Display Dialog<br>1=Wizard<br>2=Instant Report<br>3=Blank Report<br>4=Template | Options->Preferences   |
| BandClr  | Display Colored Bands in Preview               | 1 | 1=Yes<br>0=No  | Options->Preferences   |
| BandClr1   | Display Colored Totals/Groups                  | 1 | 1=Yes<br>0=No  | Options->Preferences   |
| MemoEd   | Default Memo Editor                            | 1 | 1=Xbase<br>0=Other   | Options->Preferences   |
| ScrBarHz   | Display Horizontal Scroll Bar                  | 1 | 1=Yes<br>0=No  | Options->Preferences   |
| ScrBarVt   | Display Vertical Bar                           | 1 | 1=Yes<br>0=No  | Options->Preferences   |
| SortFieldNames                                   | Sort Field Names                               | 0 | 1=Yes<br>0=No  | Options->Preferences   |

|                    |   |    |  |  |
|--------------------|---|----|--|--|
| PrevWinClr         | Use Windows window color for preview page       | 1  | 1=Yes<br>0=No                            | Manual edit to change default                            |
| ShowSplash         | Show splash screen in runtime                   | 1  | 1=Yes<br>0=No                            | Manual edit to change default                            |
| <b>[Save List]</b> |   |    |  |  |
| ActionBar          | View Standard toolbar                           | 1  | 1=Yes<br>0=No                            | View->Toolbar  |
| Band Width         | Width of Band type column                       | 80 |  | Any re-size is saved and read when designer is re-opened |
| CloseInsDlg        | Close dialog after inserting field              | 0  | 1=Yes<br>0=No                            | Insert->Field  |
| FormatBar          | Display formatting toolbar                      | 1  | 1=Yes<br>0=No                            | View->Toolbar  |
| FieldNames         | Display field names or XXX/999 format templates | 0  | 1=Field names<br>0=format template       | View->Field Names  |
| IVER               | Internal version                                |    |  | Do not change  |
| PasteArgs          | Paste function arguments for calculations       | 1  | 1=Yes<br>0=No                            | Calculations->Calculated field                           |
| ShGrd              | Display Grid                                    | 1  | 1=Yes<br>0=No                            | View->Grid   |
| ShHzRul            | Display Horizontal Ruler                        | 1  | 1=Yes<br>0=No                            | View->Horizontal Ruler                                   |
| ShVtRul            | Display Vertical Ruler                          | 1  |  | View->Vertical Ruler                                     |
| ToolHelp           | Show tool tips                                  | 1  | 1=Yes<br>0=No                            | View->Toolbar  |
| Library32          | Default filename for File->Open                 |    |  | File->Open   |
| Report32           | Default report name for File->Open              |    |  | File->Open   |
| <b>[Special]</b>   |   |    |  |  |
| DbfXGray           | Allow DBF export                                |    | 1=remove Xbase from list of export types | Manual edit to change default                            |
| TxtXGray           | Allow TXT export                                |    | 1=remove Text from list of               | Manual edit to change default                            |

|                           |   |           |   |                               |
|---------------------------|---|-----------|---|-------------------------------|
|                           |   |           | export types  |                               |
| WksXGray                  | Allow XLS export                                  |           | 1=remove Worksheet from list of export types                        | Manual edit to change default |
| SaveWizScript             | Save wizard script files                          |           | 1= do NOT delete Wizard temporary input/output files                | Manual edit to change default |
| WizardEXE                 | Name of wizard executable                         | RRWIZ.EXE | Pathname to Wizard program file                                     | Manual edit to change default |
| WizardRecordLimit         | Number of records for wizard preview              | 20        | Override row limit in Wizard preview                                | Manual edit to change default |
| SortPoolSize              | Sort buffer size                                  | 600000    | Size in bytes of a buffer used in sort code                         | Manual edit to change default |
| CommentsOnlyAtStartofLine | Control use of ; character within the INI         | 1         | 1 = ";" preceded by non-whitespace not considered comment delimiter | Manual edit to change default |
| RRWHANDLES                | Used to increase number of available file handles | 55        |   | Manual edit to change default |
| <b>[User Info]</b>        |   |           |   |                               |
| Company                   |   |           |   | Company name (set by SETUP)   |
| UserName                  |   |           |   | User name (set by SETUP)      |
| <b>[Database]</b>         |   |           |   |                               |
| LongCharLimit             | Layout width max for char fields                  | 80        | Limit fixed length character fields to this width                   | Manual edit to change default |
| LongCharWrap              | Wrap any truncated char fields                    | 0         | 1= use wordwrap format for fixed length fields so truncated         | Manual edit to change default |
| MemoLimit                 | Layout width for memo fields                      | 30        | Set memo fields to this width.                                      | Manual edit to change default |

|                       |  |   |  |                               |
|-----------------------|--|---|--|-------------------------------|
| MemoWrap              | Wrap memo fields   | 1 | 1 = use wordwrap format for variable length long character fields.<br>0 = do not | Manual edit to change default |
| BlankThruDBFieldsOnly | Rule to create composite records with blank failure action | 1 | 1 = propagate blank failure action only through database fields<br>0 = do not    | Manual edit to change default |

## RRW.SRT

By default, Report Designer does not distinguish between upper- and lower-case letters when sorting or comparing character data in Database  $\Rightarrow$  Sort Order and Group Order operations, queries, and calculations (that is, these operations are *case insensitive*).

To change this default behavior for sorting and comparing character data, use any text editor to edit RRW.SRT, the file that controls Report Designer's case sensitivity. This file resides in the Report Designer program directory. Directions for editing the file are contained within the file itself.

Note that database relations are not affected by the case sensitivity setting in RRW.SRT. Database relations that use character linking fields are *always* case sensitive.

The most common need to edit RRW.SRT is to correct any problems with the display of accented characters. If you find that accented characters are not being correctly displayed, edit RRW.SRT and enable the line:

```
DBCHARS=ANSI
```

By removing the semi-colon at the start of the line.

## RRWFIF.INI

The file RRWFIF.INI controls font translation when a DOS RP1 report is opened or converted to an RRW report. RRWFIF.INI is installed in the R&R program directory. Within the file there is a section for each named FIF file that was shipped with R&R DOS Version 6. There is also a section name [None] for reports having no font files.

Here is an excerpt from RRWFIF.INI:

```
[None]
10=Courier-LD,Courier New,Courier
12=Courier-LD,Courier New,LinePrinter,Courier
Compressed=Courier-LD,LinePrinter,Courier New,Courier
CompPitch=17

[RRHP_II]
1=Courier,Courier New,12.0
2=Line Printer,LinePrinter,LINEPTR,8.5
```

If a report has no font file attached and was saved with 10 pitch, we will try to use in turn the fonts Courier-LD,Courier New,Courier when the report is opened directly or when it is converted to an RRW file. If none are found we will use the default font.

If the font file RRHP\_II was used, any fonts that used font1 will be mapped to the 1= list and so on.

You can edit this file to change the selected fonts and will need to add a section if you had created your own FIF files in the DOS version.

## RRWLINK.INI

RRWLINK.INI is a text file that tells the Report Designer where to find the program license file RRW.LIC and any user function files (RR.UDF/SYSRR.UDF).

To use the ReportWorks report designer (RRW.EXE) you need to have an available report designer license. Licenses are stored in the file RRW.LIC. When you run RRW.EXE, the program opens the license file, verifies the serial number and then updates the RRW.LIC to show that the serial number is currently in use. When you exit the designer, the license file is again updated to release the license.

The license manager program RRWUSERS.EXE allows you to view the status of the license file and allows you to add and remove serial numbers.

When you install ReportWorks, you select the license model that you wish to use. If you select Local, your RRW.LIC is placed in the ReportWorks program folder. If you select Shared, then the license file will reside in a separate shared folder. The RRWLINK.INI then points to the shared license folder location. RRWLINK.INI resides in the same folder as the RRW.EXE executable.

RRWLINK.INI has only one section name and one parameter each with the name RRWLINK.

```
[RRWLINK]
```

```
RRWLINK=<link folder location>
```

Example:

To use I:\sharedRR as the location of your license and user defined functions your RRWLINK.INI would contain:

```
[RRWLINK]
```

```
RRWLINK=I:\sharedRR
```

## **RL.INI**

RL.INI is an optional configuration file that is used to locate Report Librarian and Data Dictionary data files.

When ReportWorks is installed, the default location for the data files that are used by the Report Librarian and Data Dictionary is the RL subfolder within the ReportWorks installation folder.

Should you wish to relocate or share Librarian and Dictionary data files, you can create an RL.INI text file in the RL folder.

RL.INI supports one section and one parameter each with the name RLDATA

```
[RLDATA]
```

```
RLDATA=<path to the RL data files>
```

Example:

To use I:\sharedRRDictionary as the location of librarian and dictionary files your RL.INI would contain:

```
[RLDATA]
```

```
RLDATA=I:\sharedRRDictionary
```

You would then need to copy all files with the extensions:

```
.DBF  
.CDX  
.FPT  
.RRW
```

from your \RL folder to your RLDATA folder.

The Report Librarian (RL.EXE) and Data Dictionary Editor (DATADICT.EXE) will then reference the data files that are in the RLDATA folder.

Additionally, if you have enabled the display of dictionary descriptions with the Report Designer (Options->Preferences->Field Lists Show Dictionary Descriptions) the Designer will use the RLDATA setting with RL.INI to locate those dictionary descriptions in the file DICTFLD.DBF.

**Reference Information**

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## Data Types Supported by R&R

The following data types are supported in R&R for Xbase:

- Autoincrement (Visual FoxPro)
- Character (non-binary)
- Currency (Visual FoxPro)
- Date
- Datetime (Visual FoxPro)
- Double (Visual FoxPro)
- Float
- Integer (Visual FoxPro)
- Logical
- Memo (non-binary)
- Numeric

The following data types are **not** supported:

- Binary
- Character (binary)
- General (Visual FoxPro)
- Memo (binary)
- Picture

Visual FoxPro tables and indexes that include field marked as nullable are supported in Version 12.1.

R&R also supports the following dBase7.5/2000 data types:

- Character Logical Double
- Date Memo Autoincrement
- Numeric Long

Note that dBase 7.5/2000 tables cannot be used with Flexlink indexing in the current release.

If you try to report on tables containing fields with unsupported data types, you will get the following error:

Table contains unknown field type

**In order to create reports on tables containing fields with unsupported data types, insert the following entry in the [Defaults] section of the RRW.INI file:**

**IgnoreU=1**

With this setting, R&R ignores the unsupported fields.

## **Glossary of Terms**

Alias  
Accumulation frequency  
Approximate lookup  
Band line  
Calculated field  
Composite record structure  
Composite record  
Controlling table  
Data Dictionary  
Data files  
Data type  
Database field  
Database relation  
Database  
Exact lookup  
Expression  
Export  
Failure action  
Field  
Flexlink Index  
Footer  
Freeform Line  
Function  
Group field  
Group footer  
Group header  
Header  
Index files  
Instant Report  
Library file  
Linking field  
Lookup  
Master index  
Master table  
Memo files  
Multiple Scan  
New Page Line  
Open Scripting  
Operator  
Page Footer  
Page Header  
Parameter field  
Partial Relation

Pre-processed total  
Query  
Rapid Runner  
Record number  
Record  
Result set  
Related table  
Report Librarian  
Report Specifications  
Report Wizard  
Ruler spacing  
Runtime  
Runtime Shortcut  
Scan relation  
Scope  
Sort field  
Snap to grid  
Summary  
Swap header/footer  
Table  
Template  
Text memo file  
Title  
Total field  
Trim  
User-defined function

**R&R ReportWorks Utility Programs**

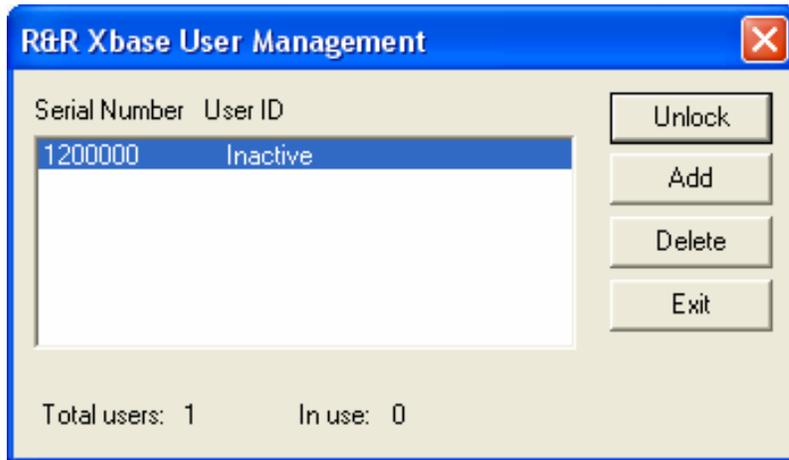
## License Management

## ***R&R Xbase User Management***

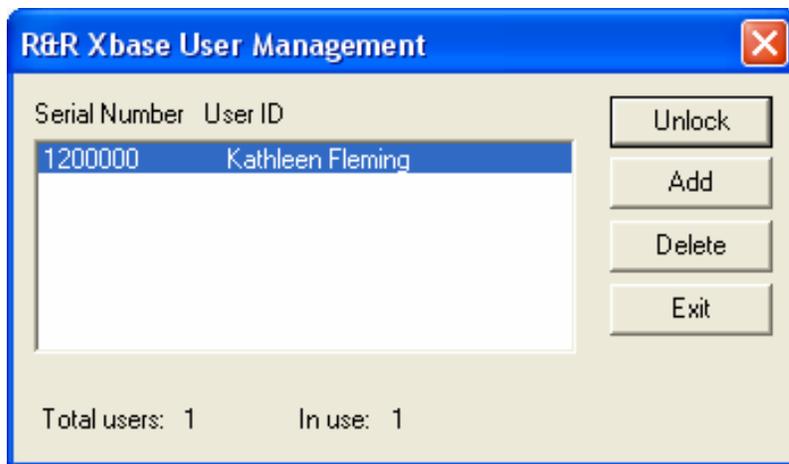
The Xbase License Manager program (RRWUSER.EXE) allows you to view and manage ReportWorks serial numbers.

When you execute the License Manager, you will see the dialog below.

Each installed serial number will appear in the list along with its current status. An inactive serial number means that a Report Designer license is available for use.

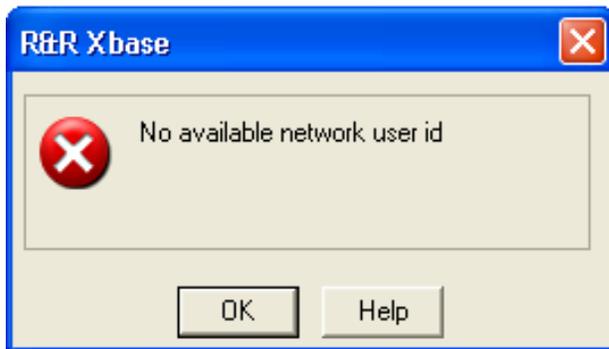


When a user executes the Report Designer (RRW.EXE) from a shared location, the status of the serial will change to either In Use or else the display name of the user.



When the user exits the program, the license file is updated to release the serial number and the status again returns to Inactive.

If a user attempts to execute the designer and there is not an available serial number, then they will receive the error message:



It is possible for this error to be returned when no user is actively using the Report Designer. For example, if a user is working in the designer the program closes without allowing the user to exit gracefully (such as a power outage or system fault). If this is the case, you can use the Unlock button to change the status of the selected serial number to Inactive.

The Add and Delete buttons are used to add and remove serial numbers from the LIC file.

You can run multiple sessions of the Report Designer on a single machine without required the use of a second license.

The user management program looks for the license file in the same folder as RRWUSERS.EXE unless there is an RRWLINK.INI file in that folder. In that case it will use the RRWLINK setting within the RRWLINK.INI file.

## Report Librarian

## ***Introduction to Report Librarian***

As anyone who builds many reports -- or designs reporting systems for others -- knows, keeping track of those reports is difficult. Reports multiply quickly as end-users take a report, make changes, then re-save them under a new name. Reports are files that can be stored anywhere on the user's computer or network drives. Maintaining organization and references on all of these files becomes increasingly cumbersome. After a while, remembering where to find a report, and what it was used for, becomes a burden. The R&R Report Librarian, using as a model an electronic card catalog one would find as they entered a public library.

Report Librarian is comprised of three primary components, all working in conjunction with R&R ReportWorks. The first of these is to act as the new, primary, entry point for reaching the R&R Report Designer. The second is to organize the reports created by and for each end-user to allow thumbnail access to find, review and launch these reports. The third is to catalog the report's contents for easy reference and to thereby document how the data items from your application are manipulated via reports.

Librarian is the natural entry point for R&R. Each user logs in with a password (with rights controls), then can launch either the Xbase or the SQL Report Designer from the main menu. Then R&R knows who is using it and assigns the correct ownership for any reports the user creates or modifies. If a shared report is modified by one user, the other user's references to that report are updated automatically.

When you initially install ReportWorks, Librarian contains only the default account of ADMIN with no password.

When you run the Report Designer directly, the default librarian owner is the login account ADMIN.

Each time that you save a report in the Report Designer, information about that report is written to the Librarian databases. Should you wish to disable this behavior, you can edit the RRW.INI file and add the LIBRARIAN parameter shown below to the [Defaults] section of the file.

```
[DEFAULTS]
LIBRARIAN=OFF
```

When LIBRARIAN is set to OFF, report cataloging is not performed when reports are saved. If this setting is absent or set to ON, report cataloging will be performed.

For more information on using Librarian, see the Librarian Help.PDF that is installed with the PDF documentation or you can refer to the on line help within the librarian program.

For information on configuring data dictionary for shared access see the section of this help file on RL.INI.

# Data Dictionary Editor

## ***Introduction to Data Dictionary***

ReportWorks includes a data dictionary editor that catalogs table, fields and indexes and provides extended notations, specifications and other information about those reporting elements.

Data Dictionary works with Report Librarian user accounts so that each Librarian user has their own dictionary and can share those entries with other users.

The dictionary editor program is installed in the RL folder and is called DATADICT.EXE. The editor is used to manage and update dictionary entries. The population of the dictionary files is not performed directly within the editor but is done automatically from within the Report Designer as described in the next section.

Dictionary data is stored in a set of Visual FoxPro data files that are installed in the RL subfolder.

When the Dictionary features has been enabled, ReportWorks automatically populates its Data Dictionary as you work inside the Report Designer. So it learns your file structures as you build and modify reports. When you select a table within Report Designer, Data Dictionary works behind the scenes to catalog selected tables, their fields and any applicable indexes by calling a set of dictionary cataloging programs that take report information and write it to the appropriate data dictionary tables. And from any field on the layout you can right click, select Dictionary and then view and even edit its dictionary entry. This feature lets you build knowledge and usage about each field.

You can also add calculated fields to the dictionary for future use using the Add to Dict button in the calculated field dialog and then make those fields available to other reports and users.

We have also added a Context-sensitive "Join Help" button in the Database Relation/Join dialog that allows you to see how the selected tables have been joined in other reports. In effect, R&R "learns" your databases and opens them up for more people to build reports.

The dictionary also offers formatting control. When placing a field in the layout, R&R will check if any settings have been made in the data dictionary editor for field size, alignment and style. For example, if you have a numeric field defined in the table with 12 integer and 5 decimal places, you can specify in dictionary to have Report Designer automatically present that field as comma, 6 integer places, 2 decimals. This also works great for long character fields that you prefer truncated. For table selection, you can define default table aliases in the dictionary that become the default alias any time that table is selected in a report.

As with the Report Librarian, Data Dictionary is user specific and uses the same user login table as the Librarian. If you launch the report designer directly the default login name is ADMIN just as for Librarian. If you launch the Report Designer from Report Librarian, the data dictionary owner name will be the Librarian login name.

Each time that you select a table in the Report Designer, information about that table is written to the dictionary databases. Should you wish to disable this behavior, you can edit the RRW.INI file and add the DICTIONARY parameter shown below to the [Defaults] section of the file.

```
[DEFAULTS]  
DICTIONARY=0
```

When DICTONARY is set to 0, dictionary cataloging is not performed when tables are selected. If this setting is absent or set to 1, dictionary cataloging will be performed.

For more information on using Data Dictionary, see the ReportWorks Data Dictionary Editor.PDF that is installed with the PDF documentation or you can refer to the on line help within the Data Dictionary editor program itself.

For information on configuring data dictionary for shared access see the section of this help file on RL.INI.

## Rapid Runner

## *Introduction to Rapid Runner*

### **Features**

Rapid Runner allows you to create report set files. A report set is a collection of R&R reports and can contain as many reports as you wish. A set may contain both Xbase and SQL reports. You can then run individual reports within the set or the entire set directly from Rapid Runner. Rapid Runner then calls the appropriate version of R&R runtime to execute the report.

Rapid Runner allows you to:

- Quickly modify various runtime without using R&R.
- Copy settings from one report item to another. For example if you set one report to run with a certain date range, you can copy that setting to all the reports in the set.
- Run individual reports to the screen, printer or export file without using the R&R Report Designer.
- Run a whole set upon request or at a specified time.
- Consolidate the output of multiple reports to a single database file.

### **Advantages**

Running reports using Rapid Runner has the following advantages:

- No programming knowledge is required.
- You don't tie up an R&R license just to run reports.
- You can save time by running reports more efficiently.
- You cannot inadvertently make unwanted changes to a saved report.
- You can seamlessly run both Xbase and SQL reports.
- You can perform database consolidation of data from multiple platforms and data sources.

For more information on Rapid Runner, see the Rapid Runner on line help file or the RAPIDRUN.PDF documentation in the \PDFDOCS directory of the ReportWorks installation CD.

## Runtime Shortcuts

## ***R&R ReportWorks Shortcut Maker Utility***

The shortcut maker allows you to quickly create windows shortcut that will automatically run the selected ReportWorks Report when the shortcut icon is double-clicked using the Report Works runtime engine.

You can select from a variety of options that will control what will happen when the shortcut is executed. For example you can prompt for the report destination or allow for the selection of a query/filter condition when the report is run.

The shortcut maker creates two files. The first is the Windows shortcut file itself. The second is the text control file which is a plain text file that can be read and edited in utilities like WordPad and NotePad.

The ***Developing Applications*** section of the Help file/documentation provides more information in Chapter 1 on Using the Viewer Executable with a text control table.

---

### ***File Menu***

|                         |  |
|-------------------------|--|
| <b>Restore Settings</b> | Restores settings to those current the last time settings were saved or when the Icon Maker utility was last executed. |
| <b>Save Settings</b>    | Saves the current settings in RRICON.INI in the Windows Program directory.   |
| <b>Exit</b>             | Exits the Shortcut Maker Utility, discarding any changes.  |

---

### ***Options Menu***

|   |  |
|---|--|
| <b>Change Name and File on New Report</b> | If this setting is On (the default), the Window Title, Shortcut Name, and Control File settings will be changed appropriately if you select a different report; if this setting is Off, the previous Window Title, Shortcut Name, and Control File settings will be used when you select a different report. |
| <b>Save Settings On Exit</b>              | When this setting is On (the default), Shortcut Maker settings are automatically updated in RRICON.INI when you exit the utility; when this setting is Off, RRICON.INI is not automatically updated on exit.   |
| <b>Restore Settings At Startup</b>        | When this setting is On (the default), the Shortcut Maker will use the current RRICON.INI settings at startup; when this setting is Off, RRICON.INI settings are not restored.   |

---

### ***Report Specific Settings***

|                     |   |
|---------------------|---|
| <b>Report Name</b>  | Either enter the name of the report to be run or select a report using the Select Report button.<br>Note that the Select files of type list will depend on the Version radio button selection (Xbase or SQL).<br>This setting will be saved as RI_REPORT in the control file. |
| <b>Window Title</b> | Enter a title to be displayed in the Title Bar of the Viewer window, the print status window, and any dialog box prompts  |

|                       |   |
|-----------------------|---|
|                       | that appear when a report is executed with the Viewer.<br>This setting will be saved as RI_WTITLE in the control file.  |
| <b>Shortcut Name</b>  | Enter text for the caption that will appear as the name of the shortcut that created by the Shortcut Maker utility. The name defaults to the Report Name; however, you can change it simply by replacing the default in the edit box. |
| <b>Control File</b>   | The name of the text control file created by the Icon Maker.<br>The default file extension is .RRS for Xbase reports.<br>The default file extension is .RSS for SQL reports.  |
| <b>Program Folder</b> | The name for the Program Folder in which the shortcut will be created.  |

---

### *Version*

|              |   |
|--------------|---|
| <b>Xbase</b> | Create shortcut for an Xbase (.RRW) report using RRWRUN.EXE |
| <b>SQL</b>   | Create shortcut for a SQL (.RSW) report using RSWRUN.EXE    |

---

### *Output Destination*

|                              |  |
|------------------------------|--|
| <b>Preview Before Print</b>  | At Runtime, the report will be displayed in a Preview window before the user prints it.<br>Sets RI_PRINTER =D in the control file.   |
| <b>Print Without Preview</b> | At Runtime, the report will be printed on the printer saved with the report or specified by the Runtime user (if the "Select Windows Printer" setting is on).<br>Sets RI_PRINTER =P in the control file. |
| <b>Prompt</b>                | At Runtime, the user will be presented with a prompt asking whether the report should be previewed or sent directly to the printer.<br>Sets RI_PRINTER =? in the control file.                           |

---

### *User Prompts*

|                               |   |
|-------------------------------|---|
| <b>Select Windows Printer</b> | When this setting is On, the user will be allowed to select a Windows printer for the report; when this setting is Off (the default), the report will be printed on the printer saved with the report.<br>If checked, sets RI_WPTR=? in the control file.   |
| <b>Specify Query</b>          | When this setting is On, the user will be able to enter a query/filter or edit the query/filter saved with the report. When this setting is Off (the default), the report will be run using the saved query/filter (if any).<br>If checked, sets RI_QUERY=? In the control file for XBase and RI_INCLUDE=? For SQL. |
| <b>Set Scope Values</b>       | Available only when Xbase Version is selected.<br>When this setting is On, the user will be able to specify   |

beginning and ending scope values; when this setting is Off (the default), the report will be run with the saved scope values (if any).

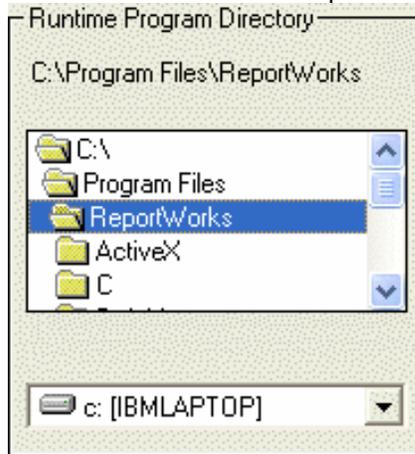
If checked, sets RI\_SCOPE=? In the control file.

---

### ***Runtime Program directory***

**Runtime Program Directory** Directory location for the Viewer executable, RRWRUN.EXE for Xbase reports or RSWRUN.EXE for SQL reports.

Make sure that a valid path is both selected and displayed.



---

### ***Action Buttons***

**Select Report** Displays the Open Report dialog to enable selection of a report.

**Create Shortcut** After specifying all desired settings, select this button to create the Shortcut.

The command line for the Program Item will be in the form:

For **Xbase**:

<RunPath>\RRWRUN.EXE /T <RunPath>\<Control File>

where <RunPath> is the location of RRWRUN.EXE and <Control File> is the generated name of the text control file.

For **SQL**:

For Xbase:

<RunPath>\RSWRUN.EXE /TT <RunPath>\<Control File>

where <RunPath> is the location of RSWRUN.EXE and <Control File> is the generated name of the text control file.

**Run Report** Immediately executes the specified report using the settings on this dialog.

**Exit** Closes the Shortcut Maker dialog.

# Report File Conversion

## ReportWorks Report Conversion Utility

The ReportWorks Report Conversion program allows you to convert existing R&R reports from and to a variety of report formats. The following chart lists the default report file extensions that are associated with each R&R report version.

| <b>Report library formats where a single file may contain multiple reports</b> |   |
|--|---|
| <i>File Extension</i>  | <i>R&amp;R Report Version</i>                   |
| RP1  | R&R for DOS Xbase editions 1 through 6.0a       |
| RP2  | R&R for DOS Worksheet edition                   |
| RP3  | R&R for DOS SQL edition (Oracle/NetwareSQL/XDB) |
| RP4  | R&R for DOS Paradox edition                     |
| RP5  | R&R for Windows Xbase editions 1 through 7      |
| RP6  | R&R for Windows SQL edition 2                   |
| <b>Compound file formats where a file contains a single report</b>             |   |
| <i>File Extension</i>  | <i>R&amp;R Report Version</i>                   |
| RRW  | R&R for Windows Xbase editions 8 and later      |
| RSW  | R&R for Windows SQL editions Arpeggio and later |

Note that the current Report Works Version 12 Xbase Designer and Runtime can directly **read** reports in existing RP1 and RP5 library files without requiring conversion to .RRW format. If changes to existing reports are required, then the modified report must be saved as an individual .RRW file. The current Report Works Version 12 SQL Designer and Runtime can directly **read** reports in existing RP6 library files without requiring conversion to .RSW format. If changes to existing reports are required, then the modified report must be saved as an individual .RSW file.

### Important note on Conversion

Successful conversion of a report file does not always guarantee that the converted report will be able to be successfully opened and run in a version that supports that file format. Not all R&R functional is identical or supported across each release. Some converted reports may not be able to be opened successfully and some may require additional editing after conversion. The most general rule is that the file and field names and data types that were found in the source report must be available in the destination platform.

### Direction

The first step in conversion is selecting the source and destination file types. This is done by selecting the appropriate radio button from the direction list. The

available conversion directions are explained below.

RP1 to RP6 (DOS XBASE to Windows SQL)

RP2 to RP6 (DOS Worksheets to Windows SQL) Conversion

RP3 to RP6 (DOS SQL to Windows SQL) Conversion

RP4 to RP6 (DOS Paradox to Windows SQL)

RP5 to RP6 (Windows XBASE to Windows SQL) Conversion

RP1 to RP5 (DOS XBASE to Windows XBASE) Conversion

RP6 to RP5 (Windows SQL to Windows XBASE) Conversion

RP5 to RP1 (Windows XBASE to DOS XBASE) Conversion

RRW to RSW (XBASE to SQL Windows) Conversion

RSW to RRW (SQL Windows to XBASE) Conversion

RSW to RP6 (SQL Windows to SQL Library) Conversion

RRW to RP5 (XBASE File to XBASE Library) Conversion

Explode Library (Report Library to individual RRW/RSW report files)

Convert to Visual FoxPro DBC

## **Source**

You can select the report you want to convert by either typing a full path and file name in the edit box or by clicking on the Source button to open the Select Report Source dialog.

## **Destination**

If you selected the source using the Source button, a destination name with the appropriate extension is created for you. Otherwise, type the full path and name of the destination file you want to create.

If you do not specify an extension, the conversion program will use the extensions given in the Direction group box: RP1 for DOS report libraries, RP5 for Windows XBASE report libraries, and RP6 for Windows SQL report libraries; RRW for XBASE compound file reports; and RSW for SQL compound file reports.

If you do not specify a destination, the conversion program will create one using the source name and the appropriate extension.

## **FIF**

If you are creating a DOS report library (RP5 to RP1), select the font information file you want attached to all the reports in the new library. The default is (none), which means that no font information file will be attached.

## **FIF Path**

If you have selected a font information file, type the full path of the directory in which it is located.

## ***Action Buttons***

---

|                |  |
|----------------|--|
| <b>Convert</b> | Creates a destination report library with the specified name.    |
| <b>Exit</b>    | Closes the Conversion dialog.                                    |
| <b>Source</b>  | Opens the Select Report Source dialog to select a source report. |
| <b>Help</b>    | Displays this help topic.  |

**Developing Applications**

**Error Messages**

## Alphabetical List of Error Messages



### A

Abnormal Viewer Termination  
Absolute or relative URL address required  
Absolute or relative URL address must contain RRPRVIEW.CAB  
Access denied to file: (file name)  
An unexpected error occurred while reading (filename)  
Argument name in use  
Auto Recovery

### B

Bad input line, or invalid text control file: (filename)

### C

Calculated field (field name) must be edited  
Calculation buffer overflow  
Calculation code overflow at offset (n) of RI\_FILTER  
Can query only on highest level pre-processed totals  
Cannot access user function library  
Cannot activate a static OLE object  
Cannot apply record number scope to empty master table  
Cannot create band line  
Cannot create/find/open/read/write ...  
Cannot compare a memo field to another field  
Cannot delete linking field (field name)  
Cannot execute Viewer EXE: error code <code>  
Cannot execute R&R Wizards. Error code: (n)  
Cannot export to master or related file  
Cannot find printer library file (filename)  
Cannot find serial number in user file  
(filename) Cannot find this file. Please verify that the correct path and file name are given.  
Cannot link with composite record number field  
Cannot link using NULLable key  
Cannot load printer library file RRPD.DLL  
Cannot match printer or port in control file  
Cannot open control file: (file name)

Cannot open database table (file may be in use)  
Cannot open index file (file may be in use)  
Cannot open library file (file name)  
Cannot open memo file (file may be in use)  
Cannot open text file (file may be in use)  
Cannot open script file (filename)  
Cannot open status file (filename)  
Cannot query on composite record number field  
Cannot query on page number field  
Cannot query on running total if any totals are pre-processed  
Cannot read memo file  
Cannot read user file (file name)  
Cannot scan using total-related linking field  
Cannot skip if linking field is total-related  
Cannot sort on composite record number field  
Cannot sort on self-referencing field  
Cannot sort or group on memo field  
Cannot sort or group on page number field  
Cannot sort or group on PREVIOUS( )-related field  
Cannot sort or group on running-total-related field  
Cannot use a field in a list  
Cannot use a field in a range  
Cannot use an empty value in a range  
Cannot use index or tag on NULLABLE Key  
Cannot use page total field to control line printing  
Cannot use QUERY( ) in a user-defined function  
Cannot write user file  
Change would cause invalid running total query  
Character field (field name) is no longer in table (table name)  
Character string required  
Chart must be edited: "Cannot specify a sub-category for a chart in the record band"  
Chart must be edited: "Missing "Selected Fields' or 'Label" or 'Sort field"  
Circular calculations. Cannot evaluate (field name)  
Command failed  
Condition cannot be memo field  
Condition cannot depend on a total  
Could not start print job

## **D**

Data directory does not exist

Database encrypted

Date field (field name) is no longer in file (file name)

Date required

Date required. Enter in format MM/DD/YYYY

Default value must be a constant

Destination disk drive is full

Dictionary index does not exist

Disk error

Duplicate alias

Duplicate field name must have table alias qualifier

Duplicate name must be qualified at offset (n) of RI\_FILTER

Duplicate names found: (run-in parameter)

Duplicate or invalid (runtime command line switch) switch

Duplicate sort fields

Duplicate switch

## **E**

Empty control file

Error creating or writing to (filename)

Error creating Print Preview window

Error loading driver library

Error opening report dictionary file

Error reading file <filename>

Error reading report

Error reading report dictionary file

Error writing to R&R initialization file

Evaluate stack overflow on field (field name)

Expression required

## **F**

Failed to connect. Link may be broken

Failed to convert OLE object

Failed to create empty document

Failed to launch help

Failed to launch server application

Failed to open document

Failed to save document  
Fatal error. Save your report; exit and restart R&R  
Fax/modem device not detected on machine  
Field datatype not found  
Field is missing  
Field is no longer in database  
Field name already used  
Field name is not allowed in a range or list  
Field name must be qualified  
Field name required  
Field not found  
Field types do not match  
Fields won't fit within current margin setting  
File already exists (file name)  
File contains unknown field type  
File error (description) (file activity)  
File error (number)  
First four characters of name not unique  
Function (function) requires field name argument  
Function requires field name argument at offset (n) of RI\_FILTER  
Function used in another function cannot contain QUERY( )  
Function used in the query cannot contain QUERY( )  
Functions are not current

## **G**

General print spooler error  
Group scan failure

## **H**

## **I**

Illegal use of QUERY  
Incorrect Numeric Value  
Incorrect Password. File Not Saved.  
Index block size not supported  
Index file required  
Insufficient file handles  
Insufficient memory ...  
Insufficient memory to create screen font

Insufficient memory to copy or paste additional objects  
Internal application error  
Internal file setup error  
Invalid alias  
Invalid argument  
Invalid argument at offset (n) of RI\_FILTER  
Invalid argument name  
Invalid checkpoint value: (value)  
Invalid command line argument  
Invalid control file record number: (n)  
Invalid control file structure  
Invalid date  
Invalid date value  
Invalid Default Data Directory  
Invalid Default Image Directory  
Invalid Default Library Directory  
Invalid 'equivalence' on line (number) of RRW.SRT  
Invalid 'expansion' on line (number) of RRW.SRT  
Invalid field width value  
Invalid filename  
Invalid filename in RI\_OUTFILE  
Invalid filter in control file  
Invalid frequency for this total  
Invalid function name  
Invalid high scope  
Invalid index file  
Invalid index file pathname  
Invalid 'inequality' on line (number) of RRW.SRT  
Invalid integer/decimal value  
Invalid line height  
Invalid link file (filename)  
Invalid low scope  
Invalid master table pathname  
Invalid number of arguments  
Invalid number of arguments at offset (n) of RI\_FILTER  
Invalid number of copies: xxxx  
Invalid number of lines  
Invalid numeric value or value out of range

Invalid operation  
Invalid operation at offset (n) of RI\_FILTER  
Invalid or duplicate command line argument  
Invalid page range: xxxxxxxxx to xxxxxxxxx  
Invalid parameter: (parameter) Script line: (n)  
Invalid partial length value  
Invalid pathname: (pathname)  
Invalid picture file format  
Invalid point size: Range is 4.0 to 500.0 points  
Invalid printer indicator: (indicator)  
Invalid query type: (character)  
Invalid related table pathname  
Invalid report dictionary index file (name)  
Invalid report library  
Invalid report name  
Invalid report revision  
Invalid report type  
Invalid RI\_WCONTROL value  
Invalid RI\_WHEIGHT value  
Invalid RI\_WPARENT window handle  
Invalid RI\_WTOP/RI\_WLEFT value  
Invalid RI\_WWIDTH value  
Invalid running total query  
Invalid runtime output file argument  
Invalid scope type: (c)  
Invalid scope value: (character, numeric, or date scope value)  
Invalid setting (name) on line (number) of RRW.SRT  
Invalid setting for (name) ((value)) in RRW.SRT  
Invalid Starting/Ending page value(s)  
Invalid use of QUERY function  
Invalid user function library  
Invalid user management file  
Invalid value  
Invalid value in alias field (n)  
Invalid value in (Runtime input field)  
Invalid value in Copies field  
Invalid wildcard for memo field query

**J****K****L**

Library directory does not exist

Linking and index key fields are different types

Linking Character field (field name) is no longer in table (table name)

Linking field 'name' is no longer in file 'name'

List must contain at least two items

Logical field (field name) is no longer in file (file name)

Logical value required

**M**

Mail system DLL is invalid

Master index discrepancy

Master table (table name) not found

Match length must be between 1 and N

Maximum decimal places is 15

Maximum picture width and height is 25.4 inches (64.5 centimeters)

Maximum record height is 99.99 inches

Maximum record width is 99.99 inches

Memo field (field name) is no longer in file (file name)

Missing argument

Missing user management file

Multiple (name) settings in RRW.SRT

**N**

Name in use

No available network user ID

No closing parenthesis

No fields to export on selected line

No index expression defined

No library specified

No master table specified

No opening parenthesis

No printer fonts available

No Printer Specified

No printers installed or no default printer

No records found

No records in file  
No reports defined  
Not a database table  
Not a valid R&R field name  
Numeric field (field name) is no longer in table (table name)  
Numeric required  
Numeric value required

## **O**

Object is positioned on new page line  
Only left parentheses may be entered  
Only right parentheses may be entered  
Output file append is not supported in this version

## **P**

Page header/footer may not contain new-page lines  
ParameteRR does not pass validation  
Partial match not allowed on numeric field  
Picture directory does not exist  
Please select a burst field from the Burst drop-down list  
Please select a send-to field from the Send To field drop-down list  
Point size not supported in current printer  
Print spooler out of disk space  
Pre-processed total at total-related group level  
Pre-processed total at unassigned group level  
Print spooler out of memory  
Printer does not support landscape orientation  
Printer initialization error (check available memory)

## **Q**

Query is too complex. Simplify and try again.  
Query must be edited: field(s) deleted  
QUERY( ) used indirectly

## **R**

R&R no longer supports rewriting a report into a library file  
Range must contain two items  
Range or list value is too long  
Range out of order  
Record caching error

Record copies: Invalid field name or numeric value  
Record number scope must be between 1 and N  
Relation must be edited  
Report canceled  
Report dictionary does not exist  
Report Dictionary error in incorrect file format  
Report dictionary requires a table and an index file  
Report File does not exist, (report name)  
<report name> is being used. Do you want to make a copy?  
Required argument  
Required argument at offset (n) of RI\_FILTER  
Reset level inconsistent with (field name)  
RI\_ID value not found or control table empty  
Ruler spacing may be 4 to 30 units per inch

## **S**

Saved tag name is missing: (tag) of (file name)  
Scan failure  
Selected Fields must not be from shallower level than header band containing chart  
Send Mail failed to send message  
Single value required  
Sort and group fields are out of synch  
Starting page too large  
Syntax error  
Syntax error at offset (n) of RI\_FILTER  
Syntax stack overflow  
Syntax stack overflow at offset (n) of RI\_FILTER

## **T**

Table contains no supported fields  
Table contains unknown field type  
Template library does not exist  
The /G switch requires a valid Library file and Report name  
The operating system ran out of memory during the operation  
There is no bitmap <file> in <filename>  
There is no master table, so no data to export  
This value could not be read  
To override the printer selection, you must specify a printer name

Too many arguments  
Too many arguments at offset (n) of RI\_FILTER  
Too many 'equivalences' in RRW.SRT  
Too many 'expansions' in RRW.SRT  
Too many 'inequalities' in RRW.SRT  
Too many lines. Maximum is 256  
Too many nested IIFs  
Too many nested IIFs at offset (n) of RI\_FILTER  
Top plus bottom margin exceeds page length  
Total condition for '<total field>' must be edited  
Total (field name) cannot be evaluated  
Type cannot be changed. Field is linking field  
Type cannot be changed. Field is totaled

## **U**

Unable to load mail system support  
Unable to read RRLABELS.INI  
Unable to read write-only property  
Unable to read from (filename), it is opened by someone else  
(filename) Unable to register document. The document may already be open.  
Unable to start print job  
Unable to write read-only property  
Unable to write to (filename), it is read-only or opened by someone else  
Unbalanced parentheses  
Unbalanced parentheses at offset (n) of RI\_FILTER  
Unexpected file format  
Unknown or ambiguous group field (field)  
Unknown or ambiguous sort field (field)  
Unrecognized name or operator  
Unrecognized name or operator at offset (n) of RI\_FILTER  
Unsupported combination of pre-processed totals  
Unsupported totals sort  
Unterminated string  
Unterminated string at offset (n) of RI\_FILTER  
Use of invalid user function  
User file does not exist (file name)  
User function access error  
User function used in linking field '<field name>'

User function (user-function) must be edited

User function declaration required

## **V**

Validate expression must be logical type

Value(s) not in range

## **W**

## **X**

## **Y**

You are attempting to remove a volume that is being used by the current report.  
Please close the report and try again.

You have removed a volume that is being used by the current report. Please  
replace the volume or close the report

You cannot copy to the current library

You must select a DBF

You must select a field name

You must select a related table

You must select a table from the DBC

You must specify either .HTM or .HTML extension

## **Z**

**Technical Support**

## Technical Support

### Summary

Technical Support service gives you access to product experts who can help solve problems you encounter using R&R Report Writer.

Several options provide you with the level of service you need to get answers in the most timely and cost-effective manner.

### Key Benefits

Help available when you need it — online, email or 800#

Dedicated, knowledgeable staff — over 50+ years R&R experience

Cost-effective — pay only for what you use, never expires

### Capabilities

Liveware Publishing offers varying levels of service to meet your technical, administrative, and budgetary requirements. From comprehensive support plans to self-service online resources, we've got the right program to fit your needs.

### Option 1 — Pay-per-Call

At any time between the hours of 8:30 AM and 5:30 PM Eastern Time, you may call 302-791-9446 to speak with a technical support representative. The fee for support is \$100 per hour, with a minimum charge of \$10 per call. Payment can be made by credit card (VISA/MC/AMEX). You will not be charged for problems arising from R&R Report Writer software.

(Time is calculated to the closest five dollar time unit, only for time actually spent by a Liveware Publishing support representative resolving the issue. Any time spent is subject to Liveware Publishing management review for effectiveness of the support provided.)

(A "call" is defined as phone conversations, e-mail, and voice-mail messages related to resolution (or attempted resolution) of a particular issue. Issues may be grouped in a particular "call" to reach the minimum.)

### Option 2 — Support/Upgrade Account

You can establish a pre-paid support/upgrade account (SUA) with Liveware Publishing

to receive a faster response and at a discounted rate. The cost for opening an SUA account for a single user is \$500, and special pricing is available for multiple user accounts. Once you have opened an SUA account, at any time between the hours of 8:30 AM and 5:30 PM Eastern Time, you may call the special 800 number to speak with a technical support representative. You may also send an email if you are working outside our normal business hours. The fee for support is discounted to \$80 per hour, with a minimum charge of \$10 per call.

In addition, with the purchase of an SUA account you receive the following benefits:

Installation support during the first 60 days is not chargeable.

One FREE tech support call.

One FREE copy of *Relate and Report: Your Guide to Reporting with R&R*. (350 pages, a \$59 value.)

FREE maintenance releases

Reduced pricing on printed copies of the product documentation - pay just \$25 (a \$10 savings.)

Reduced pricing on product upgrades. You may apply any unused portion of your SUA account balance to the purchase of upgrades.

The balance in your account never expires.

Customers with SUA accounts will be supplied a statement of account usage, upon request, itemizing time spent on each call.

Per-call customers will be informed of the time and cost of the call at its conclusion.

Requests for review of charges may be sent via e-mail at our web site. Customers with SUAs

should deposit sufficient funds to cover reasonable support needs for your organization for at least three months. Automatic re-billing to replenish accounts is available, or you may use a credit card or purchase order.

**Option 3 — Self Service Resources**

At any time, you may refer to the Resources page on our web site for Documentation, Frequently Asked Questions, Technical Bulletins, Service Packs, and other information about R&R Report Writer.

We also offer a User Discussion forum <http://207.5.91.140/cgi-bin/dcforum/dcboard.pl> where you can view and post R&R questions. This forum is monitored by our support staff. Complete the form on our web site to open your Support/Upgrade Account today, or call 800-936-6202 or 302-791-9446.

**Subscribe Now!**

**Before You Call**

Please be prepared to provide the following information with each call or email:

User name, company, email and phone/fax numbers

Product serial number

SUA account number (if applicable)

Type, vendor and version of operating system and database in use

Product and version in use

Underlying application name and vendor

To contact Liveware Publishing Technical Support for Pay-per-Call or Support/Upgrade Account service, call the special 800 number any time between the hours of 8:30 AM and 5:30 PM Eastern Time. Alternatively, you may send an email at any time using the online Technical Support Help Request form or by sending an email to [livesupport@livewarepub.com](mailto:livesupport@livewarepub.com).

**Convert to Visual FoxPro DBC**

Convert to Visual FoxPro DBC

**Explode Library (Report Library to individual RRW/RSW report files)**

This choice converts each of the reports in the source library to a compound file report. File names for the destination compound file reports will be the same as the source report names.

Note that any of the following characters in a report name will be converted to a space when "exploded" to a compound file: colon (:), slash (/), backslash (\), question mark (?).

#### **RP1 to RP5 (DOS XBASE to Windows XBASE) Conversion**

This choice converts a report library produced by Version 4, 5 or 6 of R&R for XBASE into a library that can be used by R&R for Windows, XBASE Edition. R&R for Windows can read reports either directly from DOS report libraries (RP1) or from libraries that have been produced by this conversion. To identify the source of the report, the user ID of each report in the new library is "DOS." After you open and save the report in Windows, the user ID will be changed to "Windows."

Note that the use of multiple UDF libraries in DOS reports has no counterpart in the Windows version of R&R.

**RP1 to RP6 (DOS XBASE to Windows SQL) Conversion**

This choice converts a report library produced by Version 4, 5 or 6 of R&R for XBASE into a library that can be used by R&R for Windows, SQL Edition. When you use this conversion option, you will be prompted to specify a data source for each report in the library. For quick conversion of large libraries, you can select one data source and select the "All" button to assign that data source to all the reports.

**RP2 to RP6 (DOS Worksheets to Windows SQL) Conversion**

This choice converts a report library produced by Version 4, 5 or 6 of R&R for Worksheets into a library that can be read by R&R for Windows, SQL Edition.

### **RP3 to RP6 (DOS SQL to Windows SQL) Conversion**

This choice converts a report library created by Version 3 of R&R for Oracle, R&R for NetWare SQL, or R&R for XDB into a library that can be used by the Windows Edition of R&R for SQL. When you use this conversion option, R&R will prompt you to specify a data source for each report in the library. For quick conversion of large libraries, you can select one data source and select the "All" button to assign that data source to all the reports.

R&R for SQL can read reports either directly from DOS report libraries (RP3) or from libraries that have been produced by this conversion. To identify the source of the report, the user ID of each report in the new library is "Windows (from DOS)." After you open and save the report in Windows, the user ID will be changed to "Windows."

**RP4 to RP6 (DOS Paradox to Windows SQL)**

This choice converts a report library created by Version 4 of R&R for Paradox into a library that can be used by R&R for Windows, SQL Edition.

You will have to modify any R&R for Paradox reports that contain memo fields with merged data (such as form letter or "mail merge" reports). To do so, create an unformatted text file containing the memo text and merged data and use the Insert ⇒ Text File command. (See Chapter 18, "Creating Form Letter Reports," for information about creating text memo files.)

When you use this conversion option, R&R will prompt you to specify a data source for each report in the library. For quick conversion of large libraries, you can select one data source and select the "All" button to assign that data source to all the reports.

#### **RP5 to RP1 (Windows XBASE to DOS XBASE) Conversion**

This choice converts a report library produced by R&R for Windows, XBASE Edition into a library that can be read by the latest DOS version of R&R for XBASE (Version 6). You must run this utility to enable R&R for DOS to read R&R for Windows reports.

If you want your DOS reports to use fonts similar to those used in your Windows reports, select a font information file (FIF) to attach to all the reports in the converted library. The FIF you select must correspond to the fonts available on the printer you will use to print your DOS reports. You must also enter the complete path of the directory containing this FIF.

Note that the following features of Windows reports have no counterpart in the DOS version:

- Windows alignment of numeric and date fields (alignment is converted to DOS-type alignment);
- Windows-specific date formats (converted to closest DOS equivalent);
- Queries longer than 512 bytes (warning is issued and query is deleted);
- AND, OR, and NOT operators used without periods (you must edit any calculated field or UDF expressions that use these operators to include the periods required by the DOS product);
- True, False, On, Off, Yes, No used as logical constants (you must edit any calculated field or UDF expressions that use such constants to include the valid DOS constants: .t. and .f.);
- Fields starting past column 254 (fields are moved to column 254)

#### **RP5 to RP6 (Windows XBASE to Windows SQL) Conversion**

This choice converts a report library created by R&R for Windows, XBASE Edition, into a library that can be read by Version 6 of R&R for Windows, SQL edition. To identify the source of the report, the user ID of each report in the new library is "Windows (from XBASE)." After you open and save the report in Windows, the user ID will be changed to "Windows."

When you use this conversion option, R&R will prompt you to specify a data source for each report in the library. For quick conversion of large libraries, you can select one data source and select the "All" button to assign that data source to all the reports.

Files that are related in your XBASE report by an index file will be joined in the SQL report by the key expression in the index file (since the index file is opened to determine the key expression, R&R must be able to find this index file). If this expression is not a field in the related file, you will not be able to retrieve the report in R&R for SQL.

#### **RP6 to RP5 (Windows SQL to Windows XBASE) Conversion**

This choice converts a report library created by R&R for SQL into a library that can be read by R&R for Windows, XBASE Edition. You must run this utility to enable R&R for XBASE to read R&R for SQL reports. To identify the source of the report, the user ID of each report in the new library is "Windows (from SQL)." After you open and save the report in Windows, the user ID will be changed to "Windows." Table names are converted to DOS-equivalent file names. Related files are assumed to be related by an index file named <table>.ndx. If such a table or index file does not exist, when you try to open the report in R&R for XBASE you will receive an error message prompting you to correct the name.

All table joins in the SQL report become exact lookups when converted to XBASE. As a result, you will need to edit any database relations in the converted report that should be R&R for XBASE scans instead of exact lookups.

Note that the following features of R&R for SQL have no counterpart in R&R for XBASE:

- Multi-column joins
- Queries using LIKE, NOT LIKE, NULL, NOT NULL

#### **RRW to RP5 (XBASE File to XBASE Library) Conversion**

This choice converts a compound file report produced by R&R for Windows, XBASE Edition into a report format that can be included in a report library.

If the destination library you specify does not exist, it will be created.

If the destination library exists, a dialog appears prompting you to choose one of the following:

- **Yes** adds the report to the existing library.
- **No** deletes the existing library, creates a new library with the same name, and adds the report to that library.
- **Cancel** cancels the conversion.

**RRW to RSW (XBASE to SQL Windows) Conversion**

This choice converts a compound file report produced by R&R for Windows, XBASE Edition into a compound file report that can be read by R&R for Windows, SQL edition.

#### **RSW to RP6 (SQL Windows to SQL Library) Conversion**

This choice converts a compound file report produced by R&R Report Designer, SQL into a report format that can be included in a report library.

If the destination library you specify does not exist, it will be created.

If the destination library exists, a dialog appears prompting you to choose one of the following:

- **Yes** adds the report to the existing library.
- **No** deletes the existing library, creates a new library with the same name, and adds the report to that library.
- **Cancel** cancels the conversion.

**RSW to RRW (SQL Windows to XBASE) Conversion**

This choice converts a compound file report produced by R&R Report Designer, SQL edition into a compound file report that can be read by R&R for Windows, XBASE Edition. When you convert a report, you will be prompted to select a data source.

All table joins in the SQL report become exact lookups when converted to XBASE. As a result, you will need to edit any database relations in the converted report that should be R&R for XBASE scans instead of exact lookups.

## Select Report Source Dialog

Select the report file you want to convert from those listed or change the drive/directory designation to select a report in a different location.

- File Name** Edit box displays the file selection pattern. List box below displays all files in the currently selected directory that match the file selection pattern.
- To change the file selection pattern:** Type a different file selection pattern directly in the File Name edit box, then press the Enter key or select the OK button. When you change the file selection pattern, the File Name list box is updated to show the names of the files that match the new pattern.
- To select a file:** Highlight the name of a file in the list box and select the OK button, or double-click on a file name in the list box, or type the full name of the file in the edit box and select the OK button.
- List Files of Type** Specifies the default file selection pattern used in the File Name edit box.
- Folders** Static text displays the complete path name of currently selected directory. The box below lists the currently selected folder and its subdirectories.
- To select a lower directory level:** Double-click on a "closed" folder in the list box.
- To return to a higher directory level:** Double-click on an "open" folder in the list box.
- When you change the currently selected folder, the File Name list box to the left is updated to reflect the contents of the new folder.
- Drives** Specifies the currently selected drive. Open the list box to select a different drive.

## **Introduction (Using Menus and Dialogs)**

R&R Report Designer is a data access and reporting tool that enables you to produce custom reports to select, analyze, summarize, and present data from your tables in a variety of ways. After you have developed a custom report, you can display it on screen or print it with any combination of fonts and print styles that your printer supports.

This chapter describes all components of the main window and explains commands and dialog boxes. This information is presented in the following sections:

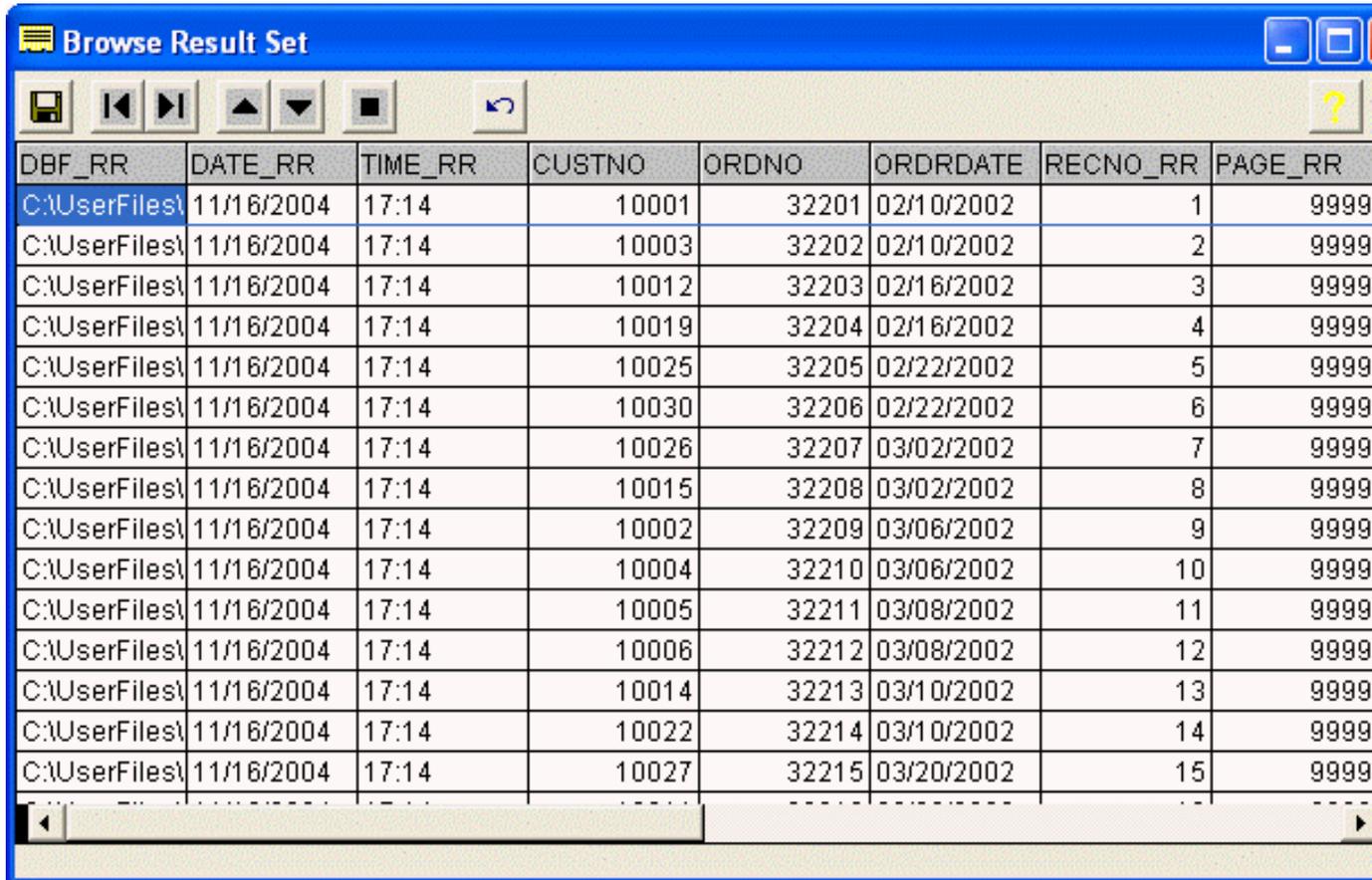
- Understanding the Main Window
- Selecting from Menus
- Using Dialog Boxes
- Using Command-Line Switches

## **Specifying Alignment**

Right-click on a drawn line and select Alignment to specify Left (the default), Center, or Right alignment. Although the default setting is usually appropriate, you can change the alignment in order to provide more precise control over placement and sizing of the line. The alignment setting also determines the direction of increase or decrease when you select a different line thickness.

## The Result Set Browser Window

When activated, the Result Set Browser window (shown below) presents all of the fields in the result set (i.e., all of the fields that appear on the report, in any band). You then can scroll through the result set to view all records.



| DBF_RR        | DATE_RR    | TIME_RR | CUSTNO | ORDNO | ORDRDATE   | RECNO_RR | PAGE_RR |
|---------------|------------|---------|--------|-------|------------|----------|---------|
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10001  | 32201 | 02/10/2002 | 1        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10003  | 32202 | 02/10/2002 | 2        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10012  | 32203 | 02/16/2002 | 3        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10019  | 32204 | 02/16/2002 | 4        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10025  | 32205 | 02/22/2002 | 5        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10030  | 32206 | 02/22/2002 | 6        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10026  | 32207 | 03/02/2002 | 7        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10015  | 32208 | 03/02/2002 | 8        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10002  | 32209 | 03/06/2002 | 9        | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10004  | 32210 | 03/06/2002 | 10       | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10005  | 32211 | 03/08/2002 | 11       | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10006  | 32212 | 03/08/2002 | 12       | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10014  | 32213 | 03/10/2002 | 13       | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10022  | 32214 | 03/10/2002 | 14       | 9999    |
| C:\UserFiles\ | 11/16/2004 | 17:14   | 10027  | 32215 | 03/20/2002 | 15       | 9999    |

**Figure 17.13 Result Set Browser Window**

The icons at the top will (in left to right order) save the result set as an Xbase (.DBF) file an Excel(.XLS) file or a XML, page left, page right, page up, page down, close the window, reset sort/grouping and display help. (The Escape key will also close the window.)

There are a number of ways that you can change the Result Set Display.

- The window may be re-adjusted like any window, and the scroll bars at the right and bottom will allow you to browse to all data elements. The cursor also provides scrolling of the window.
- You can modify the column display order by selecting a field name at the top of the column and dragging it left or right with the mouse.
- Individual columns may be narrowed or widened by dragging the column separator lines.

- You can sort on an individual column. To do this, click on the heading of any column and the results will sort in ascending order. Click again and the results will sort descending. Subsequent clicking toggles back and forth. Sorting is only available for a single column. You cannot create cascading sort levels by clicking on more than one column in succession.
- You can reduce the number of records displayed by grouping on a column to display only a unique value. To do this, right-click on the heading of any column and a popup menu will appear with a choice to "Sort," "Group" or "Cancel" Selecting "Sort" invokes column sorting as described above. Selecting Group re-evaluates the current Result Set and then displays only the records from the last line of each different value in the column. Grouping also performs an implicit sort so that records are sorted. For example, grouping on the city field in a result set of customer name and city would distill to the customer with the last record for each city. The following example shows the result set before and after grouping by city. Note that grouping order can be alternated between ascending/descending by reselecting the grouped column and selecting Group a second time.

| <i><b>Before City grouping</b></i> |             | <i><b>After City grouping</b></i> |             |
|------------------------------------|-------------|-----------------------------------|-------------|
| <b>Customer</b>                    | <b>City</b> | <b>Customer</b>                   | <b>City</b> |
| ACME                               | Dallas      | DBS Data                          | Dallas      |
| DBS Data                           | Dallas      | Olde Forge                        | Boise       |
| Olde Forge                         | Boise       | WorldWide Systems                 | Minneapolis |
| MyTFine                            | Minneapolis | A. Henry Inc.                     | Portland    |
| WorldWide Systems                  | Minneapolis |                                   |             |
| A. Henry Inc.                      | Portland    |                                   |             |

- The Restore button will remove any Sorting/Grouping and will restore the Browser to its original display.
- The ? Help button will display the following Help Screen.

**Resultset Help**

**Browse Result Set**

| A_DATE     | A_DIFF      | A_FIELD  | A_F |
|------------|-------------|----------|-----|
| 02/22/1999 |             | P_ACTIVE | HRI |
| 02/22/1999 | 28412.80000 | P_ANNUA  |     |
| 02/22/1999 |             | P_ACTIVE |     |

**Save:** Lets you store your resultset as an xbase file (can be used as basis for new report), a Microsoft Excel worksheet (for further analysis / formatting), or an XML file with schema embedded .

**Move Right/Left:** Lets you move rapidly across columns in large resultsets. Clicking on the buttons moves the screen left or right by a whole page.

**Move Up/Down:** Lets you page through the rows of large resultsets. Clicking on the buttons moves the screen up or down by a screenful of rows.

**Stop:** Closes the resultset browser window and returns to R&R. Pressing the [ESC] key or clicking on the resultset close control will do the same thing.

**Sort/Group:** Click on the column names to sort / group on them. Successive clicks change sorts up and down. Right- click on the column to bring up a popup menu to group on the column.

**Reset:** Click to restore the Resultset to its original state with no extra sorting or grouping.

**Resize:** Columns can be made wider or narrower by clicking on the breaks between them and dragging left or right with the mouse.

**Reposition:** Columns can be moved in the resultset by clicking on the gray header of the column and dragging the mouse left or right.

R&R Resultset Browser version 4.0.2  
Copyright 2000 - 2003, Liveware Publishing, Inc.

Figure 17.14 Result Set Help Screen

## Viewing the Result Set

To view the result set, select the Database menu option View Result Set, or click the Hammer button on the toolbar that performs the same function. Both actions will generate the result set (all composite records needed to produce the report) and display the information in a separate window, called the Result Set Browser.

The Result Set Browser window may be open concurrently with the Report Designer or Print Preview windows, to help you modify the report to produce the desired results. The Result Set Browser window will remain open until closed or refreshed by the user or until the report or R&R itself is closed.

When the Result Set Browser is invoked, a database file is created to contain the result set records. So when you are using the Result Set Browser, you are viewing an actual database. This file is named RS#####.DBF, where the numbers represent the current in use Report Designer serial number.

Since a standard Xbase table only supports 10 character field names, R&R may need to truncate the field names in the result set browser. If there are fields used in the report where the first 10 characters of the field name are duplicated, before the result set is displayed, R&R will issue a warning dialog that will list the duplicates that will not be exported.

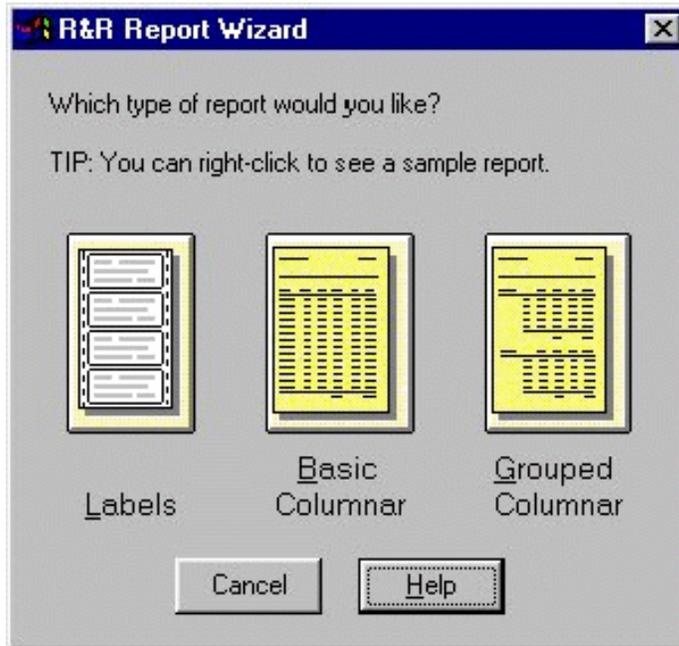
Note that any memo fields in the report are not included in the result set browser.

Since the Result Set Browser is an extension of the export function, the default band line that is presented in the Result Set Browser is a record band. If your report does not contain a record band line, the result set browser will display only field names with empty detail lines. To avoid this problem you can add a record band line to the report and then use either the menu choice Format Record Layout to

Suppress Record Band Lines or Click the  button on the Formatting Toolbar so that this band is not actually printed.

## Using R&R Report Wizards

Report Wizards provide the capability of creating three common types of instant reports (Labels, Basic Columnar, or Grouped Columnar) without having to navigate through Report Designer's menus and dialog boxes. The Wizard dialogs lead you through several simple steps in the preparation of each report type, giving you the opportunity to preview the report output.



**Figure 2.2 Initial Wizards Dialog**

To use the Report Wizards, select File ⇒ New and select "Report Wizards" on the New dialog. Select a master table. The initial R&R Wizards dialog appears (see Figure 2.2). To see sample output for each of the report types, right-click on the appropriate illustration.

To create a report using R&R Wizards, do the following:

4. Click on the illustration of the report type you want to create (or tab to the report type and press Enter).
5. Follow the instructions on the dialog box (or in the on-line help) for each step of developing the report.

To move from one dialog to the next, select the Next button at the bottom; to change selections in a previous dialog, select the Back button.

6. When you are done, select Finish.
7. If you left the "Preview the report when finished" setting on (the default), the report preview window appears; if you turned that setting off, the layout window appears. If necessary, you can make additional changes to the report before printing.
8. Using the procedures explained earlier in this chapter, save the report.

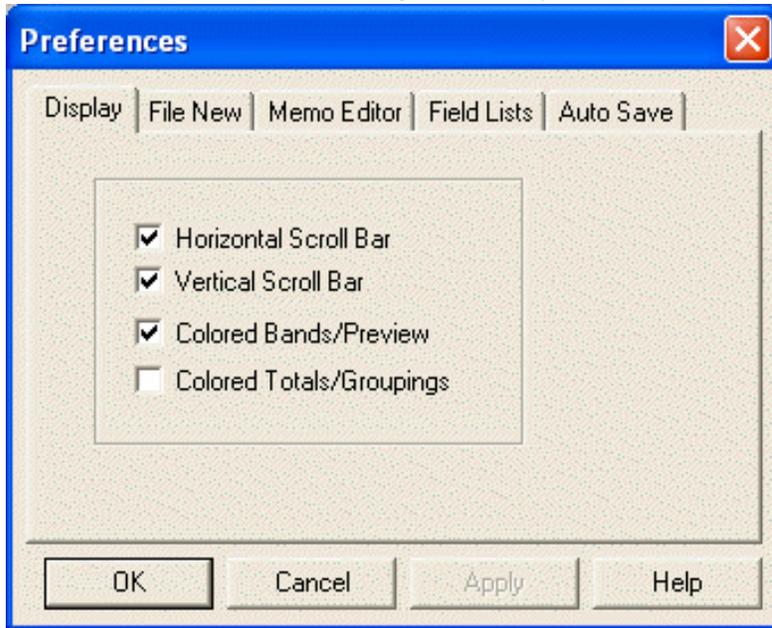
The Report Wizards make use of the R&R Open Scripting mechanism (explained in Chapter 5 of the *Developing Applications* manual) to pass a user-specified report specification to the main Report Designer executable. Visual Basic source code for the Report Wizards is available on request from Liveware Publishing Inc.; you can

use this source code to modify the Report Wizards or to create your own Wizards.

## Changing Color-Coding Settings

The Colored Bands/Preview checkbox on the Preferences dialog controls whether the Band Area of the layout and the margins of the Preview screen display color-coding based on band type. Preview color-coding also enables you to easily associate data on the preview screen with the location of that data on the layout design screen and can be helpful when designing reports.

The Colored Totals/Groupings checkbox controls whether Band Type listings (such as for the Reset level of totals or the band lists for band-oriented Export formats such as DBF) use color-coding to identify bands.



**Figure 5.2 Preferences Dialog Box**

## **Horizontal and Vertical Rulers**

You can use the View Rulers menu choice to display the Rulers dialog where you can choose whether or not to display each of the horizontal and vertical rulers. The spacing tab of the Rulers dialog allows you to adjust ruler spacing. You can also use Format ⇒ Rulers, or right-clicking on any displayed ruler or selecting F8 to display the Rulers Dialog.

**Name**

## Parameter Field Examples

Since the behavior of the Parameter Value Entry screen depends on the individual parameter field definitions, we will look at several parameter field examples that will illustrate a variety of data types and options.

### Character Parameter Example

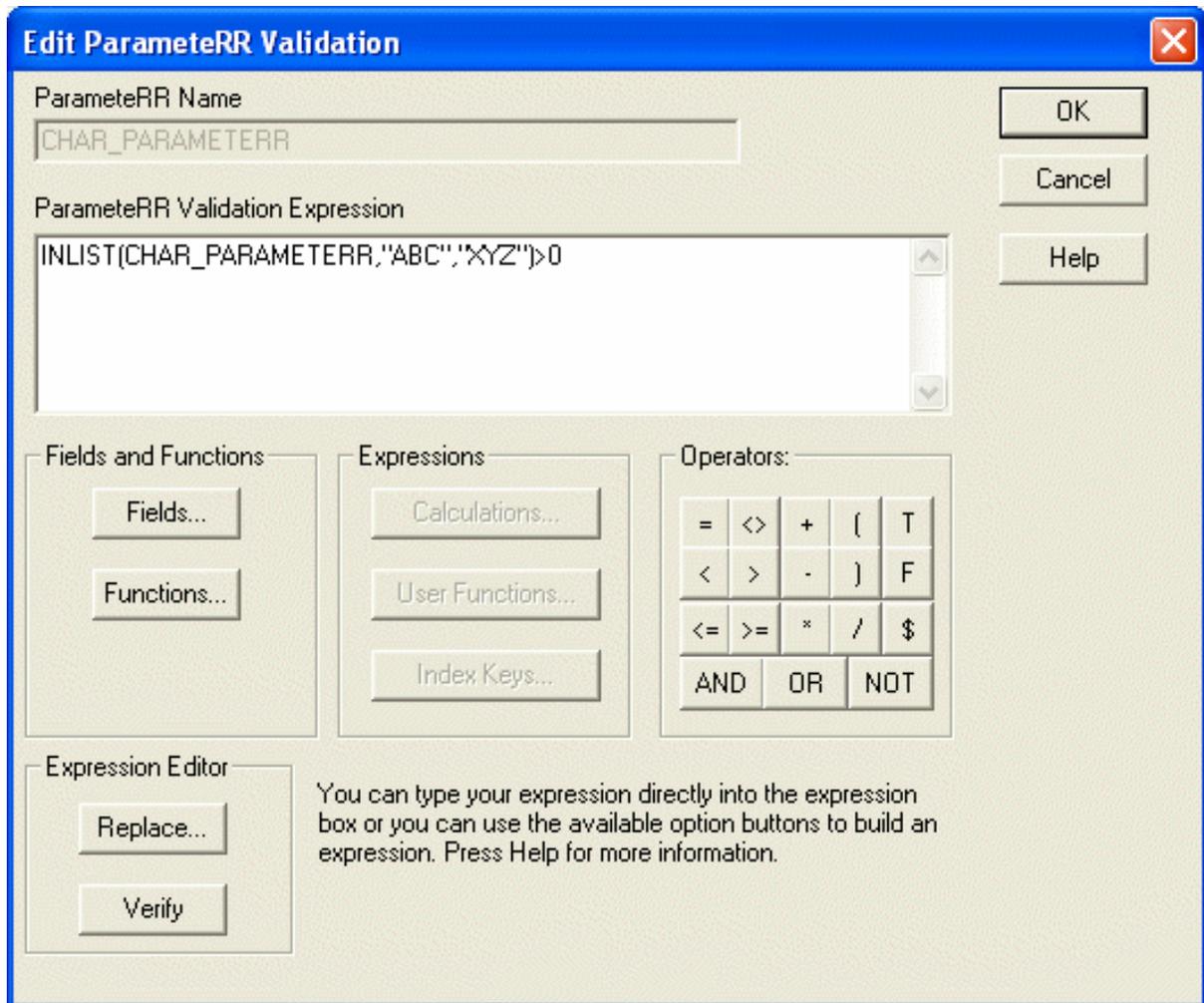
---

**Options: Display Caption, Prompt at Runtime, Validation, Instructions, Error Message**

### **NEED NEW SCREEN SHOT**

**Figure 9.13. Example Character Parameter field**

- The field CHAR\_ PARAMETERR is a character field.
- It has a no display caption defined the field name CHAR\_ PARAMETERR will be displayed in the list box.
- The prompt at runtime box is checked so that it will be presented in the Parameter Value Entry list if it is used in the report.
- Replace with input value is not checked so the Default value will not be updated if the current value is changed via the Parameter Value Entry screen.
- The format of the field is 3 characters, left justified which was the default.
- A validation expression has been added to limit the value of this field to either ABC or XYZ (See figure below for the Validation expression dialog.)
- Instructions have been added.
- An error expression has been added and will display if something other than ABC or XYZ is entered at runtime.



**Figure 9.14. Example Character Parameter Validation**

Here is how the Parameter Value Entry screen will appear for the field A\_CHAR.

**NEED NEW SCREEN SHOT**

**Figure 9.15. Example Character Parameter Value Entry**

- The Current/New values appear without the quote delimiters. What text is entered will be the literal contents of the field. You do not need to add extra delimiters for character parameter values.
- An entry of other than ABC or XYZ will result in an error dialog with the text defined in the Error property for the field. See figure x.x below illustrating what happens when xxx is entered in the New value box and the Accept button is pressed.

**NEED NEW SCREEN SHOT**

**Figure 9.16. Example Error dialog for Character Parameter (Value does not pass Validation and has error property defined)**

**Numeric Parameter Example**

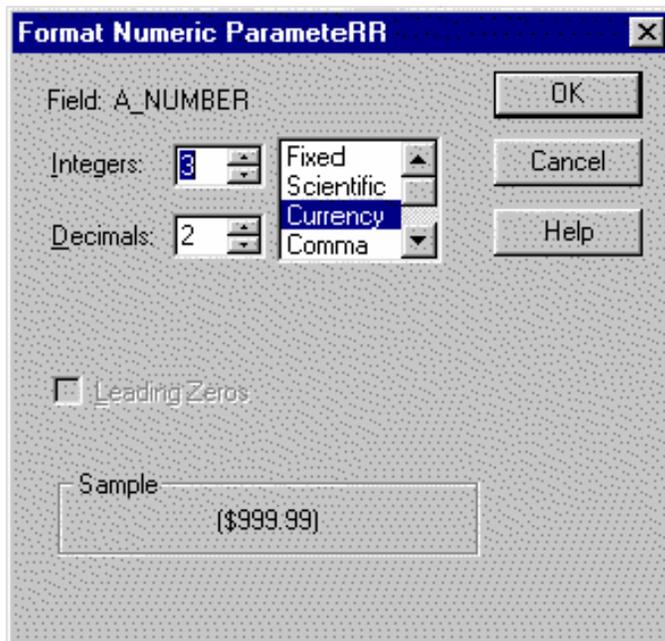
---

**Options: Prompt at Runtime, Replace with Input Value, Format, Instructions**

**NEED NEW SCREEN SHOT**

**Figure 9.17. Example Numeric ParameteRR field**

- The field NUM\_PARAMETERR is a numeric field since its default value is consists of digits only.
- It has a display caption defined that will appear in the ParameteRR Value Entry list.
- The prompt at runtime box is checked so that it will be presented in the ParameteRR Value Entry list if it is used in the report.
- Replace with input value is checked so the Default value will be updated if the current value is changed via the ParameteRR Value Entry screen.
- The format of the field is currency, 3 integers, 2 decimals.



**Figure 9.18. Example Numeric format**

- There is no validation expression.
- Instructions have been added.
- There is no error text.

Here is how the ParameteRR Value Entry screen will appear for the field A\_NUMBER.

## NEED NEW SCREEN SHOT

### Figure 9.19. Example Numeric ParameteRR Value Entry

- The Display Caption appears in place of the field name.
- The current value appears with its currency formatting.
- A new value is entered using only signs, digits and decimals. The above 19.95 entry could also have been entered as –19.95 for a negative value.
- Because the Replace with Input value box was checked when NUM\_PARAMETERR was created, any change made via ParmeteRR value entry is used as the current default value for the field. Editing NUM\_PARAMETERR after executing the report shows 19.95 as the new default rather than the 123 that was the original value. To retain the 19.95 for future report sessions, the report must be saved with this new value.

## NEED NEW SCREEN SHOT

### Figure 9.20. Edit ParameteRR Field Dialog

#### Logical ParameteRR field

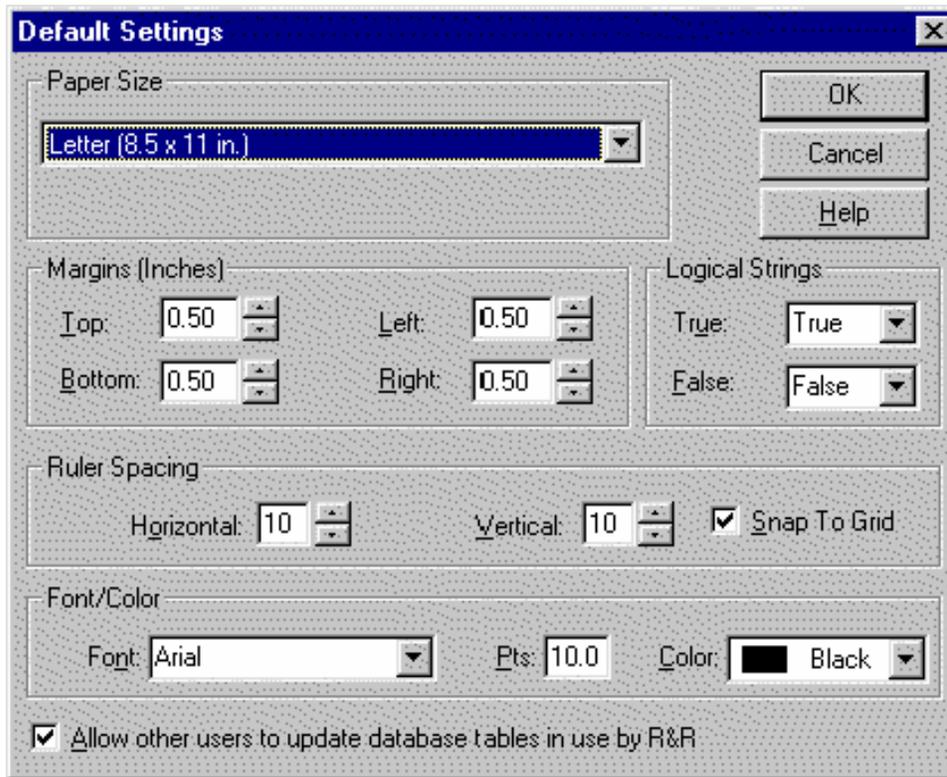
---

Options: Display Caption, Prompt at Runtime

## NEED NEW SCREEN SHOT

### Figure 9.21. Example Logical ParameteRR field

- The field LOGICAL\_PARAMETERR is a logical field since its default value is one of the available valid logical values. Had the expression been "True" it would be a character field.
- It has a display caption defined so the caption will appear in the ParameteRR Value Entry list instead of the field name LOGICAL\_PARAMETERR.
- The prompt at runtime box is checked so that it will be presented in the ParameteRR Value Entry list if it is used in the report.
- Replace with input value is not checked so the Default value will not be updated if the current value is changed via the ParameteRR Value Entry screen.
- No instructions have been entered.
- The format of the field will be the Default logical value that is set in Options Default Settings.



**Figure 9.22. Default Settings Dialog**

Here is how the ParameteRR Value Entry screen will appear for the field A\_LOGICAL.

**NEED NEW SCREEN SHOT**

**Figure 9.23. Example Logical ParameteRR Value Entry**

- The Display Caption appears in place of the field name
- The new value is presented as two radio button choices with the Default value selected

**Numeric ParameteRR field**

---

**Options: Display Caption, Prompt at Runtime un-checked**

**NEED NEW SCREEN SHOT**

**Figure 9.24. Example Numeric ParameteRR field**

- The field NOPROMPT is a numeric field since its default value is consists of digits only.
- It has a no display caption defined so it's name will appear in the ParameteRR Value Entry list.

- Since the Prompt at Runtime box is un-checked, NOPROMPT does not appear in the ParameteRR value entry screen. It can however still be used in the report with it's default value.

## Date ParameteRR

---

Options: Display Caption, Prompt at Runtime, Format, Instructions

### NEED NEW SCREEN SHOT

Figure 9.25. Example Date ParameteRR field

- The field DATE\_PARAMETERR is a date field.
- It has a display caption defined so the caption will appear in the ParameteRR Value Entry list instead of the field name DATE\_PARAMETERR.
- The prompt at runtime box is checked so that it will be presented in the ParameteRR Value Entry list if it is used in the report.
- Replace with input value is not checked so the Default value will not be updated if the current value is changed via the ParameteRR Value Entry screen.
- The format of the field has been Edited to display the name of the month.

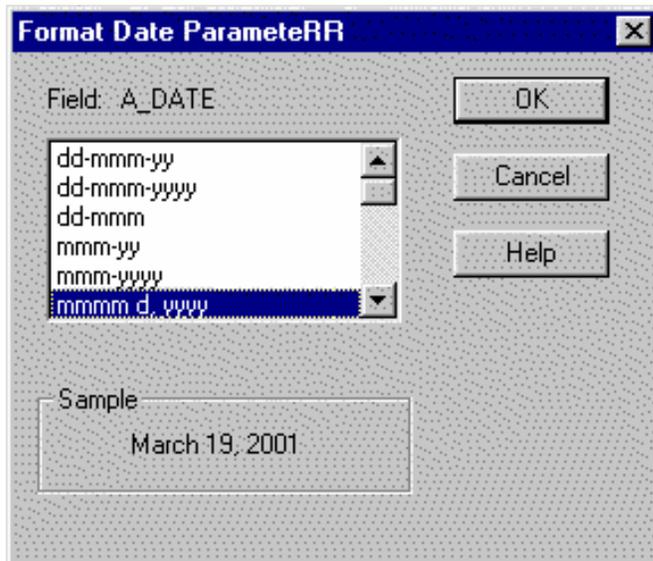


Figure 9.26. Format Date ParameteRR Dialog

- Instructions have been added.

Here is how the ParameteRR Value Entry screen will appear for the field DATE\_PARAMETERR

### NEED NEW SCREEN SHOT

### **Figure 9.27. Example Date ParameteRR Value Entry**

- The Display Caption appears in place of the field name
- The new value must be entered in using MM/DD/YYYY
- The current value is displayed with a Month name format.
- Instructions have been added.

### **DateTime ParameteRR**

---

**Options: Prompt at Runtime, Format, Validation, Instructions**

### **NEED NEW SCREEN SHOT**

#### **Figure 9.28. Example DateTime ParameteRR field**

- The field DATETIME\_PARAMETERR is a datetime field.
- It has a no display caption defined so the field name DATETIME\_PARAMETERR will appear in the ParameteRR Value Entry list.
- The prompt at runtime box is checked so that it will be presented in the ParameteRR Value Entry list if it is used in the report.
- Replace with input value is not checked so the Default value will not be updated if the current value is changed via the ParameteRR Value Entry screen.
- A validation expression has been added that does not allow the month portion of the date to be a 4 (April)
- Instructions have been added telling user to avoid the month of April.
- No error text has been defined.

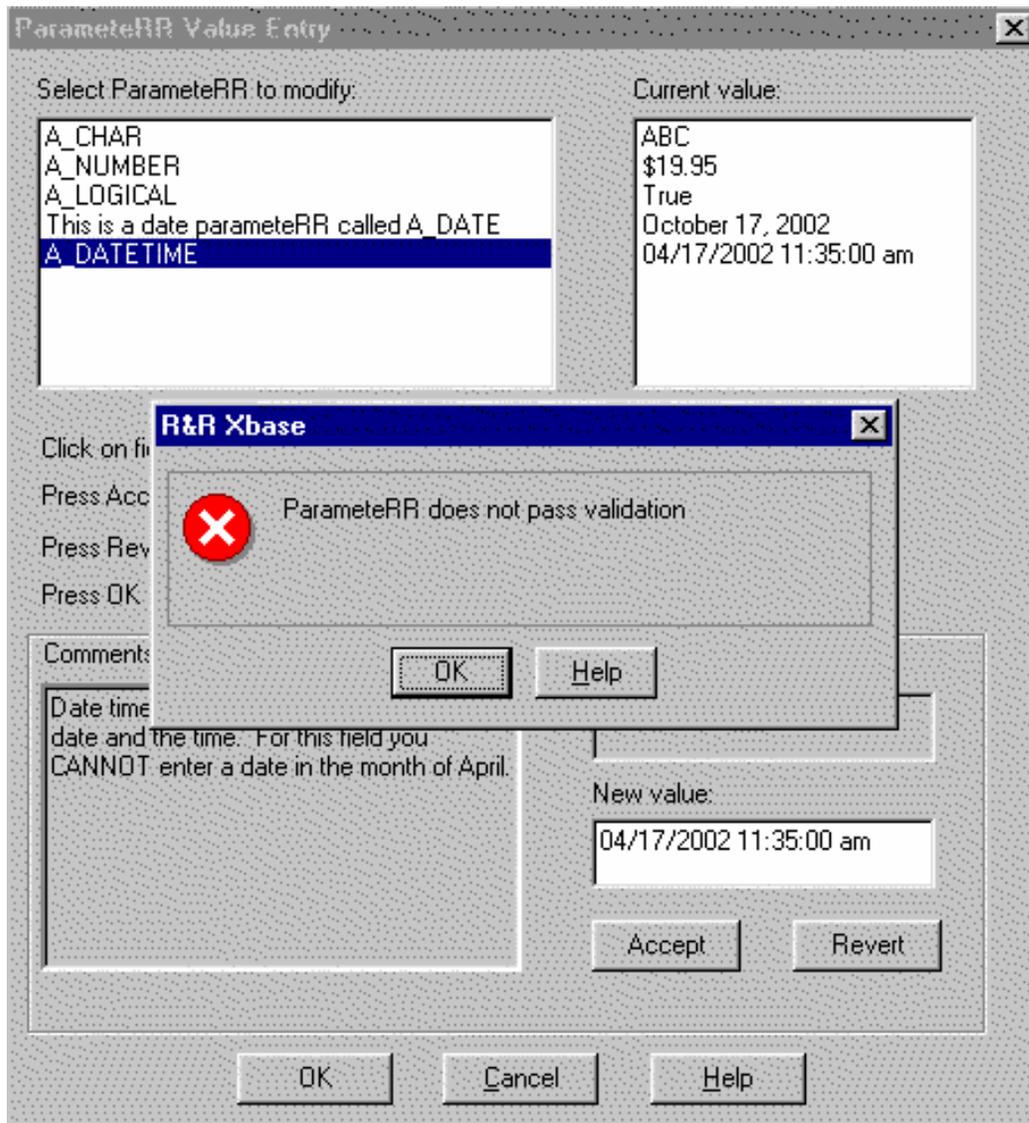
Here is how the ParameteRR Value Entry screen will appear for the field DATETIME\_PARAMETERR.

### **NEED NEW SCREEN SHOT**

#### **Figure 9.29. Example DATETIME ParameteRR Value Entry**

- The field name A\_DATETIME appears in the list since no Display Caption was defined.
- Instructions caution the user not to enter a date in the month of April. Should they do so, they will receive a generic error message since the error

property was left empty in this field's definition.



**Figure 9.30. DATETIME Parameter Value Entry (with generic Parameter "does not pass validation" error)**

### **Character Parameter with List Validation**

**Options: Display Caption, Prompt at Runtime, Validation List, Instructions**

- The field LIST\_PARAMETER is a character field.
- It has a display caption defined.
- Prompt at runtime is enabled.

- Define Validation list is enabled.
- Instructions have been defined.
- A validation list offering 4 choices has been created.

## Paste Special Dialog Box

Embeds or links the contents of the Windows Clipboard. To embed the Clipboard contents, select Paste on this dialog; to link the contents so that changes to the source will be reflected in your report, select Paste Link.

---

### *Settings/Options*

- Source** Original source of the Clipboard contents, if known; automatically detected from the object type highlighted in the "As" box.
- As** Object type of item being pasted from the Clipboard. In some cases multiple object types are displayed, and the one that is highlighted is displayed in "Source." In such cases, the object type you select might affect how the object is stored in Report Writer; for example, inserting Clipboard contents as a Picture type is better than inserting as Bitmap for printing to high-resolution printers. Also, a report file saved with an object inserted as Picture will be smaller than one with an object inserted as Bitmap.
- Paste** When this option is selected, the Clipboard contents will be embedded in the report. The embedded information, or object, becomes part of the report. To edit an embedded object, double-click it on the layout to open it in the source application. When you finish editing the object and return to the report, all of your changes will be reflected in the embedded object.
- Paste Link** When this option is selected, the Clipboard contents will be pasted as a link to the source application. A shortcut is created to the source application such that changes to the source are reflected automatically in the report object.
- Display as Icon** Available only when Paste Link is selected; specifies that the pasted object will display on the report layout as an icon. By default, the icon is the one for the source application; you can select the Change Icon button to choose a different icon.
- Result** A brief explanation of the effects of the settings you have specified on this dialog.
- 

### *Action Buttons*

- OK** Pastes the Clipboard contents (either embedded or linked) based on the settings you have specified on this dialog.
- Cancel** Abandons the pasting of Clipboard contents and closes the dialog.
- Help** Displays this help topic.

## Auto Total Name Tab

Displays the name of the current auto total.

---

### *Options*

|                           |   |
|---------------------------|---|
| <b>Name</b>               | Name for the new total field(s). If multiple totals are being defined, this field cannot be edited; a name for each new total field is generated in the form Total <i>nnnnn</i> , where <i>nnnnn</i> is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch. |
| <b>Comment</b>            | An optional comment of up to 100 characters. If multiple totals are being defined, this field cannot be edited.   |
| <b>Current Definition</b> | Displays the current total definition   |

### *Other Tabs*

---

|                    |  |
|--------------------|--|
| <b>Target/type</b> | Displays the field to be totaled and the type of total operation to perform. |
| <b>Reset</b>       | Displays the reset level of the total  |

### *Action Buttons*

---

|               |   |
|---------------|---|
| <b>OK</b>     | Creates the total according to the current selections |
| <b>Cancel</b> | Closes the dialog without applying changes.           |
| <b>Help</b>   | Displays this help topic.                             |

**Available Field Class Values**

Field Field from a master or related table or attached text file

Calc Calculated field created within the report

Total Total field created within the report

Param Parameter field created within the report

## Band Line Properties Condition Tab

Sets any special conditions determining when a band line will be printed.

---

### *Location*

|             |   |
|-------------|---|
| <b>Line</b> | Line number of the currently selected line. If more than one line is selected, Multiple will be displayed.  |
| <b>Band</b> | Band type of the currently selected line (Title, Header, Group Header, Record, Group Footer, Footer, or Summary). If more than one band type is selected, Multiple will be displayed. |

---

### *Field Settings*

|                         |  |
|-------------------------|--|
| <b>Logical Field</b>    | Control field whose value determines whether the currently selected line is printed for a particular record.<br>Use the [...] button to Display the Select Logical Field Dialog. |
| <b>Print When True</b>  | Print the currently selected line when the value of the specified control field is True, not empty, or non-zero.<br>Only available when a logical field is selected.             |
| <b>Print When False</b> | Print the currently selected line when the value of the specified control field is False, empty, or zero.<br>Only available when a logical field is selected.                    |
| <b>Calc Field</b>       | Use this button to display the Calculated Fields dialog where you can create a new calculation.  |

---

### *Scan Table*

|                   |  |
|-------------------|--|
| <b>Scan Table</b> | Table that controls the printing of the currently selected line. The line is printed only when the specified table is being scanned. Select a table name from the list, or select None to remove the scan condition. This option is only available for reports containing multiple scan relations. |
|-------------------|--|

---

### *Other Band Line Tabs*

**Type**  
**Height**

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Applies the specified changes to the band line(s) and closes the Properties tabbed dialog. |
| <b>Cancel</b> | Closes the Properties tabbed dialog without applying any of the specified changes.         |
| <b>Help</b>   | Displays this help topic.  |

## Band Line Properties Height Tab

Sets the vertical spacing of the selected line(s).

---

### *Location*

|             |   |
|-------------|---|
| <b>Line</b> | Line number of the currently selected line. If more than one line is selected, Multiple will be displayed.  |
| <b>Band</b> | Band type of the currently selected line (Title, Header, Group Header, Record, Group Footer, Footer, or Summary). If more than one band type is selected, Multiple will be displayed. |

---

### *Height*

|                  |   |
|------------------|---|
| <b>Automatic</b> | Line height automatically determined by the size of the largest font used for any field on the line.  |
| <b>Freeform</b>  | <p>Line height manually specified in inches or points. On the layout, a Freeform line is indicated by up and down arrows in the Line Status area.</p> <p><b>Inches/Points:</b> To specify absolute line height in inches or points, click on the appropriate button; then enter or select a measurement in the edit box.</p> <p>If Snap to Grid has been enabled, you will only be able to select measurements based on the current ruler settings.</p> |

---

### *Other Band Line Tabs*

**Type**

**Condition**

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Applies the specified changes to the band line(s) and closes the Properties tabbed dialog. |
| <b>Cancel</b> | Closes the Properties tabbed dialog without applying any of the specified changes.         |
| <b>Help</b>   | Displays this help topic.  |

**Class**

Field A field that comes from a database or attached text file

Calc A calculated field that is computed in the report

Param A parameter field that is computed in the report

Total A total field that is computed in the report

## Conditional Expression

Automatically creates totals for all fields selected on the layout.

---

### ***Conditional Expression***

**Expression** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Totalnnnnn, where nnnnn is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.

---

### ***Fields and Functions***

**Fields** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Totalnnnnn, where nnnnn is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.

**Functions** Total type for the field(s) to be created. Only total types that are valid for all selected fields are active.

---

### ***Expressions***

**Calculations** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Totalnnnnn, where nnnnn is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.

**User Functions** Total type for the field(s) to be created. Only total types that are valid for all selected fields are active.

**Index Keys** Level at which all automatically created totals for this batch will reset.

---

### ***Operators***

**Name** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Totalnnnnn, where nnnnn is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.

---

### ***Expression Editor***

**Replace** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Totalnnnnn, where nnnnn is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.

**Verify** Total type for the field(s) to be created. Only total types that are valid for all selected fields are active.

## Procedures for Creating a Report Dictionary

Follow these general procedures to create a report dictionary file:

1. Double-click the Report Dictionary icon (to create a FoxPro dictionary file, you must first edit the properties of that icon to add the /f switch).
2. To create a dictionary file by manually entering all required TABLE\_NAME and FIELD\_NAME values, select File ⇒ New.

To begin creating a dictionary file by having the Report Dictionary utility insert the necessary information from a specified DBF file, select File ⇒ Populate from DBF. Then select a database file from the File Name list box and select OK.

3. If you are building the dictionary file "from scratch," enter the TABLE\_NAME and FIELD\_NAME values for each field. If you selected File ⇒ Populate, TABLE\_NAME and FIELD\_NAME values for all fields in the specified database file are inserted automatically (maximum size for each of these fields is 50 characters). Initially the COMMENT and EXTENDED fields are blank and the remaining fields default to False.
4. Enter values for each field as necessary.

To edit the contents of an entire record (row), double-click in the TABLE\_NAME, FIELD\_NAME, COMMENT, or FORMULA cell to display the Edit Record dialog.

To toggle the True/False value of EXTENDED, FIELD\_HIDE, FILTR\_HIDE, and INST\_HIDE, simply double-click in the appropriate cell.

5. When you are finished entering values, select File ⇒ Save; to exit the Report Dictionary dialog, select File ⇒ Exit.

**Description**

Descriptive text for a field can be defined in the Data Dictionary or by adding a comment in the designer for a computed field.

Field descriptions are shown in parentheses after the field name if Show Dictionary Descriptions has been enabled in Options->Preferences.

## Excel Chart Specification Dialog

Enables selection of values for export to an Excel 5.0 chart.

---

### *List Boxes*

|                            |   |
|----------------------------|---|
| <b>Fields</b>              | Lists names of all fields that can be included in an export to chart; each field name is preceded by its table alias. Select a field or fields from this list to add to the Categories or Values box. |
| <b>Categories (X Axis)</b> | Use the right arrow button to insert the currently highlighted field name from the Fields list box; this field will provide values for the X-axis of the chart  |
| <b>Values (Y Axis)</b>     | Use the right arrow button to insert the currently highlighted field name from the Fields list box; this field will provide values for the Y-axis of the chart.                                       |
| <b>Value Type</b>          | After inserting a field name in the Values box, select a total type to be applied to that field (Count, Sum Average, Max, Min, Std Dev., Variance).   |

---

### *Buttons*

|                    |  |
|--------------------|--|
| <b>Right Arrow</b> | Inserts the field name currently highlighted in the Fields list box into the Categories or Values box. |
| <b>Left Arrow</b>  | Removes the currently highlighted field name from the Categories or Values box.                        |
| <b>Close</b>       | Exits the Chart Options dialog, saving the Categories, Values, and Value Type selections.              |
| <b>Cancel</b>      | Cancel the chart Export and returns to the main Export dialog without saving the selections.           |
| <b>Export</b>      | Exports data to an Excel 5.0 chart as specified by the selections you have made on this dialog.        |
| <b>Reset</b>       | Clears the Categories, Values, and Value Type selections.  |

---

### *Check Boxes*

|  |  |
|--|--|
| <b>Export Summary Information Only</b> | When this box is selected (the default), Report Writer performs the necessary totaling and passes only the total data to Excel; when this box is not selected, Report Writer passes all of the specified record data to Excel and Excel performs the totaling. |
|--|--|

### **Procedural Topics:**

Procedures for Exporting to a Chart  
Specifying Data Elements for a Chart

## Excel PivotTable Specification Dialog

Enables selection of column labels, row labels, and cell values for export to an Excel 5.0 PivotTable.

---

### **List Boxes**

- Fields** Lists names of all fields that can be included in a PivotTable export; each field name is preceded by its table alias. Select a field or fields from this list to add to the Rows, Columns, or Value box.
- Columns** Use the right arrow button to insert the currently highlighted field name in the Fields list box into the Column box.
- Rows** Use the right arrow button to insert the currently highlighted field name in the Fields list box into the Rows box.
- Values** Use the right arrow button to insert the currently highlighted field name in the Fields list box into the Values box.
- Value Type** After inserting a field name in the Values list, select a total type to be applied to that field (Count, Sum Average, Max, Min, Std Dev. Variance).
- 

### **Buttons**

- Right Arrow** Inserts the field name currently highlighted in the Fields list box into the Columns, Rows, or Values box.
- Left Arrow** Removes the currently highlighted field name from the Columns, Rows, or Values box.
- Close** Exits the PivotTable Options dialog, saving the Columns, Rows, Values, and Value Type selections.
- Cancel** Cancels the PivotTable Export and returns to the main Export dialog without saving the selections.
- Export** Exports data to an Excel 5.0 PivotTable as specified by the selections you have made on this dialog.
- Reset** Clears the Columns, Rows, Values, and Value Type selections.
- 

### **Check Boxes**

- Export Summary Information Only** When this box is selected (the default), Report Writer performs the necessary totaling and passes only the total data to Excel; when this box is not selected, Report Writer passes all of the specified record data to Excel and Excel performs the totaling.

### **Procedural Topics:**

Procedures for Exporting to PivotTable  
Specifying Labels and Cell Data

## Delete Calculation Dialog Box

Lists all calculated and total fields that are dependent on the calculated field you have selected for deletion. If you confirm the deletion, these dependent fields will be deleted as well.

**Name/Type** Name of each calculated or total field that will be deleted, followed by the field type.

**OK** Delete all the fields in the Name/Type list.

**Cancel** Do not delete any of the fields in the Name/Type list.

## Delete Total Dialog Box

Lists all calculated and total fields that are dependent on the total field you have selected for deletion. If you confirm the deletion, these dependent fields will be deleted as well.

**Name/Type** Name of each calculated or total field that will be deleted,  
**e** followed by the field type.  
**OK** Delete all the fields in the Name/Type list.  
**Cancel** Do not delete any of the fields in the Name/Type list.

## Specifying Data Elements for a Chart

Suppose you want to create a chart that shows the total quantity ordered for each product number. You create a report using the tables RRITEMS and RRORDERS; two of the fields in the report are PRODUCT\_NO and QUANTITY. To create a chart from this data, you would do the following:

1. Select File ⇒ Export and specify "Excel Chart" as the export type. Select Edit.
2. Highlight PRODUCT\_NO in the Fields list. Either drag and drop the field name into the Categories box or click the right arrow button next to the Categories box to insert this field name there.
3. Highlight QUANTITY in the Fields list. Either drag and drop the field name into the Values box or click the right arrow button next to the Values box to insert this field name there..
4. Highlight Sum in the Value Type box; then select Export.

An Excel worksheet is displayed, with the exported data arranged as a chart (see below). Use Excel to modify, format, and print the chart.



### Portion of Excel 5.0 Chart after Export

## Specifying Labels and Cell Data

The fields that you select using the buttons next to the Columns and Rows boxes on the PivotTable dialog become the labels for the x axis (Columns) and y axis (Rows) of the resulting crosstab. The combination of the field that you insert in the Values box and the Value Type you specify for that field supplies the values for the crosstab cells.

Take the simple example of a report that draws data from three tables, RRORDERS, RRPRICES, and RRITEMS. Suppose you want to create a crosstab that uses product descriptions as the row labels and order dates as the column labels. Suppose also that you have defined a calculated field named ORDER\_TOT that multiplies quantity times unit price.

Your goal is to create a crosstab that uses product descriptions as the row labels and order dates as the column labels and that inserts the total order amount for each date in the crosstab cells.

After creating a report that provides the necessary field values, you would do the following to create such a crosstab:

1. Select File ⇒ Export and specify "Excel PivotTable" as the export type. Select Edit.
2. On the Excel PivotTable Options dialog, all fields from the report's composite record structure are shown in the Fields list box. In the Fields list box, highlight the field that you want to supply values for the Column labels (in this case, the DATE field) and either drag and drop the field into the Columns box or click the right arrow button next to the Columns box.
3. In the Fields list box, highlight the field that you want to supply values for the Row labels (in this case, the DESCRPTN field, which contains the product names). Either drag and drop the field name into the Rows box or click the right arrow button next to the Rows box.
4. In the Fields list box, highlight the field that you want to serve as the basis for the PivotTable cell data (in this case, the ORDER\_TOT field) and either drag and drop the field name into the Values box or click the right arrow button next to the Values box. Then in the Value Type box select the total type that you want applied to the field value (in this case, Sum).
5. Select Export. Report Writer exports the data to a temporary file and launches Excel (or switches to it if it is already running). The OLE Driver dialog displays a series of informational prompts ("Starting PivotTable Module," Reading in Exported Data," and "Creating PivotTable") as the PivotTable is set up in Excel.
6. An Excel worksheet is displayed, with the exported data arranged as a PivotTable (see below). Use Excel to modify, format, and print the PivotTable.



### Portion of Excel 5.0 PivotTable After Exporting

## Master Table Dialog Box

Lists all fields in the report that will be eliminated if you change the master table. If you confirm the change, these fields will be deleted from the report.

**Name/Type** Name of all fields that will be deleted, followed by the field type.

**OK** Delete all the fields in the Name/Type list.

**Cancel** Do not delete any of the fields in the Name/Type list.

## Procedures for Exporting to a PivotTable

Follow these general procedures to export report data to an Excel 5.0 PivotTable (details on some of these steps are provided in the next section):

1. On the Export dialog box, highlight "Excel PivotTable" in the list box and select Edit to display the Excel PivotTable Options dialog.
2. Select one or more fields in the Fields list box to be inserted as a Row label, Column label, or table cell value in the crosstab (see the next section for detailed information on each of these steps).
3. By default, "Export Summary Information Only" is selected. To export only summary field data, leave this box checked; to export all field data, click the check box to remove the check mark.

If you export only summary field data, Report Writer performs the necessary totaling and passes only the total data to Excel; this method is efficient but limits how much additional manipulation of the data you can perform in Excel. If you export all field data, Report Writer passes all of the specified record data to Excel and Excel performs the totaling; this method is less efficient but allows greater flexibility in working with the exported data in Excel.

4. Select Export. Report Writer exports the data to a temporary file, starts Excel (or switches to Excel if it is already running), and creates the PivotTable in Excel.
5. Modify the PivotTable as necessary; then save the Excel workbook file. See your Excel documentation for detailed information about using Excel.

Note that the Excel 5.0 PivotTable settings are saved with the report, but that any changes you make to the PivotTable in Excel will not be reflected in the report.

## Procedures for Exporting to a Chart

Follow these general procedures to export report data to an Excel 5.0 chart (details on some of these steps are provided in the next section):

1. On the Export dialog box, highlight "Excel Chart" in the list box and select Edit.
2. On the Excel Chart Options dialog, highlight a field in the Fields list that will supply the category (X-axis) values for the chart. Either drag and drop the field name into the Categories box or click the right arrow button next to the Categories box to insert this field name there.
3. Highlight a field in the Fields list that will supply the values (y-axis) for the chart. Either drag and drop the field name into the Values box or click the right arrow button next to the Values box to insert this field name there.
4. In the Value Type list box, highlight the total type that you want applied to the field value.
5. By default, "Export Summary Information Only" is selected. To export only summary field data, leave this box checked; to export all field data, click the check box to remove the check mark.

If you export only summary field data, Report Writer performs the necessary totaling and passes only the total data to Excel; this method is efficient but limits how much additional manipulation of the data you can perform in Excel. If you export all field data, Report Writer passes all of the specified record data to Excel and Excel performs the totaling; this method is less efficient but allows greater flexibility in working with the exported data in Excel.

6. Select Export. Report Writer exports the data to a temporary file, starts Excel (or switches to Excel if it is already running), and creates the chart in Excel.
7. Modify the chart as necessary in Excel (you can right-click to modify the chart characteristics); then save the Excel workbook file. See your Excel documentation for detailed information about using Excel.

Note that the Excel 5.0 Chart settings are saved with the report, but that any changes you make to the chart in Excel will not be reflected in the report.

## Total Condition Dialog Box

Defines a condition expression that controls the circumstances in which Report Writer will calculate a total. Syntax for a condition expression is the same as that for calculated field expressions. You can either enter the expression directly into the Expression box or build the expression by selecting Fields, Functions, Operators, Calculated Field Expressions, Key Expressions, or UDF Expressions.

---

### *Settings*

|                                 |   |
|---------------------------------|---|
| <b>Expression</b>               | Condition expression to be attached to the total field. You can define an expression by typing directly in the edit box; by selecting an item in the Fields or Functions list, then selecting the Insert button; by selecting the Operator buttons; or by selecting the Calc Expression, Key Expression, or UDF Expression buttons. |
| <b>Paste Function Arguments</b> | Check this box to insert the argument names defined in the declaration of the function you are inserting. Replace the argument names with the names of fields on which you want the function to operate.  |
| <b>Fields</b>                   | List of all database, total, and calculated fields. To insert a field name into the condition expression at the edit cursor: either double-click on a field name or highlight the name and select the Insert button.  |
| <b>Functions</b>                | List of all predefined and user defined functions. To insert a function into the condition expression at the edit cursor: either double-click on a function or highlight a function and select the Insert button. After you insert a function, the edit cursor is automatically positioned inside the function argument list.       |
| <b>Operators</b>                | Operators that can be inserted in the condition expression. To insert the operator into the calculated field expression at the edit cursor position, select an operator button.   |

---

### *Action Buttons*

|                        |  |
|------------------------|--|
| <b>OK</b>              | Attaches the condition expression to the total field.  |
| <b>Cancel</b>          | Closes the Total Condition dialog box, discarding entries or changes.  |
| <b>Insert</b>          | Inserts the currently selected item from the Field or Function list into the Expression edit box.  |
| <b>Verify</b>          | Verifies the syntax of the expression in the Expression edit box. When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the expression syntax. |
| <b>Calc Expression</b> | Displays the Calc Expression dialog box. Select a calculated field from the list to insert the field's expression into the Expression edit box.  |
| <b>Key Expression</b>  | Displays the Key Expression dialog box. Select an index key value from the list to insert the index key's definition into the Expression edit box.   |
| <b>UDF Expression</b>  | Displays the User Functions dialog box. Select a user function from the list to insert the function's expression   |

into the Expression edit box.

## User Function

Lists all calculated fields that are dependent on the user function you have selected for deletion. If you confirm the deletion, these dependent fields will be deleted as well.

**Name/Type** Name of all the fields that will be deleted, followed by the field type.  
**e**  
**OK** Deletes all the fields in the Name/Type list.  
**Cancel** Closes the dialog without deleting any of the fields in the Name/Type list.

## **Duplicate Export Field Warning**

When exporting to DBF or Result set only the first 10 characters of the exported field name are used for the exported field name. The first 10 characters of the listed field names are the same as fields that also exist on the exported band line. If you want the listed field(s) to be included in the export file, you should select Cancel and then create a calculated field whose expression is the name of the duplicate field and give that calculated field a unique 10 character name. Then replace the duplicate field on the layout with the calculated field and then repeat the File->Export.

## Dynamic List Parameter Validation Tab

If the Define Validation list box is checked on the Value tab and the Dynamic button is selected, the validation tab allows you to first select a database table and then a field from that table whose values may then be selected as the current parameter value when the report is executed.

### ***Select Validation Table Action Buttons***

---

- Table..** Opens the Validation table file selection dialog where you can select the validation table. The default directory will be the Lookup directory that has been set in Options->File Settings.
- Clear Table** Clears the currently selected validation table and any selected value field from that table.
- Value Field..** Opens the Select Value Field dialog that displays all available fields from the current validation table whose data type matches the current parameter data type.
- Clear Value Field** Clears the currently selected value field.

### ***Other Tabs***

---

**Name**

**Value**

**Presentation**

---

### ***Action Buttons***

- OK** Closes the dialog box and saves changes.
- Cancel** Closes the dialog box without preserving any changes.
- Help** Displays this help topic.

## Edit ParameteRR Validation

The ParameteRR validation dialog that is similar to that for an R&R calculated field. The main differences are:

- The available field list only includes ParameteRR field names.
- You cannot use R&R or database field names in the expression. This is because parameteRR fields must be evaluated before report execution and are really whole report rather than record dependent.
- You cannot use the Expressions buttons.
- The expression must evaluate to a logical true or false value or you will receive the following error: Validate Expression must be logical type.

Here are some examples that show ParameteRR validation expressions and their meaning.

Inlist(PARAM1, "Curly", "Larry", "Moe")

*User must enter either Curly Larry or Moe in text box for character parameteRR PARAM1*

PARAM2 <> 5

*User cannot enter 5 as the numeric value for numeric parameteRR PARAM2*

Inrange(PARAM3({12/01/2005}, {12/31/2005}))

*Date must be in December 2000 for date parameteRR PARAM3*

Once you have entered your expression, OK will evaluate the expression and then return you to the ParameteRR Validation tab and the validation expression will be displayed.

---

### **Action Buttons**

|               |                                       |
|---------------|---------------------------------------|
| <b>OK</b>     | Closes dialog and saves any changes.  |
| <b>Cancel</b> | Closes dialog without saving changes. |
| <b>Help</b>   | Displays this help topic.             |

## Total Accumulation Tab

Accumulation frequency determines how often Report Designer adds to the total as the report is processed. When you create a total field, Report Designer automatically sets the accumulation frequency of the total according to a set of default rules. The accumulation frequency automatically set by Report Designer is appropriate for most commonly generated totals.

### Accumulation Frequency

|                  |  |
|------------------|--|
| Automatic        | Accumulates based on the scan level associated with the total. |
| Every Composite  | <b>Accumulates total once per composite record</b>             |
| Group levels 1-8 | Accumulates total once per selected group                      |
| Once per page    | Accumulates total once per page                                |

### Other Tabs

---

Name

Target/type

Reset

Processing

Condition

### Action Buttons

---

|        |   |
|--------|---|
| OK     | Creates the total according to the current selections |
| Cancel | Closes the dialog without applying changes.           |
| Help   | Displays this help topic.                             |

## Edit Total Condition Tab

For any total field, you can specify a conditional expression that controls the circumstances in which Report Designer will calculate that total. The syntax for a conditional expression is the same as that for calculated field expressions.

### *Display boxes*

---

|                    |   |
|--------------------|---|
| Condition          | <b>Displays the current conditional expression.</b> |
| Current Definition | <b>Displays the current total field definition.</b> |

### *Action Buttons*

---

|        |   |
|--------|---|
| Edit   | <b>Create or edit a conditional expression.</b>   |
| Delete | <b>Delete the current conditional expression.</b> |

### *Other Tabs*

---

**Name**

**Target/type**

**Reset**

**Accumulation**

**Processing**

### *Action Buttons*

---

|        |  |
|--------|--|
| OK     | Creates the total according to the current selections. |
| Cancel | Closes the dialog without applying changes.            |
| Help   | Displays this help topic.                              |

## Total Field Name Tab

The Name tab of the Edit Total dialog allows you to enter or change the name of the total field and to optionally enter a descriptive comment for the total.

### *Available options*

---

|                   |  |
|-------------------|--|
| <b>Field Name</b> | <b>The name of the total field. Required entry. Can be up to 30 characters and must be unique in the report.</b>   |
| <b>Comment</b>    | An optional comment of up to 100 characters can be added. Comments are displayed in the Status Bar when a field is selected and optionally in field lists. |
| <b>Expression</b> | Displays the current total definition.   |

### *Other Tabs*

---

**Target/type**  
**Reset**

**Accumulation**

**Processing**

**Condition**

### *Action Buttons*

---

|               |   |
|---------------|---|
| <b>OK</b>     | Creates the total according to the current selections |
| <b>Cancel</b> | Closes the dialog without applying changes.           |
| <b>Help</b>   | Displays this help topic.                             |

## Edit Total Processing Tab

Processing determines whether a total is a progressive or a final value.

A running total computes the value of the total progressively as each record that contributes to the total is read.

A pre-processed total computes the value of the total by making an initial totaling pass through the records. This totaling is done before the report records are output. Pre-processing enables you to have access to the final value of the total earlier than it would ordinarily be calculated. As a result, you can place such a total field anywhere in the report and can create percent of total calculated fields. There are some limitations on the type of totals that can be pre-processed. See Pre-Processing Restrictions for an explanation of these rules.

See When to Use Pre-Processed Totals for an example of using pre-processed totals.

### Processing

Running

**Value of the total is calculated progressively as each record that contributes to the total is read.**

Pre-Processed

**A first pass is made through the records to reach the reset point of the total. This final value of the total at the reset point is then the value of the total for each record that contributes to the total.**

### Other Tabs

---

Name

Target/type

Reset

Accumulation

Condition

### Action Buttons

---

OK Creates the total according to the current selections

Cancel Closes the dialog without applying changes.

Help Displays this help topic.

## Total Reset Tab

Reset determines when Report Designer resets the value of the total field to zero. Selecting a group field as the reset level will produce group subtotals; selecting a Page Total will produce page subtotals; selecting a Grand Total will produce grand totals for the entire report.

For example, if STATE is your first group field, you can select STATE (Group1) from the Reset list box to calculate total sales by state. In this case, Report Designer produces a subtotal of sales and resets this subtotal to zero whenever a new state group begins.

### *Available options*

---

#### Reset level

|                         |  |
|-------------------------|--|
| <b>Grand</b>            | <b>A grand total includes all records in the result set. It reaches its final value at the end of the report. Grand totals are typically placed on a summary band line.</b>              |
| <b>Page</b>             | <b>A page total reaches its final value at the end of each page. Page totals are typically placed on a page footer band line.</b>  |
| <b>Group levels 1-8</b> | <b>A group total reaches its final value when it reaches the last consecutive record with the same group field value. Group totals are typically placed on a group footer band line.</b> |

### *Other Tabs*

---

#### Name

#### Target/type Accumulation

#### Processing

#### Condition

### *Action Buttons*

---

|               |   |
|---------------|---|
| <b>OK</b>     | Creates the total according to the current selections |
| <b>Cancel</b> | Closes the dialog without applying changes.           |
| <b>Help</b>   | Displays this help topic.                             |

## Total Target/Type Tab

The target/tab tab of the Edit Total dialog allows you to select the field that will be totaled and to select the type of aggregation that will be performed on that field.

### Available options

|                            |  |
|----------------------------|--|
| <b>Field to be totaled</b> | Use the  button to the right of the field box to bring up the Select Target field dialog. Then select the field to total from the list.   |
| <b>Total Type</b>          | Select the radio button that corresponds to the type of operation that should be performed on the selected field.  |
| <b>Select</b>              | <b>To Produce</b>  |
| Count                      | Count of the records that contain data in the field. Records that contain no data in the selected field (that is, the field is blank or contains a zero formatted with "Show Zero" turned off) are not included in the count.  |
| Sum                        | Sum of the values in a numeric or logical field for all records containing data. (For logical fields, True = 1; False = 0).  |
| Average                    | Average (mean) of the values in a numeric or logical field for all records that contain data. Records in which the field is blank or contains a zero formatted with "Show Zero" turned off are not included in the average.  |
| Minimum                    | Lowest value for a numeric field, false for a logical field if any records contain false values, earliest date for a date field, first value in alphabetical order for a character field. Only records containing data are considered.   |
| Maximum                    | Highest value for a numeric field, true for a logical field if any records contain true values, latest date for a date field, last value in alphabetical order for a character field. Only records that contain data are considered.   |
| Standard Deviation         | For numeric fields, the square root of the variance. Standard Deviation is calculated using the following formula, where $n$ is the total number of values, $vi$ is the $i$ th value, and $avg$ is the average of all values:<br>$\sqrt{\frac{\sum (x_i - avg)^2}{n}}$   |
| Variance                   | For numeric fields, the average of NUMBER2 minus (average of NUMBER)2, where NUMBER is a numeric field and the average is computed based on the number of records totaled (not including records with blanks or zeros formatted with "Show Zero" turned off). See the formula illustrated in the explanation of Standard Deviation. Both variance and deviation measure the degree to which individual field values vary from the average of all values totaled. |

### Other Tabs

**Name**

**Reset**

**Accumulation**

**Processing**

**Condition**

***Action Buttons***

---

|               |   |
|---------------|---|
| <b>OK</b>     | Creates the total according to the current selections |
| <b>Cancel</b> | Closes the dialog without applying changes.           |
| <b>Help</b>   | Displays this help topic.                             |

## Procedures for Editing a Report Dictionary

Follow these general procedures to edit a report dictionary file:

1. Double-click the Report Dictionary icon (to edit a FoxPro dictionary file, you must first edit the properties of that icon to add the /f switch).
2. Select File ⇒ Open. From the File Name list box, select a database file and select OK.
3. To edit the contents of an entire record (row), double-click in the TABLE\_NAME, FIELD\_NAME, COMMENT, or FORMULA cell to display the Edit Record dialog. To toggle the True/False value of EXTENDED, FIELD\_HIDE, FILTR\_HIDE, and INST\_HIDE, simply double-click in the appropriate cell.
4. To add the contents of an existing report dictionary file, select File ⇒ Append and select a dictionary file. To manually add a record, select Edit ⇒ Insert Record
5. To clear a portion of the grid, click and drag to mark the portion to be cleared and then select Edit ⇒ Clear Selection.
6. When you are finished editing the report dictionary, select File ⇒ Save to save the file with the current name or File ⇒ Save As to save it under a different name.

The status area at the bottom of the dialog displays the column name and value for the currently selected cell, as well as the path and name of the report dictionary file. You can adjust the width of any column by clicking on a column divider in the column heading row and dragging the line either left or right.

**Enabling snap to grid**

In the Format menu, a checkbox in front of Snap to Grid indicates that it is currently enabled. In a report, you can turn Snap to Grid off and on as you work with individual lines. In order to get the most complete control of setting line heights, Snap to Grid should be disabled. Once you have made a change, you can turn Snap to Grid back on so that objects placed on the layout will automatically align to the nearest grid dot.

## File Export ActiveX

### Active X Viewer Control Options

ActiveX Viewer Control Options

Export OLE objects

HTML Document Name:

Input File URL:

Control URL:

Image URL:

Viewer Control Size

Set the size to a percentage of the browser window

Width %:

Height %:

Preview HTML Document

Create HTML Document

#### HTML Document Name

The name and optional path of the HTML container file. This file will contain the reference to the exported PDI file. The default entry will be the name of exported PDI file. If no file name has been selected, the default will be the name of the report.

#### Input File URL

Must match the path and filename of the exported PDI file.

#### Control URL

Enter the location of the Viewer control (RRPRVIEW.CAB) on your Web server, either as a full or relative path.

#### Image URL

If the images used by the exported report will not be in the same folder on the web site as the PDI file, enter the location of the image folder in the Image URL box as you would like it to appear in the HTML document.

#### Export OLE Objects

This box is only enabled when a report includes an OLE object.

#### Viewer Control Size

Enter Width and Height settings (as percentages of the browser window) to establish the dimensions of the Viewer control window.

#### Preview HTML document

Displays the HTML source code for the container file that will be created.

#### Create HTML document

Creates the HTML document container file.

***Action Buttons***

---

|               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified HTML file.           |
| <b>Cancel</b> | Closes the dialog without saving the settings.                |
| <b>Close</b>  | Closes the dialog, saving the settings but without exporting. |
| <b>Help</b>   | Displays this help topic.                                     |

## HTML Export Options

Allows you to select optional settings for a HTML export file.

### *Image*

---

|                              |  |
|------------------------------|--|
| <b>Image Directory</b>       | Specifies the directory in which image files will be placed upon export.   |
| <b>Convert all images...</b> | Specifies the format (BMP, GIF, or JPG) to which all images (including charts and OLE objects, which are saved as images) contained in the report will be converted upon export. |

### *Background*

---

|              |   |
|--------------|---|
| <b>Color</b> | To specify a solid color background for the HTML page, click the radio button and select a color from the drop-down menu.   |
| <b>Image</b> | To select a graphic image to serve as the background of the HTML page, enter or select (by clicking the ellipses to the right) the name and location of the image file. |

### *Table Border*

---

|              |   |
|--------------|---|
| <b>None</b>  | To specify that no border be placed around report data on the HTML page (the default), select this setting.                             |
| <b>Width</b> | To specify that report data be placed in a grid border on the exported HTML page, select this setting; then specify a border thickness. |

### *View*

---

|   |  |
|---|--|
| <b>Open File in default browser ...</b> | To specify that your system's default web browser will be executed to display the report file after the file has been exported, click the check box to turn this setting on. |
|---|--|

### *Action Buttons*

---

|               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified HTML file.           |
| <b>Cancel</b> | Closes the dialog without saving the settings.                |
| <b>Close</b>  | Closes the dialog, saving the settings but without exporting. |
| <b>Help</b>   | Displays this help topic.                                     |

## File Export Mail Options

The Send Via MAPI checkbox on the Mail Options tab allows to send an export file using a MAPI (Messaging Application Programming Interface) compliant email application such as Microsoft Outlook. This box will be dimmed if a MAPI application is not detected.

By checking this box, a set of Mail Options will be presented. These options will determine the format of the email message that will contain the exported file.

---

### *Address settings*

|  |   |
|--|---|
| <b>Send Single File to new email message</b> | A new blank email message will be created containing the named output file  |
| <b>Address and Auto Send Single File</b>     | A email message will be created containing the named output file and will be addressed and sent to the address that is specified in the Send To box   |
| <b>Address and Auto Send Burst Files</b>     | This choice is only available for reports that have a group level defined with Reset Page enabled. The burst level drop down box allows you to select the break point for report that will be sent to individual email recipients. The Send to box allows you to select a field containing the recipient's email address. |

---

### *Optional Address settings*

|                               |  |
|-------------------------------|--|
| <b>Subject field selector</b> | Allows you to select a field whose value will be used as the subject line for the email message. |
| <b>Subject text box</b>       | Allows you to manually enter a subject in place of making a field selection.                     |
| <b>Message field selector</b> | Allows you to select a field whose value will be used email message body.                        |
| <b>Message text box</b>       | Allows you to manually enter a message in place of making a field selection.                     |

---

### *Other Available Export tabs*

**Export  
Type/File  
Name  
File Export  
Options**

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>Export</b> | Exports the named export file using the selected options. |
| <b>Close</b>  | Close the dialog without action.                          |

**Cancel**  
**Help**

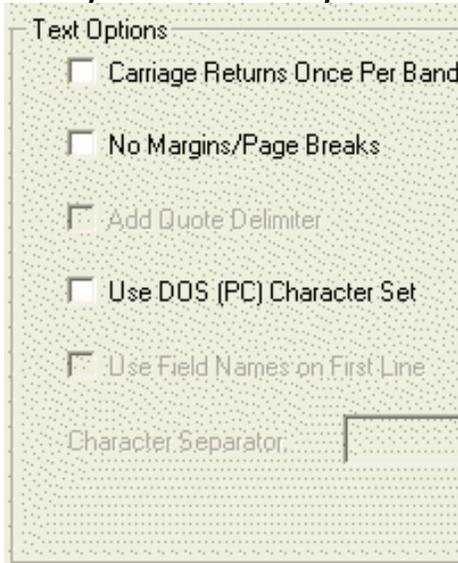
Cancels any changes or selections and closes the dialog.  
Displays this Help Topic.

## File Export Options

The Options that are available in Export Options tab show the optional settings that are available for the selected Export File Type.

---

### ***Multiple Band Text Options***



Text Options

- Carriage Returns Once Per Band
- No Margins/Page Breaks
- Add Quote Delimiter
- Use DOS (PC) Character Set
- Use Field Names on First Line

Character Separator:

#### **Carriage returns once per band**

Check this box to insert a hard return after each band area in the report output rather than using the default of a hard return after every line in the report

#### **No Margins/Page breaks**

Check this box if you want to create a text file with no top or left margin and no blank lines between pages.

#### **Use DOS (PC) Character Set**

Check this box to use the DOS character set instead of the Windows ANSI character set.

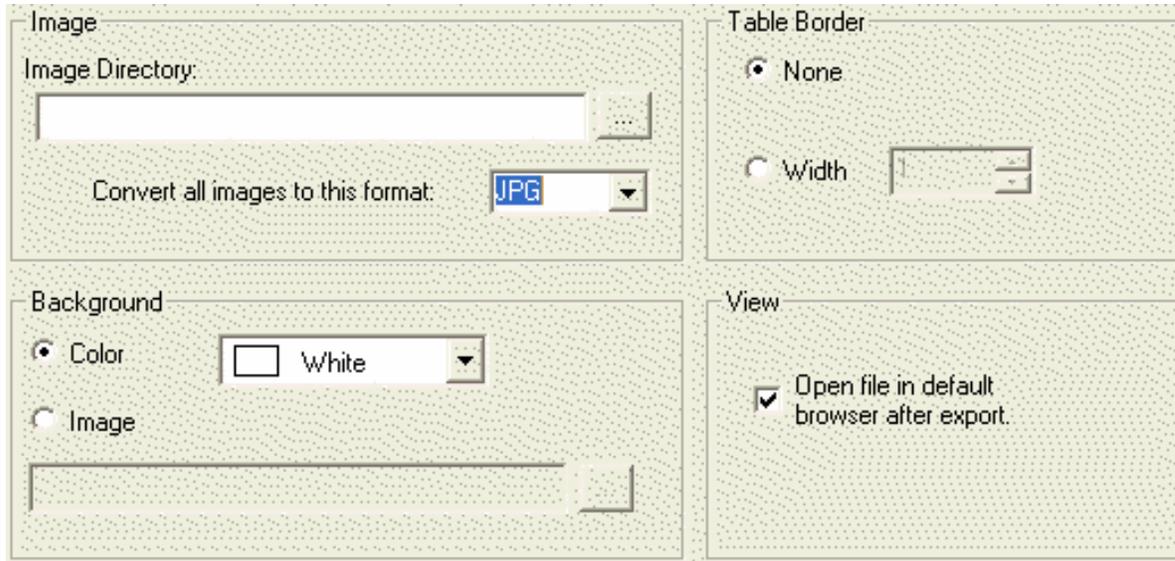
---

### ***Multiple Band RTF Options***

There are no available options for RTF export.

---

### ***Multiple Band HTML Options***



- Image** To specify an image to serve as the page background, click the Image button and enter the name and directory location of the image file. As an alternative, you can click the ellipsis button at the right to select an image file from a specific folder. Any OLE objects or charts in the original report are converted to image files and saved to the same directory as any images in the report using the image format selected from the convert list.
- Background** **To specify a solid color background for the HTML page, click the Color radio button and select a color from the drop-down list at the right. To specify an image to serve as the page background, click the Image button and enter the name and directory location of the image file. As an alternative, you can click the ellipsis button at the right to select an image file from a specific folder.**
- Table Border** **To specify that the exported data be enclosed in a border grid on the HTML page, click the Width button and enter or select a border thickness.**
- View** Check this box if you want to open the exported HTML file in the default browser immediately after it is created.

---

***Multiple Band Active X Options***

ActiveX Viewer Control Options

Export OLE objects

HTML Document Name:

Input File URL:

Control URL:

Image URL:

Viewer Control Size  
 Set the size to a percentage of the browser window

Width %:

Height %:

**HTML Document Name**

The name and optional path of the HTML container file. This file will contain the reference to the exported PDI file. The default entry will be the name of exported PDI file. If no file name has been selected, the default will be the name of the report.

**Input File URL  
Control URL**

Must match the path and filename of the exported PDI file. **Enter the location of the Viewer control (RRPRVIEW.CAB) on your Web server, either as a full or relative path.**

**Image URL**

If the images used by the exported report will not be in the same folder on the web site as the PDI file, enter the location of the image folder in the Image URL box as you would like it to appear in the HTML document.

**Export OLE Objects**

**This box is only enabled when a report includes an OLE object.**

**Viewer Control Size**

Enter Width and Height settings (as percentages of the browser window) to establish the dimensions of the Viewer control window.

**Preview HTML document**

Displays the HTML source code for the container file that will be created.

**Create HTML document**

Creates the HTML document container file.

---

***Single Band Xbase/Result Set/Worksheet Options***

**Export Band** Select the band line that contains the data that you wish to export.

---

***Single Band Text Data Options***

**Add quote delimiter**

**Check this box to add explicit quote delimiters around each exported field.**

**Use DOS (PC) Character Set**

Check this box to use the DOS character set instead of the Windows ANSI character set.

**Use Field Names on First Line**

Check this box to include field column headings on the first line of the export file.

**Character Separator**

This box is only enabled if the export type is character separated. Enter the separator character than will be inserted between each exported field.

---

***Other Available Export tabs***

**Export**  
**Type/File**  
**Name**  
**File Export**  
**Mail**  
**Options**

---

***Action Buttons***

|               |   |
|---------------|---|
| <b>Export</b> | Exports the named export file using the selected options. |
| <b>Close</b>  | Close the dialog without action.                          |
| <b>Cancel</b> | Cancel any changes or selections and closes the dialog.   |
| <b>Help</b>   | Displays this Help Topic.                                 |

## File Export Type and File Name

The export type tab allows you to select an export file format and file name.

There are two distinct types of file export.

**Multiple Band** formats output all available band lines (e.g., Title, Summary, Record, Header, Footer) in the report.

**Single Band** formats output a single selected band line of the report in a structured columnar style database format.

Selecting an export type determines the choices that will be available on the export options tab and the default file extension for the Export File Name.

---

### ***Multiple Band Export Types***

|                      |  |
|----------------------|--|
| <b>Text</b>          | <p>Enables export of report data to an unformatted character only text file. This format is appropriate for generic text exchange or import.</p> <p>All data on every line of the report, including text fields, is exported.</p> <p>By default, page margins are observed and carriage returns are included once per band line and the Windows ANSI character set is used. These defaults may be changed on the Export Options tab.</p> <p>Default file extension is .TXT</p>   |
| <b>Rich Text RTF</b> | <p>Enables export of all report data to a Rich Text Format (RTF) file, which can then be imported with any word processing program that includes an RTF filter (such as Microsoft Word).</p> <p>Any formatting applied in the report (e.g. fonts, attributes, line spacing) is retained in the RTF export. Data from fields on a Freeform line will be positioned at the bottom of that line.</p> <p>Since RTF export saves information about the report's page setup (margins, page size, and so on), you should select an appropriate printer before exporting.</p> <p>Note that graphic elements such as images, boxes, and drawn lines are not included in RTF export.</p> <p>Default file extension is .RTF</p> |
| <b>HTML</b>          | <p>Enables export of report data to a table based HTML (Hypertext Markup Language) file for display in a web browser.</p> <p>Default file extension is .HTML</p>   |
| <b>Active X</b>      | <p>Enables export of report data to a file that can then be rendered in an HTML page that invokes a special ActiveX viewer (RRPRVIEW.CAB)</p> <p>The viewer control then displays the report in a preview window that includes the fully formatted report</p>  |

including all lines, boxes, images and formatting.  
Default file extension is .PDI

---

### ***Single Band Export Types***

- Xbase** Exports all named fields (excluding memo fields) on the selected band line to a standard Xbase database file. Field names will be truncated to 10 characters and a warning will be issued if duplicate names are encountered.  
Default file extension is .DBF
- Result Set** Exports all named fields (excluding memo fields) that are used in the report. The value of these fields is determined by the selected band line. The output is then sent to a standard Xbase database file. Field names will be truncated to 10 characters and a warning will be issued if duplicate names are encountered.  
Default file extension is .DBF
- Worksheet** Exports all named fields (excluding memo fields) on the selected band line to a worksheet file that can then be used with a spreadsheet program such as Microsoft Excel. The export file will be an unformatted data list. The first row of the worksheet will contain the names of the exported fields. Each field is exported to a single column. Field sizes are not exported but data types are maintained. Additional formatting of the spreadsheet columns may be necessary after export.  
Default file extension is .XLS
- Text Data** Exports all named fields (excluding memo fields) on the selected band line to a text file using one of several delimiters. Selecting text data enables the choice of:
- Comma delimited**  
Fields are separated with commas  
Default file extension is .CSV
  - Tab delimited**  
Fields are separated with tabs  
Default file extension is .TXT
  - Character delimited**  
Fields are separated with a character that is selected on the Options tab  
Default file extension is .TXT
  - SDF Fixed Width**  
Fields are set to a fixed width and no delimiter is applied  
Default file extension is .SDF

---

### ***Export File Name***

When you execute the Export via the button below, R&R will export the report in the selected format to create the named file. You can type in the file name in the box provided or you can click the [...] button to use the Windows locator dialog box to select the Export To: folder and file name. The default Save as type in this dialog uses the default file extension for the selected export type. These defaults are listed above.

---

***Other Available Export tabs***

**File Export**

**Mail**

**Options**

**File Export**

**Options**

---

***Action Buttons***

**Export** Exports the named export file using the selected options.

**Cancel** Cancels any changes or selections and closes the dialog.

**Apply** Closes the dialog retaining selected values.

**Help** Displays this Help Topic.

## File Security

You can optionally set a Designer and/or a Runtime password for a report. This password may be up to 30 characters in length. Passwords are case-sensitive. When you enter a password, your input is masked on the display.

When a password(s) has been set in File Security, when the report is save (via Save or Save As) you will be asked to Verify the password(s) by re-entering it. The report will not be saved unless the password(s) correctly matches the password(s) that was set in File Security.

When you open a report in the report designer or at runtime that has a password set, you will be given a screen to enter to the password. This password must match the password that is saved in the report.

### **CAUTION:**

Once a report is saved with a password, it can only be opened if that password is correctly entered. ***There is no facility available to recover a lost password.***

If you set a password for a report, it is strongly suggested that you print your Report Specifications before saving the report and keep this information in a secure place. Any Designer or Runtime password will be printing in the header area of the report specification. You will then have a record of the password(s) that has been set for the report.

Note that password information is NOT saved to the Report Librarian.

## Flexlink Index Expression

This dialog allows you to create or redefine the name or expression of a FlexLink index.

---

### *Settings*

#### **Index Expression**

Index key expression.

You can edit an expression using any combination of the following methods:

- Directly enter or modify the expression elements in the Expression edit box;
- Use one of the Field, Function or Expressions buttons to select an item from a list.
- Insert operators by selecting them as necessary from the Operators box;
- Use the Replace button to edit any portion of the calculated expression with alternate text;

---

#### Fields and Functions Action Buttons

#### **Fields**

Displays the dialog which allows you to select a field from the related table that will be placed at the edit cursor position in the calculated field expression Edit box.

#### **Functions**

Displays the Select function dialog which contains all predefined and user defined functions.

If the paste function arguments box is checked, function argument placeholders will be included when the function is inserted into the calculated field expression.

---

### *Operators*

#### **Operators**

Operators that can be inserted in the calculated field expression.

To insert the operator into the calculated field expression at the edit cursor position: select an operator button.

---

### *Expression Editor*

#### **Replace**

Displays the Replace dialog dialog that allows

you to find and replace characters within the current index expression. Any selected text within the index expression when the Replace button is used will become the default Find what: selection in the Replace dialog.

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Closes the dialog box and saves changes.              |
| <b>Cancel</b> | Closes the dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.                             |

## **Insert Database Field**

Select a field name from the related table to be used in the FlexLink index key expression.

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>Insert</b> | Inserts the selected field at cursor position within the FlexLink Index expression. |
| <b>Cancel</b> | Closes the dialog without selecting a field.  |
| <b>Help</b>   | Displays this help topic.   |

Enables creation of a report with no master table.

Specifies output path and file name for printing to a file (with printer codes included).

Displays a Preview window for the current report.

Specifies printing of Report (the default), Test Pattern, or Report Specification.

## Select Image Locator Field

This dialog allows you to select a character field containing an image filename. .  
You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

**OK** Inserts the selected field as the selected image field.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

Click this to display details (size, type, date last modified) of the listed folders and files.

Click this to display only the names of folders and files in the current location.

## Lookup ParameteRR value list

This dialog displays the records from parameteRR lookup table. The name and path of the lookup table are displayed along the date and time that the table was last updated. The lookup field is displayed in the first shaded column. Any additional fields from the lookup table are also shown. You can scroll left and right and can re-size columns by using the separator bar in the column headings.

Select a value by clicking on it. The current selected value will be highlighted. The current selected value will be highlighted. Press Insert to close the dialog and copy the selected value to the parameteRR value entry screen current value box where you can Accept or edit the selection.

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>Insert</b> | Closes the dialog and inserts the selected field as the Value Field for the parameteRR. |
| <b>Cancel</b> | Closes the dialog box without preserving any changes.                                   |
| <b>Help</b>   | Displays this help topic.   |

## Multi-Edit Total Accumulation

Accumulation frequency determines how often Report Designer adds to the total as the report is processed.

### Accumulation Frequency

---

|                         |   |
|-------------------------|---|
| <b>No Change</b>        | Select this button to preserve the current accumulation frequency for each total in the Selected Totals list. |
| <b>Automatic</b>        | Accumulates based on the scan level associated with the total.  |
| <b>Every Composite</b>  | Accumulates total once per composite record   |
| <b>Group levels 1-8</b> | Accumulates total once per selected group   |
| <b>Once per page</b>    | Accumulates total once per page   |

### Other Tabs

---

**Total Fields**

**Type**  
**Target Field**

**Reset**

**Processing**

**Condition**

### Action Buttons

---

|               |  |
|---------------|--|
| <b>OK</b>     | Creates the total according to the current selections. |
| <b>Cancel</b> | Closes the dialog without applying changes.            |
| <b>Help</b>   | Displays this help topic.                              |

## Multi-Edit Total Condition

For any total field, you can specify a conditional expression that controls the circumstances in which Report Designer will calculate that total. The syntax for a conditional expression is the same as that for calculated field expressions.

### *Condition*

---

|                  |   |
|------------------|---|
| <b>No change</b> | Select this button to preserve the current condition for each total in the Selected Totals list.  |
| <b>Edit</b>      | Create or edit a conditional expression that will be applied to all of the selected totals. This condition will then be displayed in the box above. |
| <b>Delete</b>    | Delete the currently displayed conditional expression.  |

### *Other Tabs*

---

**Total Fields**

**Type**  
**Target Field**

**Reset**

**Accumulation**

**Processing**

### *Action Buttons*

---

|               |  |
|---------------|--|
| <b>OK</b>     | Creates the total according to the current selections. |
| <b>Cancel</b> | Closes the dialog without applying changes.            |
| <b>Help</b>   | Displays this help topic.                              |

## Multi-Edit Total Processing

Processing determines whether a total is a progressive or a final value.

A running total computes the value of the total progressively as each record that contributes to the total is read.

The radio button selection that is made will be applied to all totals in the selected total list.

### ***Processing***

---

|               |   |
|---------------|---|
| No Change     | <b>Select this button to preserve the current processing value for each total in the Selected Totals list.</b>  |
| Running       | <b>Value of the total is calculated progressively as each record that contributes to the total is read.</b>   |
| Pre-Processed | <b>A first pass is made through the records to reach the reset point of the total. This final value of the total at the reset point is then the value of the total for each record that contributes to the total.</b> |

### ***Other Tabs***

---

#### **Total Fields**

**Type**  
**Target Field**

**Reset**

**Accumulation**

**Condition**

### ***Action Buttons***

---

|               |  |
|---------------|--|
| <b>OK</b>     | Creates the total according to the current selections. |
| <b>Cancel</b> | Closes the dialog without applying changes.            |
| <b>Help</b>   | Displays this help topic.                              |

## Multi-Edit Total Reset

Reset determines when the value of the total field is reset to zero. Selecting a group field as the reset level will produce group subtotals; selecting a Page Total will produce page subtotals; selecting a Grand Total will produce grand totals for the entire report.

### ***Reset Level***

---

|                     |   |
|---------------------|---|
| <b>No change</b>    | Select this button to preserve the current processing value for each total in the Selected Totals list.   |
| Grand               | A grand total includes all records in the result set. It reaches its final value at the end of the report. Grand totals are typically placed on a summary band line.              |
| Page                | A page total reaches its final value at the end of each page. Page totals are typically placed on a page footer band line.  |
| Group levels<br>1-8 | A group total reaches its final value when it reaches the last consecutive record with the same group field value. Group totals are typically placed on a group footer band line. |

### ***Other Tabs***

---

#### **Total Fields**

**Type**  
**Target Field**

**Accumulation**

**Processing**

**Condition**

### ***Action Buttons***

---

|               |  |
|---------------|--|
| <b>OK</b>     | Creates the total according to the current selections. |
| <b>Cancel</b> | Closes the dialog without applying changes.            |
| <b>Help</b>   | Displays this help topic.                              |

## Multi-Edit Total Select Fields

Use this dialog to change one or more properties for a group of total fields. As you select a total in the available totals list, its expression is displayed in the box below. Use this tab to select the totals that will be modified.

---

### *Section*

|                         |  |
|-------------------------|--|
| <b>Available Totals</b> | List of the available total fields in the report                               |
| <b>Selected Totals</b>  | Use the Add-> and <-Remove buttons to build the list of selected total fields. |

---

### *Other Tabs*

Type  
Target Field

Reset

Accumulation

Processing

Condition

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Creates the total according to the current selections. |
| <b>Cancel</b> | Closes the dialog without applying changes.            |
| <b>Help</b>   | Displays this help topic.                              |

## Multi-Edit Total Target

Use this tab to change the field that will be aggregated for each of the selected total fields.

### ***Available options***

---

**No Change** Select this button to preserve the current target field that is to be aggregated for each total in the Selected Totals list.

**Total Selected field** Select this radio button to enable the field list selection dialog. The selected field will then be totaled by each of the selected total fields.

### ***Other Tabs***

---

**Total Fields**

**Type**  
**Reset**

**Accumulation**

**Processing**

**Condition**

### ***Action Buttons***

---

**OK** Creates the total according to the current selections.  
**Cancel** Closes the dialog without applying changes.  
**Help** Displays this help topic.

## Multi-Edit Total Type

Use this tab to change the type of total that will be created for each of the selected total fields.

### ***Available options***

---

**No Change** Select this button to preserve the current total type for each total in the Selected Totals list.

**Count** Select the radio button that corresponds to the type of operation that should be performed on the selected field.

**Sum**

**Average**

**Minimum**

**Maximum**

**m**

**Standard  
Deviation**

**Variance**

### ***Other Tabs***

---

**Total Fields**

**Target Field**

**Reset**

**Accumulation**

**Processing**

**Condition**

### ***Action Buttons***

---

**OK** Creates the total according to the current selections.

**Cancel** Closes the dialog without applying changes.

**Help** Displays this help topic.

Click this to create a new folder.

## New ParameteRR validation

The ParameteRR validation dialog that is similar to that for an R&R calculated field. The main differences are:

- The available field list only includes ParameteRR field names.
- You cannot use R&R or database field names in the expression. This is because parameteRR fields must be evaluated before report execution and are really whole report rather than record dependent.
- You cannot use the Expressions buttons.
- The expression must evaluate to a logical true or false value or you will receive the following error: Validate Expression must be logical type.

Here are some examples that show ParameteRR validation expressions and their meaning.

Inlist(PARAM1, "Curly", "Larry", "Moe")

*User must enter either Curly Larry or Moe in text box for character parameteRR PARAM1*

PARAM2 <> 5

*User cannot enter 5 as the numeric value for numeric parameteRR PARAM2*

Inrange(PARAM3({12/01/2005}, {12/31/2005}))

*Date must be in December 2000 for date parameteRR PARAM3*

Once you have entered your expression, OK will evaluate the expression and then return you to the ParameteRR Validation tab and the validation expression will be displayed.

---

### **Action Buttons**

|               |                                       |
|---------------|---------------------------------------|
| <b>OK</b>     | Closes dialog and saves any changes.  |
| <b>Cancel</b> | Closes dialog without saving changes. |
| <b>Help</b>   | Displays this help topic.             |

**Numbered display order**

The order in which the parameter field will be displayed in the Parameter Value Entry Screen when the report is executed.

## Options Preferences Auto Save

When auto recovery is enabled, R&R saves a copy of the current report in the same directory as the original at the designated interval. It also writes the name of the save file in the RRW.INI file. Should there be a problem causing R&R closes unexpectedly, the next time that you open the Report Designer, you will be asked if you want to open the auto saved file. This file will contain all of the changes to the file that was open in your last designer session as of the last recovery point.

---

### *Options*

**Save Auto Recover** Check this box to enable R&R to automatically save changes to a backup copy the report that is currently being edited.

**Minutes** Specify the number of minutes (1 to 120) between each save to the auto save file.

---

### *Other Preference Tabs*

**Display**

**File New**

**Memo Editor**

**Field Lists**

---

### *Action Buttons*

**OK** Closes dialog and saves any changes.

**Cancel** Closes dialog without saving changes.

**Help** Displays this help topic.

## Options Preferences Display

Controls scroll bar display and color coding settings.

---

### ***Display***

|                                 |  |
|---------------------------------|--|
| <b>Horizontal Scroll Bar</b>    | Checked: Horizontal scroll bar is displayed.<br>Unchecked: Horizontal scroll bar is not displayed.                                 |
| <b>Vertical Scroll Bar</b>      | Checked: Vertical scroll bar is displayed.<br>Unchecked: Vertical scroll bar is not displayed.                                     |
| <b>Colored Bands/Preview</b>    | Checked: Colors displayed on layout band indicator and in preview.<br>Unchecked: No color on layout band indicator and in preview. |
| <b>Colored Totals/Groupings</b> | Checked: Colors displayed in total and grouping dialogs.<br>Unchecked: No color displayed in total and grouping dialogs.           |

---

### ***Other Preference Tabs***

**File New**

**Memo Editor**

**Field Lists**

**Auto Save**

---

### ***Action Buttons***

|               |                                       |
|---------------|---------------------------------------|
| <b>OK</b>     | Closes dialog and saves any changes.  |
| <b>Cancel</b> | Closes dialog without saving changes. |
| <b>Help</b>   | Displays this help topic.             |

## Options Preferences Field Lists

Determine how field names will be displayed in field list dialogs.

---

### *Field Lists*

**Show Dictionary Descriptions** If this box is checked, Report Writer displays any descriptive comment that is saved with the report or in the data dictionary when displaying field list dialogs.

**Sort Field Names** If this box is checked, Report Writer shows field lists initially sorted by field name.  
If unchecked, fields are shown in table order with table fields followed by computed fields.

---

### *Other Preference Tabs*

**Display**

**File New**

**Memo Editor**

**Field Lists**

**Auto Save**

---

### *Action Buttons*

**OK** Closes dialog and saves any changes.

**Cancel** Closes dialog without saving changes.

**Help** Displays this help topic.

## Options Preferences File New

The selected option will determine the action that R&R will take when creating a new report file.

---

### *File New*

|                       |  |
|-----------------------|--|
| <b>Display Dialog</b> | Report Writer displays a dialog enabling you to choose Report Wizards, Instant Report, Blank Report, or Template as the starting point for a new report.           |
| <b>Report Wizards</b> | When you select File ⇒ New, Report Writer executes its Report Wizards tool, which leads you step-by-step through creation of one of three types of instant report. |
| <b>Instant Report</b> | When you select File ⇒ New, Report Writer prompts for selection of a master table and then creates an Instant Report.  |
| <b>Blank Report</b>   | Report Writer creates a blank report layout with or without a master table and places no fields on layout.   |
| <b>Template</b>       | Report Writer displays a list of templates; you can select one and use it as the starting point for your report.   |

---

### *Other Preference Tabs*

**Display**

**Memo Editor**

**Field Lists**

**Auto Save**

---

### *Action Buttons*

|               |                                       |
|---------------|---------------------------------------|
| <b>OK</b>     | Closes dialog and saves any changes.  |
| <b>Cancel</b> | Closes dialog without saving changes. |
| <b>Help</b>   | Displays this help topic.             |

## Options Preferences Memo Editor

Specifies memo editor used to prepare database memo fields. This choice will control how R&R evaluates and prints memo field data.

---

### *Memo Editor*

- |              |   |
|--------------|---|
| <b>Xbase</b> | Specifies that an Xbase memo editor created database memos used in reports. |
| <b>Other</b> | Specifies that some other memo editor created database memos.               |
- 

### *Other Preference Tabs*

**Display**

**File New**

**Field Lists**

**Auto Save**

---

### *Action Buttons*

- |               |                                       |
|---------------|---------------------------------------|
| <b>OK</b>     | Closes dialog and saves any changes.  |
| <b>Cancel</b> | Closes dialog without saving changes. |
| <b>Help</b>   | Displays this help topic.             |

## Static ParameteRR List Validation Tab

If the Define Validation list box is checked on the Value tab and the static button is selected, the validation tab allows you to manually define the list of available values for the ParameteRR field.

The items in the validation list will be presented in the ParameteRR value entry box when the report is executed. The list will be shown in the order set below and the default item will be initial selected value.

### ParameteRR Value list Action Buttons

---

|                      |   |
|----------------------|---|
| <b>New</b>           | Opens the New List Item box below allowing you to add a new value/description to the list.              |
| <b>Edit</b>          | Opens the Edit List Item box below allowing you to change the selected value/description list item.     |
| <b>Delete</b>        | Deletes the selected list item.   |
| <b>Move Up</b>       | Moves the selected item up in the list.   |
| <b>Move Down</b>     | Moves the selected item down in the list.   |
| <b>Set Default</b>   | Sets the selected item as the default value and places a checkbox in front of it.                       |
| <b>Reset Default</b> | Available when selected item is set as the default. Selecting this button removes the default checkbox. |

### Edit List Item

---

|                    |  |
|--------------------|--|
| <b>Value</b>       | Enter the list item value. The format of this entry box will depend on the data type of the parameteRR.                                    |
| <b>Description</b> | Enter a description of the list item. This description will be displayed in the ParameteRR value entry screen when the report is executed. |
| <b>Edit/Accept</b> | Add/modify the list item.  |
| <b>Cancel</b>      | Clear the value/description boxes without saving changes.  |

### Other Tabs

---

**Name**

**Value**

**Presentation**

---

***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Closes the dialog box and saves changes.              |
| <b>Cancel</b> | Closes the dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.                             |

## Parameter Name Tab

The name tab allows you to define the name and optional display caption of a parameter field.

---

### *Options*

|                        |  |
|------------------------|--|
| <b>Name</b>            | The name tab allows you to define the name of the parameter field. A field name can be up to 30 characters in length. It can contain letters, numbers, or the underscore character; it must start with a letter. The field name must not be the same as any database or other R&R computed field in this report and cannot contain spaces. |
| <b>Display Caption</b> | The optional display caption will be used in place of the Parameter's field name in the field list section of the Parameter Value entry dialog. Note that you can use freely use spaces and punctuation.   |

---

### *Other Tabs*

**Value**

**Presentation  
Validation**

**Static List Validation**

**Dynamic List Validation**

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>OK</b>     | Closes the dialog box and saves changes.              |
| <b>Cancel</b> | Closes the dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.                             |

## ParameteRR Presentation Tab

The presentation tab sets the format of a parameteRR field when it is presented in the ParameteRR Value entry screen and the appearance of the field when placed on the report layout. It also allows you to define the Instructions that will be presented to the user when this parameteRR is displayed in the ParameteRR value entry screen at runtime.

---

### *Options*

- Display Format** Click the Edit... button to change the displayed format. The available format choices depend on the data type of the parameteRR field.
- Optional Instructions** The optional instructions text box is available for all data types. Instructions will be displayed in the Instructions box on the ParameteRR Value Entry screen.  
This field can contain up to 256 characters. You can use CTL+ENTER to begin a new line.

---

### *Other Tabs*

**Name**

**Value**

**Validation**

**Static List Validation**

**Dynamic List Validation**

---

### *Action Buttons*

- OK** Closes the dialog box and saves changes.
- Cancel** Closes the dialog box without preserving any changes.
- Help** Displays this help topic.

## Parameter Validation Tab

The validation tab allows you set a validation expression for non-list parameter's that will control the range of values that a user may enter at runtime. At Parameter Value Entry, this expression will be evaluated using the input value and if it does not evaluate to a true condition, the user will receive an error message and will not be allowed to proceed with report execution until a valid value is entered.

---

### *Options*

|                               |   |
|-------------------------------|---|
| <b>Validation Expression</b>  | The expression box displays the current validation expression. Use the Edit... and Delete... button to modify or delete this expression.  |
| <b>Optional Error Message</b> | The optional error string edit box is available for all data types and is the text that will be presented to the user in a dialog box when a user's Parameter field entry at runtime results in an error. This field can contain multiple lines of text. You can use CTL+ENTER to begin a new line. |

### *Other Tabs*

---

**Name**

**Value**

**Presentation**

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>OK</b>     | Closes the dialog box and saves changes.              |
| <b>Cancel</b> | Closes the dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.                             |

## Parameter Value Tab

The value tab sets the data type of the parameter field, its default value, options regarding its runtime behavior and whether it will use a validation list.

### Options

---

|   |   |
|---|---|
| <b>Data Type</b>                                | Select the data type of the parameter field from the list of available data types.  |
| <b>Default Value</b>                            | Enter the initial default value for the parameter. The format of this entry field changes based upon the data type selection.   |
| <b>Replace Default with Runtime Input Value</b> | If this box is checked, the saved Parameter default value will be replaced with the user input value that is entered via the Parameter Value Entry dialog.  |
| <b>Prompt at Runtime</b>                        | When this box is checked (and the parameter field is actually used in within the report), this Parameter field will appear in the Parameter Value Entry dialog that is presented prior to report output. If it is unchecked, it will not appear in the input dialog and will instead take its default value automatically. By default this box is checked when a new parameter field is created.  |
| <b>Define Validation List</b>                   | <p>Check this box to define a list of available parameter values in place of setting a default value. When this box is checked, two radio buttons are then available that control the type of validation list that can be defined.</p> <p><b>Static</b>- Allows you to manually create a fixed list of values and to set a default value in that list.</p> <p><b>Dynamic</b>-Allows you to select a database table and field. The selected field will present the list of available values.</p> <p>Validation list is not available for logical parameters.</p> |

### Other Tabs

---

**Name**

**Presentation  
Validation**

**Static List Validation**

**Dynamic List Validation**

---

***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Closes the dialog box and saves changes.              |
| <b>Cancel</b> | Closes the dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.                             |

Cancel preview and close window (or press Shift+F10).

Go to first page of current report (or press Shift+F5).

Go to final page of current report (or press Shift+F8).

Go to next page of current report (or press Shift+F7).

Pause preview when positioning to last page (or press Shift+F9).

Go to previous page of current report (or press Shift+F6).

Print current report page (or press Shift+F2).

Print entire report (or press Shift+F1).

Zoom in on current page (or press Shift+F3).

Zoom out on current page (or press Shift+F4).

## Replace Calculated Expression

This dialog allows you to find and replace text within a calculated expression.

---

### *Section*

- Find what:** Enter the text that you wish to replace. Any selected text from the current calculated field expression will be set as the default find what value.
- Replace with:** Enter the replacement text.
- 

### *Options*

- Match Case** If this box is checked, the search will be case sensitive.  
For example, searching for Box will not find BOX or box
- Find whole word only** If this box is checked, the search will only match whole words.  
For example, searching for car will not find boxcar or carrot
- 

### *Action buttons*

- Replace** Find and make a single replacement of the first found value.
- Replace All** Find and replace all occurrences of the find value.
- Find Next** Find the next occurrence of the find what value.
- Cancel** Close this dialog without making any replacements.
- Close** Close this dialog retaining any replacements that have been made.

## Select Field Name

This dialog allows you to insert a field name into a Calculated Expression. You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
**Right-click** on a database or dictionary calculated field to display data dictionary information.  
**Double-clicking** on a field is the equivalent of pressing the Insert button.

---

### *Action Buttons*

**Insert** Inserts the selected field at cursor position within the calculated expression.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

## Select Group Field Dialog

This dialog allows you to select a Group Field for the report.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

**OK** Inserts the selected field at the selected Group field level.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

## Select Link Field

This dialog allows you to select a field name whose value will be used to link the controlling table to the related table.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the Ok button.

---

### *Action Buttons*

#### **OK**

Inserts the selected field as the Relate From linking field.

#### **Cancel**

Closes the dialog without selecting a field.

#### **Help**

Displays this help topic.

## Select Logical Field

This dialog allows you to select a field name whose value will control when the currently selected band line prints.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the Ok button.

---

### *Action Buttons*

#### **OK**

Inserts the selected field as the logical field to control whether a band line will print.

#### **Cancel**

Closes the dialog without selecting a field.

#### **Help**

Displays this help topic.

## Select Message Field

This dialog allows you to select a field name whose value will be used as the message text for the email message that will contain the exported report file. You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
**Right-click** on a database or dictionary calculated field to display data dictionary information.  
**Double-clicking** on a field is the equivalent of pressing the Ok button.

---

### *Action Buttons*

**OK** Inserts the selected field as the message text for the email message containing the exported report file.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

## Select ParameterRR Scope field

This dialog allows you to select a ParameterRR field as a starting or ending scope value.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

#### **OK**

Inserts the selected field as the selected Scope field level.

#### **Cancel**

Closes the dialog without selecting a field.

#### **Help**

Displays this help topic.

## Select Record Copies Field

This dialog allows you to select a numeric Field whose value will determine the number of copies that are output for the report.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

**OK** Inserts the selected field at the selected Sort field level.

**Cancel** Closes the dialog without selecting a field.

**Help** Displays this help topic.

## Select Send To Field

This dialog allows you to select a field name whose value will be used as the email address for a section of a burst report.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
**Right-click** on a database or dictionary calculated field to display data dictionary information.  
**Double-clicking** on a field is the equivalent of pressing the Ok button.

---

### *Action Buttons*

**OK** Inserts the selected field as Send to email address field for a burst report.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

## Select Sort Field Dialog

This dialog allows you to select a Sort field for the report.

You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

#### **OK**

Inserts the selected field at the selected Sort field level.

#### **Cancel**

Closes the dialog without selecting a field.

#### **Help**

Displays this help topic.

## Select Subject Field

This dialog allows you to select a field name whose value will be used as the subject line for the email message that will contain the exported report file. You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
**Right-click** on a database or dictionary calculated field to display data dictionary information.  
**Double-clicking** on a field is the equivalent of pressing the Ok button.

---

### *Action Buttons*

**OK** Inserts the selected field in the subject line for the email message containing the exported report file.  
**Cancel** Closes the dialog without selecting a field.  
**Help** Displays this help topic.

## Select Target Field Dialog

This dialog allows you to select the field whose values will be totaled. The type of total that has been selected determines the list of available fields. You can limit the field list by entering one or more characters in the Go To box.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the OK button.

---

### *Action Buttons*

#### **OK**

Inserts the selected field as the Field to be totaled.

#### **Cancel**

Closes the dialog without selecting a field.

#### **Help**

Displays this help topic.

## Select Value Field

This dialog lists the available fields from the current validation table and allows you to select the field whose values will be available for selection in the parameter value entry dialog when the report is run.

---

### ***Action Buttons***

- |               |  |
|---------------|--|
| <b>Insert</b> | Closes the dialog and inserts the selected field as the Value Field for the parameter. |
| <b>Cancel</b> | Closes the dialog box without preserving any changes.                                  |
| <b>Help</b>   | Displays this help topic.  |

**Table Alias Name**

Each table in R&R is given a unique alias name. Computed fields are associated with a particular table alias based on their content.

**Type**

The type of data a field contains. Fields can have one of six data types: character, numeric, date, date/time, logical, or memo. Data types determine the available display formats and the types of calculations and comparison operators that can be used.

Click this to move up one level in the directory structure to display folders/files.

## View Ruler

Enables the display of each of the four available rulers.

When a box is checked, a ruler will be displayed at the selected position on the report layout.

---

Ruler Spacing

### ***Action Buttons***

---

|               |   |
|---------------|---|
| OK            | Closes the dialog and saves changes.        |
| <b>Cancel</b> | Closes the dialog without applying changes. |
| <b>Help</b>   | Displays this help topic.                   |

## Alignment Dialog (Lines, Boxes, Images, and OLE Objects)

Controls alignment of the currently selected line, box, image, or OLE object. Specifying an alignment for such items can be useful for fine adjustments in placement on the layout.

Select an Alignment setting to align the currently selected item at Left, Center, or Right.

---

### ***Alignment Settings***

- |               |   |
|---------------|---|
| <b>Left</b>   | Aligns the currently selected item to the left edge; this is the default. |
| <b>Center</b> | Centers the currently selected item.                                      |
| <b>Right</b>  | Aligns the currently selected item to the right edge.                     |

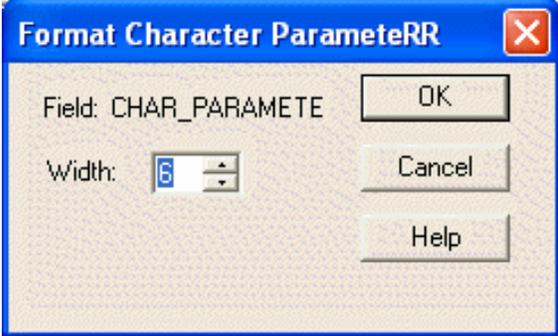
---

### ***Action Buttons***

- |               |  |
|---------------|--|
| <b>OK</b>     | Applies the specified alignment and closes the dialog. |
| <b>Cancel</b> | Closes the dialog without changing the alignment.      |
| <b>Help</b>   | Displays this help topic.                              |

# Format Character ParameteRR

For character fields, a character width is set in number of characters.



## Chart Data Tab

Enables you to specify the values to be calculated for the chart you are inserting. At a minimum, you must select one or more Fields to supply values for the chart; a Label Field to supply labels for the chart's data points, and a Sort Field to control sorting of the data points.

For each Selected Field, a chart will contain one value per data point. For example, in a simple bar chart each data point will contain one bar for each Selected Field; in a line chart, there will be one line for each Selected Field.

You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Type, Style, Text, Options, and Font.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### ***Options***

|  |  |
|--|--|
| <b>Fields;<br/>Selected<br/>Fields</b> | <p>These list boxes enable you to select one or more fields to supply data for the chart. Copy the appropriate field(s) from the Fields box to the Selected Fields box using any of the following methods:</p> <ul style="list-style-type: none"><li>➤ Highlight the field in the Fields list box and select Add;</li><li>➤ Double-click the field name in the Fields list box;</li><li>➤ Click and drag the field name from Fields to Selected Fields.</li></ul> <p>Fields are listed in the Selected Fields list box in the order in which you added them. Use the up and down arrows to the right of the list box to change the order of Selected Fields.</p> <p>To remove a field from the Selected Fields list box, either double-click the field name or highlight the field name and select Remove.</p> |
| <b>Label Field</b>                     | Select a field whose values will provide labels for the data points.   |
| <b>Sort Field</b>                      | Select a field whose values will determine the order of the chart's data points. You can also select either Ascending or Descending sort order and/or specify (using the Combine Dups setting) whether duplicate sort field values should be combined.   |
| <b>Sub-<br/>category</b>               | <p>Enables selection of a field to serve as the source of chart data to replace the Selected Field.</p> <p>Select a field from the Value list, a field to provide a label from the Label list, and a field to determine sorting order from the Sort box.</p>   |

---

### ***Action Buttons***

|               |  |
|---------------|--|
| <b>Add</b>    | Copies the highlighted field in the Fields list box to the Selected Fields list box. |
| <b>Remove</b> | Removes the highlighted field from the Selected Fields list box                      |
| <b>Clear</b>  | Clears the Value, Label, and Sort selections in the Sub-category box.                |
| <b>OK</b>     | Inserts or modifies the chart based on the settings you                              |

have specified on all of the Charting tabbed dialogs and closes the dialog.

**Cancel**

Cancels insertion or modification of the chart without accepting any changes and closes the dialog.

**Apply**

Accepts the settings you have specified on the current tab and leaves the tabbed dialog open.

**Help**

Displays this help topic.

## Chart Font Tab

Enables you to specify a base font to be used for all text items on the chart and a color palette from which chart colors will be selected.

You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Type, Style, Data, Text, and Options.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### ***Options***

- |                      |   |
|----------------------|---|
| <b>Chart Element</b> | Radio button to select the element for which font and size selections will apply. Choices are Title, Axis Titles, Label and Legend.   |
| <b>Font Name</b>     | Select font typeface for selected element.  |
| <b>Font Size</b>     | Select font size for selected element.  |
| <b>Size Palette</b>  | Specify a color palette from which chart colors will be selected. Available palettes are: <ul style="list-style-type: none"><li>• 16-color (contains the standard Windows colors);</li><li>• Shades of Gray;</li><li>• Pastels;</li><li>• Shades of RGBCMY;</li><li>• Rainbow</li><li>• Shades of Red, Green, Blue, Cyan, Magenta, or Yellow.</li></ul> |

---

### ***Action Buttons***

- |               |   |
|---------------|---|
| <b>OK</b>     | Inserts or modifies the chart based on the settings you have specified on all of the Charting tabbed dialogs and closes the dialog. |
| <b>Cancel</b> | Cancels insertion or modification of the chart without accepting any changes and closes the dialog.                                 |
| <b>Apply</b>  | Accepts the settings you have specified on the current tab and leaves the tabbed dialog open.                                       |
| <b>Help</b>   | Displays this help topic.   |

## Chart Options Tab

Enables you to specify the dimensions, anchor point, and value range for a chart that you are inserting.

You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Type, Style, Data, Text, and Font.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### *Options*

- Chart Size (Inches)** Enter or select Width and Height values to specify the dimensions of the chart on the report.
- Anchor** If the chart is not going to be confined to a single band line, you can specify that it be anchored at either the Top (the default) or the Bottom.
- Value Range** Select one of the following to specify a value range to use for all instances of a given chart:
- Automatic: specifies that each chart's value axis will have its own value range suited to the values it contains;
  - User Defined: enables you to specify a custom value range by entering minimum and maximum values for the range.
- The default Value Range is Automatic.
- 

### *Action Buttons*

- OK** Inserts or modifies the chart based on the settings you have specified on all of the Charting tabbed dialogs and closes the dialog.
- Cancel** Cancels insertion or modification of the chart without accepting any changes and closes the dialog.
- Apply** Accepts the settings you have specified on the current tab and leaves the tabbed dialog open.
- Help** Displays this help topic.

## Chart Style Tab

Enables you to specify additional characteristics of a chart to be inserted after you have selected a chart style. The options available on this tab depend on the currently selected chart type.

For Bar charts, you can also specify Horizontal (bars extend to the right from the vertical axis) or Vertical (bars extend upward from the horizontal axis) orientation. You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Type, Data, Text, Options, and Font.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### ***Options***

|                    |   |
|--------------------|---|
| <b>Style</b>       | Enables you to specify additional characteristics for Bar, Line, and Area charts (note that no Style settings are applicable to Pie charts). Available styles include:<br>Simple (Bar charts only)<br>Absolute (Line and Area charts only)<br>Stacked (Bar, Line, and Area charts)<br>Stacked Percentage (Bar, Line, and Area charts)<br>Stacked Floating (Bar charts only) |
| <b>Orientation</b> | Applies to Bar charts only. If you specify Vertical Orientation, bars will extend upward from the horizontal axis; if you specify Horizontal Orientation, bars will extend to the right from the vertical axis.   |

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Inserts or modifies the chart based on the settings you have specified on all of the Charting tabbed dialogs and closes the dialog. |
| <b>Cancel</b> | Cancels insertion or modification of the chart without accepting any changes and closes the dialog.                                 |
| <b>Apply</b>  | Accepts the settings you have specified on the current tab and leaves the tabbed dialog open.                                       |
| <b>Help</b>   | Displays this help topic.   |

## Chart Text Tab

Enables you to specify the text elements for the chart you are inserting, including the main chart title and axis titles. You can also specify inclusion of a chart legend and the labeling of data points in the chart.

You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Type, Style, Data, Options, and Font.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### *Options*

|                     |   |
|---------------------|---|
| <b>Chart Title</b>  | Enter text to serve as the chart title. This title will be centered across the top of the chart rectangle.  |
| <b>Category (X)</b> | Enter text to appear below the horizontal axis.   |
| <b>Value (Y)</b>    | Enter text to appear to the left of the vertical axis. You can also specify orientation of the text: Left to Right (horizontal); Top to Bottom (vertical, starting at top); Bottom to Top (vertical, starting at bottom). |
| <b>Depth (Z)</b>    | Enter text to serve as a label for the "depth" portion of a 3D chart.   |
| <b>Legend</b>       | When this setting is selected (the default), the chart will include a legend with identifying labels for each chart element. This setting is ignored for Pie charts.  |
| <b>Label Points</b> | When this setting is selected, numeric labels will be included on the chart to indicate the values that have been charted. This setting is not applicable to 3-dimensional charts.  |

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>OK</b>     | Inserts or modifies the chart based on the settings you have specified on all of the Charting tabbed dialogs and closes the dialog. |
| <b>Cancel</b> | Cancels insertion or modification of the chart without accepting any changes and closes the dialog.                                 |
| <b>Apply</b>  | Accepts the settings you have specified on the current tab and leaves the tabbed dialog open.                                       |
| <b>Help</b>   | Displays this help topic.   |

## Chart Type Tab

Enables you to specify a chart type (2-dimensional or 3-dimensional Bar, Pie, Line, or Area) when inserting a chart. Also enables you to include vertical and/or horizontal grid lines with the inserted chart.

When you select a chart type, a sample is displayed at the right of the dialog.

You can further define the chart you are inserting using the other tabs (also referred to as property pages) on the Charting tabbed dialog (or property sheet): Style, Data, Text, Options, and Font.

See the Creating an Embedded Chart topic for more information about embedded charts.

---

### ***Options***

|                   |  |
|-------------------|--|
| <b>Types</b>      | Type of chart to be inserted (Bar, Pie, Line, Area).   |
| <b>3-D</b>        | Specifies whether the elements of the selected chart type will have a 2-dimensional or 3-dimensional appearance. By default, a 2-dimensional chart is inserted. To specify that a 3-dimensional chart be inserted, click this setting. |
| <b>Grid Lines</b> | Specifies inclusion of Vertical and/or Horizontal grid lines (not applicable to Pie charts).   |

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Inserts the chart based on the settings you have specified on all of the Charting tabbed dialogs and closes the dialog. |
| <b>Cancel</b> | Cancels insertion of the chart and closes the dialog.   |
| <b>Apply</b>  | Accepts the settings you have specified and leaves the dialog open.   |
| <b>Help</b>   | Displays this help topic.   |

## Export to Text Data/Word Merge Dialog

Enables export of data from a specified report band area to a text file. Exported data can be fixed-width or separated by commas, tabs, or a user-specified character. Drawn lines and boxes, images, and text formatting (font, point size, and attributes) are ignored.

You can use the output from a Word Merge export as the source of data for a Word for Windows Print Merge or Mail Merge. Depending on the version of Word that you are using, you can select the output file as the Data File for a Print Merge (Word Version 2) or as the Data Source for a Mail Merge (Word Version 6). Note that on the Word Merge dialog, the Fixed Width and Character Separated Value options in the File Type box are grayed out, as is the "Use DOS (PC) Character Set" setting.

---

### List/Edit Boxes

- File Name** Enter an output file name (optionally including a path). If you do not supply a file extension, the extension for the currently selected File Type (CSV, TXT, or SDF) will be used.
- Select Band** Select the layout band containing the data you want to export.

---

### File Type Box

- Comma Separated Value (.CSV)** Data in the exported file will be separated by commas. Default extension for the export file is CSV.
- Tab Separated Value (.TXT)** Data in the exported file will be separated by tabs. Default extension for the export file is TXT.
- Fixed Width (.SDF)** Data in the exported file will have a fixed width (determined using the field width as specified in the report); no field separator is used. Default extension for the export file is SDF.
- Character Separated Value (.TXT)** Data in the exported file will be separated by the character specified in the Separator box. Default extension for the export file is TXT.

---

### Check Boxes

- Field Names on First Line** When this box is checked (the default), field names will be included as column headings in the exported file. When this box is not checked, field names are not included in the export.
- Use DOS (PC) Character Set** When this box is checked, Report Writer will export data using the DOS (PC) character set. When the box is not checked (the default), Report Writer will use the Windows (ANSI) character set. In general, use the default of Windows (ANSI) if you plan to import the file into a Windows word processing or desktop publishing application; select DOS (PC) if you plan to import the file into a DOS word processing or desktop publishing application.

---

**Action Buttons**

- Close** Closes the Text Data/Word Merge dialog without exporting, retaining any selections or changes on the dialog.
- Cancel** Close the dialog without exporting, discarding any changes.
- Export** Exports data to the file specified in the File Name box.
- Help** Displays this help topic.

## Alignment Tab

Controls alignment and trim of the currently selected field(s).

Select an Alignment setting to align the contents of each currently selected field relative to the field width. Note that Word Wrap can be applied only to character and memo fields.

Select a Trim setting to specify whether Report Writer removes or retains blank space between fields on the selected line or lines.

---

### ***Alignment Settings***

- Left** Aligns the contents of each currently selected field to the left edge of the field.
- Center/Justified** Centers the contents of each currently selected field between the left and right edges of the field.
- Right** Aligns the contents of each currently selected field to the right edge of the field.
- Word Wrap** The field contents (character or memo fields only) are word-wrapped in a column. The column is the width of the field as defined on the report layout and the length required to display the entire field contents.

---

### ***Trim Settings***

- Print at Field Position** Blank space between fields is retained so that each field begins printing at the location as specified on the layout.
- Print at End of Previous Field** Blank space between fields on the selected line(s) is removed so that each field begins printing at the end of the previous field.

---

### ***Action Buttons***

- OK** Applies the specified changes to the field(s) and closes the Properties tabbed dialog.
- Cancel** Closes the Properties tabbed dialog without applying any of the specified changes.
- Apply** Applies the specified changes to the field(s) and leaves the Properties tabbed dialog open.
- Help** Displays this help topic.

## Master Table Dialog Box

Specifies the Master Table for the current report.

---

### **Master Table**

|              |   |
|--------------|---|
| <b>Table</b> | Name of the current Master Table.   |
| <b>Alias</b> | Unique name for the master table. The default alias is the first 8 characters table name. If the report uses more than one table with the same name, enter a unique alias in this edit box. |

---

### **Master Index**

|                  |  |
|------------------|--|
| <b>File</b>      | Current Master Index file. If no Master Index has been specified, the records in the Master Table are read by record number order. |
| <b>Key</b>       | Key expression for the selected index file.  |
| <b>Tag</b>       | Applies to compound and multiple indexes only. Select the index tag that you want to use from the list.                            |
| <b>Data Type</b> | Data type of the index key you selected (Numeric, Date, Character, or DateTime).   |

---

### **Starting Scope**

|                           |   |
|---------------------------|---|
| <b>Beginning of Table</b> | Report Writer starts reading the master table at the first record in the table.   |
| <b>Start Value</b>        | Report Writer reads a limited range of records in the master table. The beginning of the range is defined by the start value. Enter an appropriate index value (if you have specified a master index) or a record number (if there is no master index).<br>You can leave the Start value edit box blank to indicate the first value in the index field. |
| <b>Parameter R</b>        | Select a ParameterR field whose value at runtime will determine the scope Start Value.  |

---

### **Ending Scope**

|                     |   |
|---------------------|---|
| <b>End of Table</b> | Report Writer reads the master table from the starting scope to the last record in the table.   |
| <b>End Value</b>    | Report Writer reads a limited range of records in the master table. The end of the range is defined by the end value. Enter an appropriate index value (if you have specified a master index) or a record number (if there is no master index).<br>You can leave the End value blank to indicate the last value in the index field. |
| <b>Parameter R</b>  | Select a ParameterR field whose value at runtime will determine the scope End Value.  |

---

### **Action Buttons**

|                    |   |
|--------------------|---|
| <b>OK</b>          | Closes the dialog and accepts all changes.  |
| <b>Cancel</b>      | Closes the dialog, ignoring any changes.  |
| <b>Table</b>       | Displays the Master Table dialog box to select a different Master Table.  |
| <b>Clear Table</b> | Clears the master table selection in order to create a "masterless" report or template. Note that this button is disabled if any relations have been set for the report; in |

order to clear the master table, you must first remove all relations.

**Index**

Displays the Master Index dialog box to select a master index

**Clear  
Index**

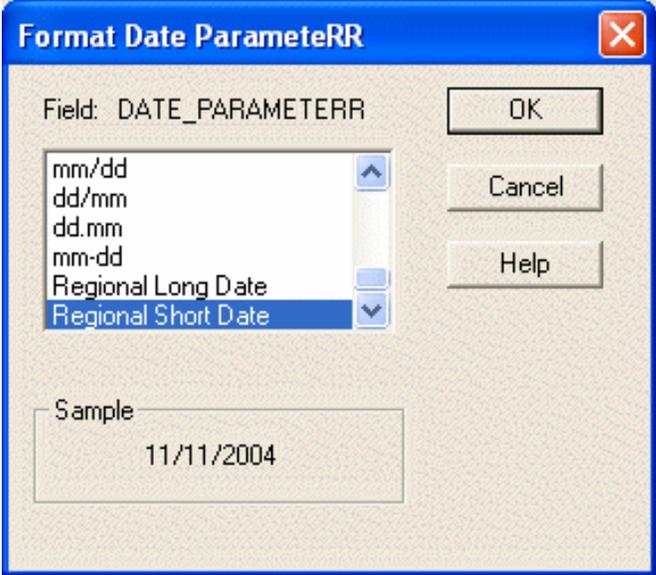
Detaches the current master index file and restores reading of the master table by record number order.

**Help**

Displays this help topic.

# Format Date ParameteRR

Date fields can be set to any of the available date formats.



## Format Date/Time Parameter

Date/Time fields can be set to any of the available date/time formats.

Field: DATETIME\_PARAMETER

|                     |                  |
|---------------------|------------------|
| yyyy-mm-dd          | h:mm:ss          |
| mm/dd               | hh:mm:ss         |
| dd/mm               | h:mm am          |
| dd.mm               | hh:mm am         |
| mm-dd               | h:mm:ss am       |
| Regional Long Date  | hh:mm:ss am      |
| Regional Short Date | Regional Setting |

Show Date       Show Time

Sample

11/11/2004 08:15:30

OK  
Cancel  
Help

## Auto Total Dialog Box

Automatically creates totals for all fields selected on the layout.

---

### ***Options***

- Name** Name for the new total field(s). If multiple fields are selected to be totaled, no name appears here; a name for each new total field is generated in the form Total*nnnnn*, where *nnnnn* is a number in the range 00001 to 99999 and is incremented by 1 for each total in the batch.
- Type** Total type for the field(s) to be created. Only total types that are valid for all selected fields are active.
- Reset** Level at which all automatically created totals for this batch will reset.

## Box Properties Dialog Box

Controls all aspects of a selected box, such as border thickness and color, inclusion/exclusion of specified box sides, and shading.

---

### *Borders*

|                  |  |
|------------------|--|
| <b>Thickness</b> | Controls the line thickness of the box sides. Select from one of five thicknesses.   |
| <b>Style</b>     | Select from solid or dashed line styles.   |
| <b>Color</b>     | Controls the color of the box border. Default is black.  |
| <b>Show</b>      | Controls display and printing of the top, bottom, left, and right sides of the box. By default, all four sides of a box are initially included. Click the check box for the side or sides that you want to exclude from the box; the x is cleared from that setting. |

---

### *Shading*

|                   |  |
|-------------------|--|
| <b>Pattern</b>    | Assigns one of thirteen shading patterns to the box background.            |
| <b>Foreground</b> | Specifies a color for the crosshatch pattern (if any) assigned to the box. |
| <b>Background</b> | Specifies a color for the background of any pattern assigned to the box.   |

## Field Comment Tab

Enables entry or edit of a text comment to be attached to the selected calculated, total or parameter field.

If a report dictionary is attached to the report, this tab displays the text of the report dictionary Comment field for any selected database field. Dictionary based comments must be changed via the Data Dictionary cannot be edited via this screen.

---

### *Settings*

|                |   |
|----------------|---|
| <b>Field</b>   | Name of the currently selected field.   |
| <b>Comment</b> | View/edit a comment to be attached to the selected total parameter or calculated field. When a field has a comment attached to it, the text of that comment is displayed in the Status Bar when the field is highlighted. |

## Edit Calculation Dialog Box

This dialog allows you to redefine the name or expression of an existing Calculated field.

---

### *Settings*

|                                    |  |
|------------------------------------|--|
| <b>Calculated Field Name</b>       | Name of the calculated field you are editing.  |
| <b>Calculated Field Expression</b> | <p>Calculation to be performed by the calculated field you are editing.</p> <p>You can edit an expression using any combination of the following methods:</p> <ul style="list-style-type: none"><li>• Directly enter or modify the expression elements in the Expression edit box;</li><li>• Use one of the Field, Function or Expressions buttons to select an item from a list.</li><li>• Insert operators by selecting them as necessary from the Operators box;</li><li>• Use the Replace button to edit any portion of the calculated expression with alternate text;</li></ul> |

---

### Fields and Functions Action Buttons

|                  |   |
|------------------|---|
| <b>Fields</b>    | Displays the Select Field Name dialog which allows you to select a field name that will be placed at the edit cursor position in the calculated field expression Edit box.  |
| <b>Functions</b> | <p>Displays the Select function dialog which contains all predefined and user defined functions.</p> <p>If the paste function arguments box is checked, function argument placeholders will be included when the function is inserted into the calculated field expression.</p> |
| <b>Lists</b>     | Displays the Select ParmList dialog which allows you to select a paramList field for use in a list function.  |

---

### *Expressions Action Buttons*

|                       |  |
|-----------------------|--|
| <b>Calculations</b>   | Displays the Calc Expression dialog box. Select a calculated field from the list to insert the field's expression into the Expression edit box.    |
| <b>User Functions</b> | Displays the User Functions dialog box. Select a user function from the list to insert the function's expression into the Expression edit box.     |
| <b>Index Keys</b>     | Displays the Key Expression dialog box. Select an index key value from the list to insert the index key's definition into the Expression edit box. |

---

***Operators***

|                  |   |
|------------------|---|
| <b>Operators</b> | Operators that can be inserted in the calculated field expression.<br>To insert the operator into the calculated field expression at the edit cursor position: select an operator button. |
|------------------|---|

---

***Expression Editor***

|                |  |
|----------------|--|
| <b>Replace</b> | Displays the Replace dialog dialog that allows you to find and replace characters within the current calculated field expression. Any selected text within the calculated expression when the Replace button is used will become the default Find what: selection in the Replace dialog. |
| <b>Verify</b>  | Verifies the syntax of the expression in the Expression edit box. When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the expression syntax.<br>If the expression syntax is valid, an Expression Okay... message.            |

---

***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Redefines the calculated field with the current name and expression.        |
| <b>Cancel</b> | Closes the Edit Calculated Field dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.   |

## Calculated Expression Dialog Box

Displays a list of existing calculated fields. Highlight a field name and select OK to insert that field's expression in the calculated field that you are creating or editing.

---

### *Options*

**Go To Field** Enter one or more characters to **limit** the function list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** List of existing calculated fields.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Click on a sorted column heading to **reverse** the sort order.  
Select and drag a column header separator bar to **resize** a column.  
**Select** the name of the calculated field whose expression you want to insert.

**Expression** Calculation expression defined for the currently highlighted calculated field. Select OK to insert the expression.

---

### *Action Buttons*

**OK** Inserts the expression of the selected calculated field into the expression you are creating or editing.  
**Cancel** Closes the Calculated Fields dialog box and returns to the New/Edit dialog without inserting any calculated field expression.  
**Help** Displays this help topic.

## New Calculation Dialog Box

Creates a new calculated field.

---

### ***Settings***

|                                    |  |
|------------------------------------|--|
| <b>Calculated Field Name</b>       | Name of the calculated field.  |
| <b>Calculated Field Expression</b> | <p>Calculation to be performed by the calculated field you are editing.</p> <p>You can edit an expression using any combination of the following methods:</p> <ul style="list-style-type: none"><li>• Directly enter or modify the expression elements in the Expression edit box;</li><li>• Use one of the Field, Function or Expressions buttons to select an item from a list.</li><li>• Insert operators by selecting them as necessary from the Operators box;</li><li>• Use the Replace button to edit any portion of the calculated expression with alternate text;</li></ul> |

---

### Fields and Functions Action Buttons

|                  |   |
|------------------|---|
| <b>Fields</b>    | Displays the Select Field Name dialog which allows you to select a field name that will be placed at the edit cursor position in the calculated field expression Edit box.  |
| <b>Functions</b> | <p>Displays the Select function dialog which contains all predefined and user defined functions.</p> <p>If the paste function arguments box is checked, function argument placeholders will be included when the function is inserted into the calculated field expression.</p> |
| <b>Lists</b>     | Displays the Select ParmList dialog which allows you to select a paramList field for use in a list function.  |

---

### ***Expressions Action Buttons***

|                     |   |
|---------------------|---|
| <b>Calculations</b> | Displays the Calc Expression dialog box. Select a |
|---------------------|---|

|                       |  |
|-----------------------|--|
|                       | calculated field from the list to insert the field's expression into the Expression edit box.  |
| <b>User Functions</b> | Displays the User Functions dialog box. Select a user function from the list to insert the function's expression into the Expression edit box.     |
| <b>Index Keys</b>     | Displays the Key Expression dialog box. Select an index key value from the list to insert the index key's definition into the Expression edit box. |

---

***Operators***

|                  |   |
|------------------|---|
| <b>Operators</b> | Operators that can be inserted in the calculated field expression.<br>To insert the operator into the calculated field expression at the edit cursor position: select an operator button. |
|------------------|---|

---

***Expression Editor***

|                |  |
|----------------|--|
| <b>Replace</b> | Displays the Replace dialog dialog that allows you to find and replace characters within the current calculated field expression. Any selected text within the calculated expression when the Replace button is used will become the default Find what: selection in the Replace dialog. |
| <b>Verify</b>  | Verifies the syntax of the expression in the Expression edit box. When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the expression syntax.<br>If the expression syntax is valid, an Expression Okay... message.            |

---

***Action Buttons***

|               |   |
|---------------|---|
| <b>OK</b>     | Redefines the calculated field with the current name and expression.        |
| <b>Cancel</b> | Closes the Edit Calculated Field dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.   |

## Width Tab (Character or Memo Field)

Specifies the output width of a character or memo field.

---

### ***Settings***

- Inches** Measures the width of the character or memo field in inches.  
**NOTE:** The units of measurement are determined by the "Measurement system" specified in Windows Regional settings (accessed through the Control Panel).
- Characters** Measures the width of the field in characters.
- Width** Number of inches or characters allowed for the output of the field.

## Save Report Dialog Box

Prompts for a name and path for a clipboard image pasted into a report. The image format is determined by the file extension specified (supported image formats for saving are GIF, JPG, PCX, TGA, TIF, WMF, and WPG). If no extension is specified, the image is saved in BMP format.

A thumbnail of the image is displayed in the Image box.

### **Enter Pathname for Clipboard Image:**

Enter a path and file name for the image. This information is saved with the report.

When you retrieve a report with a saved clipboard image, Report Writer first looks for the image file in the current library directory; if the file is not found, Report Writer then looks in the directory saved with the report. If the image file is in neither location, Report Writer looks in the default image directory.

---

### ***Action Buttons***

- |               |  |
|---------------|--|
| <b>OK</b>     | Save the clipboard image with the specified path and name. |
| <b>Cancel</b> | Close the dialog box without saving the image.             |
| <b>Help</b>   | Displays this help topic.                                  |

## Field Comment Dialog

Enables entry or edit of a text comment to be attached to the selected calculated, parameter or total field.

---

### ***Settings***

- Field** Name of the currently selected calculated, parameter or total field.
- Comment** Enter a comment to be attached to the selected field. When a field has a comment attached to it, the text of that comment is displayed in the Status Bar when the field is highlighted.
- 

### ***Options Buttons***

- OK** Attaches the comment text to the calculated, parameter or total field and closes the dialog.
- Cancel** Closes the dialog without saving the comment or changes to the comment.
- Help** Displays this help topic.

## Copy Report Dialog Box

Specifies the name of a report being copied from one library to another. Names of the source and destination report libraries are displayed next to "Copy From" and "Copy To."

**Destination** The current report name appears; you can either retain this  
**Report** name for the report copy or enter a new name.  
**Name**

## Format DateTime Field Tab

Specifies the output format for a datetime field.

---

### **Settings**

- Date** List of available date formats.
- Format** Regional Long and Short date formats are determined by the Regional Date settings in the Windows Control Panel. You can also use the Control Panel to specify whether single-digit days or months are displayed with leading zeros.
- Show Date** When this setting is On (the default, indicated by an X in the check box), the date portion of the Datetime value will be included in report output; when this setting is Off, the date portion will not be included in report output.
- Show Time** When this setting is On (the default, indicated by an X in the check box), the time portion of the Datetime value will be included in report output; when this setting is Off, the time portion will not be included in report output.
- Time** List of available time formats.
- Format**
- Sample** Displays system date and time in the currently selected Datetime format.

## Format Date Field Tab

Specifies the output format for a date field.

---

### ***Settings***

|               |   |
|---------------|---|
| <b>Date</b>   | List of available date formats.   |
| <b>Format</b> | Regional Long and Short date formats are determined by the Regional Date settings in the Windows Control Panel. You can also use the Control Panel to specify whether single-digit days or months are displayed with leading zeros. |
| <b>Sample</b> | Displays system date in the currently selected format in the Date Format list.  |

---

### ***Action Buttons***

|               |  |
|---------------|--|
| <b>OK</b>     | Applies the specified settings to the field(s) and closes the Properties tabbed dialog.      |
| <b>Cancel</b> | Closes the Properties tabbed dialog without applying any of the specified changes.           |
| <b>Apply</b>  | Applies the specified settings to the field(s) and leaves the Properties tabbed dialog open. |
| <b>Help</b>   | Displays this help topic.  |

## Default File Settings Dialog

Specifies default data, report, image, and template folders; index, text memo and image file extensions; and report dictionary and dictionary index file names.

---

### *Folders*

|                 |  |
|-----------------|--|
| <b>Data</b>     | Folder where R&R will look for all data files(for example, tables and text memo files) for a report. |
| <b>Report</b>   | Folder where report files will be searched for and saved.  |
| <b>Image</b>    | Folder where bitmapped image files will be searched for.   |
| <b>Lookup</b>   | Folder where R&R will look for dynamic parameter lookup tables.                                      |
| <b>Template</b> | Folder where templates will initially be searched for and saved.                                     |

---

### *Extensions*

|                   |  |
|-------------------|--|
| <b>Index File</b> | Default extension for index files.     |
| <b>Text File</b>  | Default extension for text memo files. |

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Accepts the changes made to the default file settings and closes the dialog.       |
| <b>Cancel</b> | Closes the dialog, discarding any changes made.                                    |
| <b>Browse</b> | Displays a selection dialog for each of the default directories and file settings. |

## Confirm Deletion Dialog Box

Lists all of the fields that will be deleted if you confirm the operation you are performing.

|                  |   |
|------------------|---|
| <b>Name/Type</b> | Name of each field that will be deleted, followed by the field type.            |
| <b>OK</b>        | Confirms the operation, deleting all the fields in the Name/Type list.          |
| <b>Cancel</b>    | Cancels the operation without deleting any of the fields in the Name/Type list. |
| <b>Help</b>      | Displays this help topic.   |



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**Action Buttons**

|                     |  |
|---------------------|--|
| <b>Close</b>        | Closes the Calculated Fields dialog box.   |
| <b>New</b>          | Displays the New Calculation dialog box.   |
| <b>Copy</b>         | Displays the Copy of a Calculated field dialog box with a blank field name and the expression of the copied field.                                   |
| <b>Edit</b>         | Displays the Edit Calculation dialog box.  |
| <b>Delete</b>       | Deletes the currently selected calculated field.   |
| <b>Comment</b>      | Enables entry of a field annotation (up to 100 characters).  |
| <b>Add to Dict.</b> | Allows you to add the selected field to the Data Dictionary. This button is only enabled when a dictionary eligible field is selected from the list. |
| <b>Help</b>         | Displays this help screen.   |

## **Edit Reset Dialog Box**

Changes the reset level of all total fields that currently reset at a particular level.

- Change From** The reset level that you want to change for all total fields that reset at that level (Grand total, Page total, or Group Level 1 through 8).
- Change To** The reset level to which you want to change for all total fields that currently reset at the "Change From" level.

## Insert Field Dialog Box

Inserts a field into the Compared To edit box on the Selection Rule or Condition dialog.

---

### *Options*

**Fields** List of fields available for selection as the Compared To value based on the initial field selected in the Field edit box. Each table name is followed by an ellipsis (...).  
For multi-table reports, you can click a table name to expand or collapse a list of fields in that table. Field names appear below the name of the table to which they belong.

---

### *Action Buttons*

**OK** Inserts the selected field as the Compared To value.  
**Close** Closes the dialog without inserting the field.  
**Help** Displays this help topic.

## Total Fields Dialog

Displays a list of existing total fields. You can create a new total field, edit the definition of an existing total field, edit properties of multiple totals, copy and existing total, delete a total field, change the reset level of multiple totals.

You can also select a field name and then **drag** it from the list onto the report layout.

---

### Options

**Go to Field:** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, table alias name and data type for each total field.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Click on a sorted column heading to **reverse** the sort order.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
You can select a field name and then **drag** it from the list onto the report layout.

**Expression** Displays the total expression defined for the currently selected total field. Select the Edit button to open the Edit dialog where you can change this expression.

---

### Action Buttons

**Close** Closes the Total Fields dialog box.  
**New** Displays the New Total dialog box.  
**Edit** Displays the Edit Total dialog box.  
**Multi Edit** Displays the Edit Multiple Totals dialog box.  
**Copy** Allows you to copy the selected field definition as the basis for new total. Displays the New Total dialog box with all properties except for the Field name set exactly as for the selected source total.  
**Delete** Deletes the currently selected total field.  
**Edit Reset** Displays the Edit Reset dialog for selection of a different reset level for one or more total fields.  
**Help** Displays help for this dialog box.

## User Functions Dialog Box

Displays a list of existing user-defined functions. You can create a new function, edit the definition of an existing function, or delete a function.

---

### *Settings*

- Go To UDF** Enter one or more characters to **limit** the function list to display only functions names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.
- Functions** List of existing user defined functions and the data type that they return.  
Select the name of the user-defined function you want to delete or edit.  
Click a column header to sort the list.
- Expression** Function expression defined for the currently selected user-defined function in the Functions list. Select the Edit button to change the definition.
- 

### *Action Buttons*

- Close** Closes the User Functions dialog box.
- New** Displays the New User Function dialog box.
- Edit** Displays the Edit User Function dialog box.
- Delete** Deletes the currently selected user-defined function in the Functions list.
- Help** Displays this Help topic.

## Text Export Options Dialog

Enables export of report data to an unformatted text file (for inclusion in a word processing or desktop publishing program, for example). All data on every line of the report, including text fields, is exported.

To export to a text file, first enter the name of the intended output file (optionally including a path) in the File Name box. Then select the desired settings in the Text File Options section.

---

### *Text File Options*

|                               |  |
|-------------------------------|--|
| <b>Character Set</b>          | Select either Windows (ANSI) or DOS (PC).  |
| <b>Carriage Returns</b>       | Select "Every line" to insert a hard return at the end of each report line in the output file. Select "Once per band" to insert a hard return only at the end of each report band. |
| <b>No margins/page breaks</b> | Check this box to generate continuous text output with no top and left margins and no added blank lines between pages.   |

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified file.                |
| <b>Close</b>  | Closes the dialog, saving the settings but without exporting. |
| <b>Cancel</b> | Closes the dialog without saving the settings.                |
| <b>Help</b>   | Displays this help topic.                                     |

## Xbase/Worksheet Export Options Dialog

Enables export of data from all lines in the specified report band area to an Xbase (.DBF) or Worksheet (.XLS) file. Note that the following are not included in such an export: text fields, memo fields, lines, boxes, and images.

To export to an Xbase or Worksheet file, first enter the name of the intended output file (optionally including a path) in the File Name box. Then select the band containing the data you want to export.

---

### *Settings*

- |                    |  |
|--------------------|--|
| <b>File Name</b>   | The name (and, optionally, location) of the output file. Default extension is DBF for Xbase Export and XLS for Worksheet Export.   |
| <b>Select Band</b> | <b>Highlight the band containing the data you want to export (for example, Summary); then select Export. Note that when exporting to database and worksheet files, Report Writer ignores text fields, memo fields, lines, boxes, and images.</b> |

---

### *Action Buttons*

- |               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified DBF/XLS file.        |
| <b>Close</b>  | Closes the dialog, saving the settings but without exporting. |
| <b>Cancel</b> | Closes the dialog without saving the settings.                |
| <b>Help</b>   | Displays this help topic.                                     |

## Export Dialog Box

Exports report data to an ActiveX Viewer Control file, Excel Chart, Excel PivotTable, HTML file, Result set DBF, Rich Text Format (RTF) file, Text file, Text Data/Word Merge File, Worksheet file, or Xbase file.

---

### ***Action Buttons***

|                     |  |
|---------------------|--|
| <b>Edit</b>         | Opens a dialog for entering/editing export settings for the highlighted export type. |
| <b>Close</b>        | Closes the Export dialog.  |
| <b>Help</b>         | Displays this help topic.  |
| <b>Mail Options</b> | This button is enabled only when the Send Via MAPI box is checked.                   |

---

### ***Settings***

|                      |   |
|----------------------|---|
| <b>Send via MAPI</b> | <p>When this setting is on (indicated by a checkmark in the box), when you export to ActiveX, RTF, Text, Text Data, HTML, Result Set, Word Merge, Worksheet, or Xbase, Report Writer will start up or switch to your mail application and attach the exported file to a mail message.</p> <p>In order to use this option, you must have MS Mail or another email application that supports MAPI (Messaging Application Programmer's Interface).</p> |
|----------------------|---|

## File New Dialog Box

Select the starting point for a new report or, when first executing Report Writer, open an existing report.

---

### *Options*

|                                     |  |
|-------------------------------------|--|
| <b>Report Wizard Instant Report</b> | Report Writer will assist in the step-by-step creation of a Label, Basic Columnar, or Grouped Columnar report. After you select a master table, Report Writer creates an Instant Report layout consisting of all fields in the master table (or as many as will fit horizontally); calculated fields for master table name, date, time, page number, number of records printed; and grand totals of all fields that have decimal places. |
| <b>Blank Report</b>                 | Report Writer creates a blank report layout either with or without a master table, depending on whether the Create Report Without Master Table setting is off (unchecked) or on (checked).   |
| <b>Template</b>                     | Enables selection of a Template to use as the report starting point.   |
| <b>Open Existing Report</b>         | Displays the Open Report dialog for selection of an existing report.   |

## Save As Dialog

Saves the current report under the report name specified.

**Save in** Lists available folders and files in the currently selected location. To select a different location and/or folder, drop down the list box.  
The box below lists all folders in the currently selected location as well as any files that match the "Files of Type" selection.  
You can use the buttons at the right to move up one directory level, create a new folder, or specify what information will be displayed about the folders and files in the current location.

**File Name** Name under which the current report will be saved.  
The names of all existing reports in the current location are listed above the edit box. You can select an existing report name if you want to overwrite that report with the current report. Otherwise, type a unique report name in the edit box.

**Save as Type** Specifies the default file extension (.RRW) for saving.

---

### *Action Buttons*

**Save** Saves the report under the name indicated in the File Name edit box.  
**Cancel** Closes the Save As dialog box without saving the report.  
**Help** Displays this help topic.

## File Properties Dialog

Enables entry of information uniquely identifying the current report; this information is saved with the report if it is saved as a compound document file.

Note that for a report saved to a report library, the Author, Keywords, Title, and Subject information is not retained; the Comments property is the only one saved with a report.

- Report** Name and location of the current report.
- Comments** Enter your report comment text here.
- Author** Name of the current report's author; if you are creating a new report, this defaults to your log-on name. You can edit this as necessary; any changes you make will be saved with the report.
- Keywords** Enter one or more words that could be used with a file browser to locate this report file. Separate multiple keyword entries with spaces.
- Title** Path and name of the report file.
- Subject** Enter a brief explanation of the report content.

---

### *Action Buttons*

- OK** Closes the File Properties dialog and attaches the information entered to the current report.
- Cancel** Closes the File Properties dialog, discarding any entry or changes made.

## **Open File Dialog Box**

Presents a list of tags for a multiple index file when the tag saved with the report cannot be found at report retrieval.

**Select** Index tag list box.

**Index Tag** Open the list box and select a tag. Select OK to retrieve the report.

## Key Expression Dialog Box

Specifies the index key you want to use for a multiple-key index file.

---

### *Settings*

**Select Index Tag** List of index tags in the index file. Select an index tag from the list.

---

### *Action Buttons*

**OK** Selects the highlighted index tag.  
**Cancel** Cancels selection of an index tag and closes the dialog.  
**Help** Displays this help topic.

## Default Settings Dialog Box

Specifies the default settings used for all new reports.

---

### ***Paper Size***

Select a paper size from the list box. The default size is Letter (8.5 x 11 inches). For printers that support custom paper sizes, "User Defined Size" is one of the menu choices. You specify the dimensions for this size using the Windows Printer Properties dialog (accessed by running the Printers program item in the Windows Control Panel ). After a User Defined Size has been established in Windows, its dimensions display below the Paper Size list box when User Defined Size is highlighted on the menu.

---

### ***Margins***

**Top,** Measurement of blank space between each edge of the  
**Bottom,** page and the report output.  
**Left, Right**

---

### ***Logical Strings***

**True** Specifies the string that you want to represent the logical true value in an expression. Select T, True, or Yes from the list. The default is T. You can also type a string in the edit box.

**False** Specifies the string that you want to represent the logical false value in an expression. Select F, False, or No from the list. The default is F. You can also type a string in the edit box.

---

### ***Ruler Spacing***

**Horizontal** Number of ruler increments per inch on the horizontal ruler. Default is 10, and the range of valid entries is 4 through 30.

**Vertical** Number of ruler increments per inch on the vertical ruler. Default is 10, and the range of valid entries is 4 through 30.

**Snap-To-Grid** Turns the snap-to-grid feature on or off. When Snap-To-Grid is on (indicated by an x in the Snap-To-Grid box), objects on the layout will "snap" to the ruler increments when inserted, moved, or sized. You can also control this setting with the Snap-To-Grid button on the Formatting Toolbar.

---

### ***Font/Color***

**Font** Default font to be used for all fields inserted in new reports. Select a font from the list. The fonts that are displayed in the list are determined by the currently selected printer. You can also type a font name that is not supported by the currently selected printer, but is supported by the printer you intend to use to print your reports.

**Pts** Default point size to be used for all fields inserted in new reports.

**Color** Default color for all fields inserted on the layout. Select a color from the list box.

---

***Allow Other Users to Update Database Tables in Use by R&R***

- On** When there is an X in this check box (the default), R&R allows database users to access and modify tables being used by a report.
- Off** When this setting is off (no X in the box), database users will be prevented from changing tables and indexes used by a report while the report is being generated (other R&R users will still have access to those tables).

## Group Order Dialog Box

Designates up to 8 fields by which the composite records in a report are grouped. Grouping is used in a report to allow you to set break levels that can be used to add band lines to the layout that will print at that break point and to accumulate and reset total fields. A group consists of records that have the same value for a designated group field. The number of groups in a particular group level is determined by the number of discrete values in the designated group field.

**Group** Indicates the field assigned to each Group level.

**Fields** You can select fields for up to 8 levels of grouping. Use the **1- 8** [...] field selection button to display the Select Group field dialog where you can select from a list of available group fields.

---

Action taken if box is checked

**Print Once** Print data for a group's field only once per group, instead of printing the data on every line that includes that field.

**Reset Page** Reset the page number to 1 for the group.

**Swap Header** Print the group header instead of the page header on the first page of a new group.

The group header should have the same number of lines as the page header. The group header and the page header lines should also have the same line height.

**Swap Footer** Print the group footer instead of the page footer on the last page of a group.

The group footer should have the same number of lines as the page footer. The group footer and the page footer lines should also have the same line height.

**Repeat Header** Reprint the group header at the top of the page when the group continues across several pages.

---

### **Action Buttons**

**OK** Saves the group order you have selected.

**Cancel** Closes the Group Order dialog box without saving any changes you made to the group order.

**Insert** Inserts a new group level above the currently selected group level, automatically moving down and renumbering the remaining group levels.

**Delete** Removes the currently selected group level from the list, automatically moving up and renumbering the remaining group levels.

**Reset** Clears all the group levels.

**Sort** Displays the Sort Order dialog box.

**Help** Displays this Help topic.

## Picture Properties Dialog

Designates file name, size, and scaling for a bitmapped image file or an image pasted from the clipboard.

---

### Options

|                     |   |
|---------------------|---|
| <b>File</b>         | <b><i>For Picture inserted as a file only</i></b><br>Name of the bitmapped image file; if the image was pasted from the clipboard, this contains "(from clipboard)."  |
| <b>Field</b>        | <b><i>For picture inserted from a field only</i></b><br>Displays the selected field name whose contents point to a picture file   |
| <b>Picture Size</b> | Dimensions (Width and Height) of the currently selected image.  |
| <b>Scaling</b>      | Scaling of the image on the layout. Choose one of three options:<br><i>Zoom (retain shape)</i> : Image retains its aspect ration (ratio of Width to Height) when sized.<br><i>Crop (no scaling)</i> : Image is inserted at original size; no scaling is performed. If the image is larger than the area designated for it on the layout, the image is cropped (only the top left portion of the image that fits within the rectangle or specified dimensions is inserted).<br><i>Stretch (size to fit)</i> : Image is scaled to fit the area designated for it on the layout; if the aspect ratio of the specified dimensions differs from the aspect ratio of the original, the image is distorted (either stretched or shrunk). |

---

### Action Buttons

|                      |   |
|----------------------|---|
| <b>Original Size</b> | Resets the image to its original dimensions.  |
| <b>Current Size</b>  | Resets the file to the dimensions specified in the Picture Size box.  |
| <b>OK</b>            | Inserts or re-sizes the selected image.   |
| <b>Field</b>         | <b><i>Only available for picture inserted from field</i></b><br>Allows you to re-select the picture field.                                  |
| <b>File</b>          | <b><i>Only available for picture inserted from file</i></b><br>Displays the Picture File Selection dialog to select a different image file. |
| <b>Cancel</b>        | Closes the Picture Properties dialog without saving any changes made.   |
| <b>Help</b>          | Displays this help topic.   |

## Insert Field Dialog Box

This dialog allows you to insert one or more fields onto the Layout Area. You can limit the field list by entering one or more characters in the Go To box. To insert a field, you can either highlight the field name and select Insert or drag and drop the field at the appropriate location.

---

### *Options*

#### **Go To Field**

Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.

Press backspace to clear the box and display all fields.

#### **Fields**

Lists the name and description, table alias name, data type and class for each field that is available for placement of the report layout.

An asterisk \* before a field name indicates that the field is currently used within the report.

Click on a column heading to **sort** the list by that column.

Click on a sorted column heading to **reverse** the sort order.

Select and drag a column header separator bar to **resize** a column.

Use arrow keys or the scrollbars to scroll through the list.

You can select a field name and then **drag** it from the list onto the report layout.

**Right-click** on a database or dictionary calculated field to display data dictionary information.

**Double-clicking** on a field is the equivalent of pressing the Insert button.

#### **Close Dialog After Inserting Field**

When this box is checked, the Insert Field Dialog closes after insertion of a field. When this box is not checked, the Insert Field dialog remains open to allow insertion of additional fields; when finished inserting fields, select Close.

---

### *Action Buttons*

#### **Insert**

Inserts the selected field at the current edit cursor location.

#### **Close**

Closes the dialog without inserting the field.

#### **Help**

Displays this help topic.

## **Band Line Justify Dialog Box**

Repositions all fields on one or more lines as a unit within the report margins, maintaining the relative space between fields.

---

### ***Options***

- Left** Aligns the fields on the currently selected line(s) as a group to the left margin.
- Center** Centers the fields on the currently selected line(s) as a group between the left and right margins.
- Right** Aligns the fields on the currently selected line(s) as a group to the right margin.
- 

### ***Action Buttons***

- OK** Applies the specified alignment and closes the dialog.
- Cancel** Closes the dialog without applying the specified alignment.
- Help** Displays this help topic.

## **Index Key Expression Dialog Box**

Specifies an index file whose key definition is inserted into the expression of the calculated field or user-defined function you are editing.

## Create Band Line Dialog Box

Inserts one or more new band lines in a location you specify.

**Number to Create** Number of new band lines to insert at the specified location. Enter or select the number of lines you want to insert; default is 1.

---

### *Line Placement*

**Above Current Line** Inserts one or more new lines of the same type above the current line.

**Below Current Line** Inserts one or more new lines of the same type below the current line.

**Select Band** Inserts one or more new lines in the band you select from the list below the option button, regardless of the current line. The default band is the current band.  
If the band you select exists, the new lines are inserted below the last line in the band; if the band you select does not exist, the band is added to the layout and the specified number of lines are added.

---

**Define Additional Band Line Properties** Check this box to display the Band Line Properties dialog to set additional properties once the Create button is pressed.

---

### *Action Buttons*

**Create** Creates the selected line(s).

**Cancel** Closes this dialog without making changes.

**Help** Displays this help topic.

## Band Line Properties Type Tab

Controls special line band type properties.

---

### *Location*

- Line** Line number of the currently selected line. If more than one line is selected, Multiple will be displayed.
- Band** Band type of the currently selected line (Title, Header, Group Header, Record, Group Footer, Footer, or Summary). If more than one band type is selected, Multiple will be displayed.

### *Type*

- New Page Line** When this box is checked, R&R will start a new page at the selected band line. A dashed new page line will then appear in the report layout.
- Print only when no record are found** This checkbox is only available for title band lines. When it is checked, the title band line will only print when no records are found that meet the report conditions. A question mark will be placed in the line status area of the layout screen to indicate that a special property has been applied.

---

### *Other Band Line Tabs*

- Height**
- Condition**

---

### *Action Buttons*

- OK** Applies the specified changes to the band line(s) and closes the Properties tabbed dialog.
- Cancel** Closes the Properties tabbed dialog without applying any of the specified changes.
- Help** Displays this help topic.

## Line Properties Dialog Box

Controls thickness and color of a line drawn on the layout.

---

### *Options*

- Thickness** Controls the thickness of a drawn line; select from 5 line thicknesses.
- Style** Select solid or dashed line style
- Color** Controls the color of the line; default is black.

## Mail Options

Allows you to select options for auto sending a mail message with a single report file attachment or bursting sections of a report to separate mail messages and recipients.

---

### *Options*

|                          |  |
|--------------------------|--|
| <b>Send</b>              | Default value.   |
| <b>Entire Report</b>     | <b>Select this button to send the entire report as a single mail message. All band oriented exports default to Send Entire report</b>  |
| <b>Send Burst Report</b> | Send different group sections of the report to the selected Send To recipient. Only available for reports having a group with reset page enabled.  |
| <b>Burst Level</b>       | Enabled when Send Burst Report is checked.<br>Allows you to select the break point for reports that will be sent as multiple mail messages.  |
| <b>Auto Send</b>         | The Auto Send checkbox determines whether the mail message will be pre-addressed and automatically send to the MAPI package for delivery. If unchecked, the mail message will be displayed to the screen rather than immediately sent. |
| <b>Send To</b>           | The Send To text box works with Auto Send and allows you to enter or select a field that contains a valid email address listing.   |
| <b>Subject</b>           | Optional subject line that will be included with the export mail message.  |
| <b>Message</b>           | Optional message that will be included with the export mail message.   |

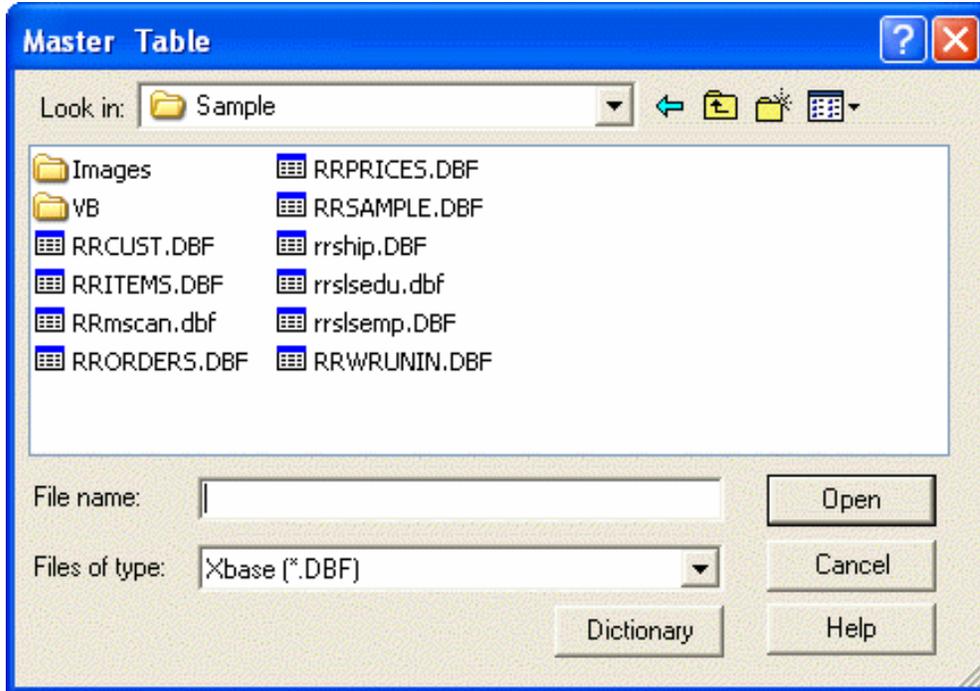
---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Closes the Mail Options dialog saving changes.       |
| <b>Cancel</b> | Closes the Mail Options dialog disregarding changes. |
| <b>Help</b>   | Displays this help topic.                            |

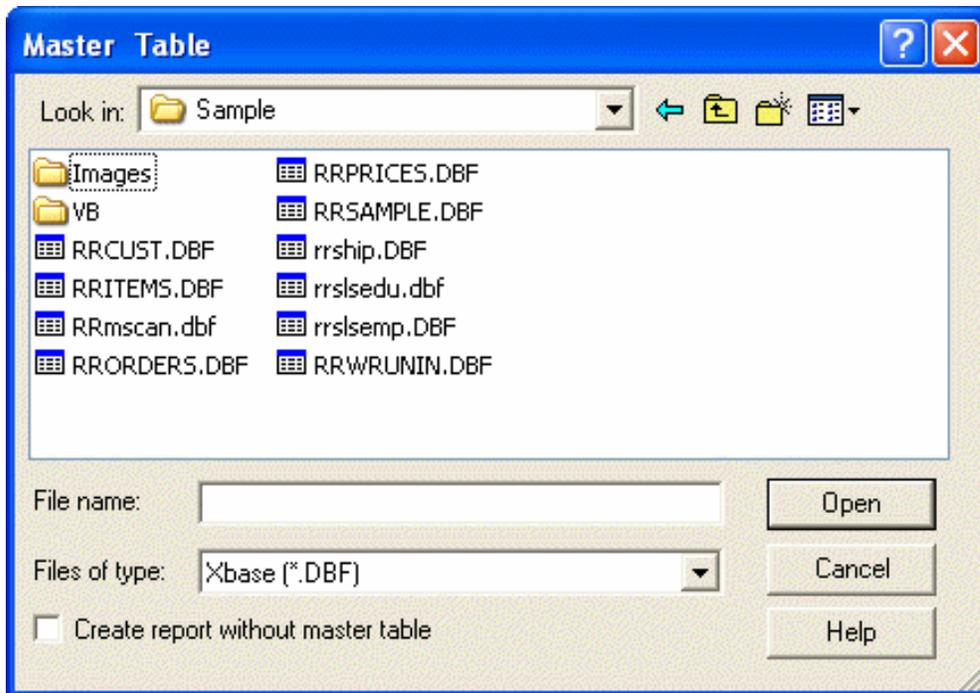
## Master Table Dialog Box

You use the Master Table file selection dialog to select a table to be used as the Master Table for a report.



After selecting a file you can use the Dictionary button to see any existing data dictionary information for that file.

If you are creating a Blank Report, you have the option of creating the report either with or without a master table. Use the "Create Report without Master Table" setting at the bottom of the dialog to control whether the report is to be created with a master table.



## **Master Index Dialog Box**

When you select a master index, that index's key expression determines the order in which Report Designer processes data from the master table.

Select an index file from the File Name list box; if necessary, select a different file extension from the "List Files of Type" box to display only files of a particular type (for example, MDX multiple index files).

The default files of type setting is determined by the value set for the default index extension in Options->File Settings.

## Format Numeric Field Tab

Specifies the output format for a numeric field.

---

### *Settings*

- Integers** Number of digits to the left of the decimal place.
- Decimals** Number of digits to the right of the decimal place. Does not apply to the General format.
- Format** List of available numeric formats.
- Zeros** Check the Show Zero option to output the value of the field, even if it is zero. Uncheck Show Zero to output blanks when the value of a field is zero.  
The Leading Zeros option applies only to the Fixed format. Check this option to output leading zeros when a value has fewer digits than the Integers option specifies. Uncheck this option to output blanks instead of zeros in front of a value that has fewer digits than the Integers option specifies.
- Sample** Displays a sample of the currently specified format.

## Object Properties Dialog

Designates size and scaling for a linked or embedded OLE object.

The bottom portion of the dialog provides the following information about the currently selected object: Type (Embedded, Linked, or Static), Type Name (e.g., Microsoft Word Document), and Application Name (the source application for the object).

---

### ***Options***

|                     |   |
|---------------------|---|
| <b>Picture Size</b> | Dimensions (Width and Height) of the currently selected object.   |
| <b>Scaling</b>      | Scaling of the object on the layout. Choose one of three options:<br><i>Zoom (retain shape)</i> : Object retains its aspect ration (ratio of Width to Height) when sized.<br><i>Crop (no scaling)</i> : Object is inserted at original size; no scaling is performed. If the object is larger than the area designated for it on the layout, the object is cropped (only the top left portion of the object that fits within the rectangle or specified dimensions is inserted).<br><i>Stretch (size to fit)</i> : Object is scaled to fit the area designated for it on the layout; if the aspect ratio of the specified dimensions differs from the aspect ratio of the original, the object is distorted (either stretched or shrunk). |

---

### ***Action Buttons***

|                      |  |
|----------------------|--|
| <b>Original Size</b> | Resets the object to its original dimensions.                            |
| <b>Current Size</b>  | Resets the object to the dimensions specified in the Picture Size box.   |
| <b>OK</b>            | Inserts or re-sizes the selected object.                                 |
| <b>Cancel</b>        | Closes the Object Properties dialog box without saving any changes made. |
| <b>Help</b>          | Displays this help topic.  |

## Picture File Selection Dialog

Specifies a bitmapped graphic to be inserted on the report layout.

---

### *Options*

**Look in** Lists available folders and files in the currently selected location. To select a different location and/or folder, drop down the list box. The box below lists all folders in the currently selected location as well as any files that match the "Files of Type" selection. You can use the buttons at the right to move up one directory level, create a new folder, or specify what information will be displayed about the folders and files in the current location:



**File Name** Displays the currently highlighted file name. If no file name is highlighted, the box is empty.

You can open a file in any of the following ways:

Double-click the file name;

Highlight the file name in the list box and select Open;

Enter the file name in the edit box and select Open.

**Files of Type** Specifies the types of files to be listed in the box above. To select a different file type, open the list box.

---

### *Action Buttons*

**Open** Opens the currently highlighted folder or file.

**Cancel** Closes the dialog without opening a folder or file.

**Help** Displays this help file.

## **Open Report/Template Dialog**

Specifies the report or template file to be opened.

## Select Report Source Dialog

Select the report file you want to convert from those listed or change the drive/directory designation to select a report in a different location.

- File Name** Edit box displays the file selection pattern. List box below displays all files in the currently selected directory that match the file selection pattern.
- To change the file selection pattern:** Type a different file selection pattern directly in the File Name edit box, then press the Enter key or select the OK button. When you change the file selection pattern, the File Name list box is updated to show the names of the files that match the new pattern.
- To select a file:** Highlight the name of a file in the list box and select the OK button, or double-click on a file name in the list box, or type the full name of the file in the edit box and select the OK button.
- List Files of Type** Specifies the default file selection pattern used in the File Name edit box.
- Folders** Static text displays the complete path name of currently selected directory. The box below lists the currently selected folder and its subdirectories.
- To select a lower directory level:** Double-click on a "closed" folder in the list box.
- To return to a higher directory level:** Double-click on an "open" folder in the list box.
- When you change the currently selected folder, the File Name list box to the left is updated to reflect the contents of the new folder.
- Drives** Specifies the currently selected drive. Open the list box to select a different drive.

## **Copy Report To Dialog Box**

Enables copying of a report from one library to another. Select a destination report library file from those listed or change the drive/directory designation to select a report library in a different location.

## Paste Dialog Box

Pastes copied or cut band line(s) in the location you specify.

---

### *Line Placement*

**Above Current Line** Pastes the line(s) above the current line (marked by a box around the line's band type).

**Below Current Line** Pastes the line(s) below the current line.

**Select Band** Pastes the line(s) in the band you select using one of the line type radio buttons. The default band is the current band.

If the band you select exists, Report Writer pastes the line(s) below the last line in the band; if the band you select does not exist, Report Writer adds the band to the layout and pastes the line(s) in that band.

## Print Dialog Box

Specifies the type of information printed, the number of copies printed, the range of pages printed, and, optionally, the path and name of an output file. Also enables you to select a different printer.

---

### Options

- Printer** Displays the name, status, type, and port of the current Windows printer.
- Print to File** To send report output to a file (rather than to the printer), click this check box. Then enter the name (optionally including a path) of the output file in the "Print File" box below. If no path is specified, output will be saved in the current directory.  
Note that the output file will include printer codes for the currently selected printer. To save output as text without printer codes, use the File ⇒ Export command. If you select the **R&R PDF Export** printer driver to create a PDF file, you must check the print to file box and enter a PDF filename in the print file box below.
- Print Range** The range of pages printed from the report. Select "All" to print the entire report; select "Pages" and enter beginning (From) and ending (To) pages to print a portion of the report.
- Copies** The number of copies of the entire report to be printed. To specify the number of copies of each record to be printed within the report, use the Record Layout dialog box. To specify that Report Writer collate the pages of multi-page reports, turn on the Collate setting.
- Collate** Specifies collating for multiple report copies.
- Print What** Specifies the type of information printed. Select one of the following options from the list.  
**Report** prints the entire report output. The records that are printed as part of the report are determined by the Record Layout dialog box and any query expression, scope values, and related table failure actions that are defined for this report.  
**Test Pattern** prints the page headers/footers of a report and the record band in the form of text fields and field symbols to represent data fields. Use this option to make sure forms or mailing labels are properly aligned before you print the actual records.  
**Report Specification** prints a detailed description of the report format and database files.
- Print File** Name (and, optionally, path) for a report to be printed to a file; if you have selected "Print to File" above, enter a name for the file here.
- 

### Action Buttons

- OK** Prints using the settings you have selected.
- Close/** Closes the Print dialog box without printing. Any changes

- Cancel** you made to the settings on the Print dialog box are discarded.
- Preview** Previews the report on the screen.

**Prompt Text Dialog**

Text to come (ID is 1121)

## Page Setup Dialog

Specifies the page size, paper source, orientation, and margins to be used for printing the current report. These settings affect only the current report and are saved with it.

---

### *Paper*

- Size** Select a paper size from the list box. The default size is Letter (8.5 x 11 inches).
- Source** Specifies the paper source (e.g., lower/upper tray, manual feed, envelope) for the current report.
- 

### *Orientation*

- Portrait** Prints the page vertically.
- Landscape** Prints the page horizontally.
- 

### *Margins*

- Top,**  
**Bottom,**  
**Left, Right** Measurement of blank space between each edge of the page and the report output.
- 

### *Action Buttons*

- OK** Accepts the changes made to page setup and closes the dialog.
- Cancel** Closes the dialog, discarding any changes made to page setup.

## Purge Calculations Dialog Box

Deletes all unused computed fields from the report.

**Calculated Fields** Delete all unused calculated fields from the report. Any total fields that are dependent on an unused calculated field will be deleted as well.

**Total Fields** Delete all unused total fields from the report. Any calculated fields that are dependent on an unused total field will be deleted as well.

**Parameter Fields** Delete all unused parameter fields from the report. Any calculated fields that are dependent on an unused parameter field will be deleted as well.

**Note:** Report Writer treats Calculated, Parameter and Total fields used only in memo fields (that is, embedded in a memo file) as "unused"; therefore, you may not want to remove unused fields if your report contains memo fields that reference Calculated, Parameter or Total fields.

## Query Dialog Box

Defines the query expression as a set of rules used to select records for the current report.

---

### ***Action Buttons***

|               |  |
|---------------|--|
| <b>OK</b>     | Uses the query as it is currently defined.   |
| <b>Cancel</b> | Closes the Query dialog box without changing the query.  |
| <b>Verify</b> | Verifies the syntax of the query condition(s). When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the query syntax. |
| <b>Insert</b> | Opens the Insert Selection Rule dialog box and enables you to define a query condition that will be inserted above the currently highlighted condition.                          |
| <b>Edit</b>   | Opens the Edit Selection Rule dialog box and enables you to edit the currently highlighted condition.  |
| <b>Append</b> | Opens the Append Selection Rule dialog box and enables you to add a condition at the end of the query.   |
| <b>Delete</b> | Deletes the currently highlighted query condition.   |

## Selection Rule Dialog

---

### *Settings*

#### **And/Or**

Select a connector for joining conditions.  
Available only for queries with more than one selection rule.

**And:** Includes records that satisfy both conditions.

**Or:** Includes records that satisfy either condition.

#### **( Parenthesis**

For multiple-rule queries, enter left parentheses as necessary to control order in which Report Writer evaluates a query. May be needed for queries having more than two selection rules and at least one OR operator.

**For more information, see help topic on Using Parentheses.**

#### **Field Comparison Compared To**

**Select a field to be tested for this query rule.**

Select from list of comparison operators.

Specify a field, value, list of values, or range to which the value in the selected Field will be compared. The compared to selection area dynamically changes based upon the comparison operator and the data type of the selected field. It will only display when both a field and a comparison operator have been selected.

For more information, see help topic on Comparison values.

#### **) Parenthesis**

For multiple-rule queries, enter right parentheses as necessary to control order in which Report Writer evaluates a query. May be needed for queries having more than two selection rules and at least one OR operator.

For more information, see help topic on Using Parentheses.

---

### *Action Buttons*

#### **OK**

Closes the Selection Rule dialog and places the condition in the Query dialog.

#### **Cancel**

Closes the Selection Rule dialog and discards your changes.

#### **Help**

Displays this help topic.

## Record Layout Dialog Box

Selects record-specific options for the current report.

---

### ***Multiple Columns***

- Columns** Number of records printed across the page. Enter a value specifying the number of horizontal rows you want.  
**NOTE:** Do not use word-wrapped fields when you are printing more than one record across, unless your record band contains enough lines to accommodate the maximum length of any word-wrapped fields, as well as any fields in the record band beneath the word-wrapped fields.
- Label Type** Select an Avery label type from those listed. Report Writer automatically sets page size, margins, record width, and record height to the values appropriate for that label type.
- Dimensions** Width and height of the printed record band when printing multiple records across. The Width setting specifies the distance from the left edge of one column to the left edge of the next column; the Height setting specifies the distance from the top edge of one record to the top edge of the next record.
- Order** Select Across to arrange records horizontally (left to right) across the page; select Down to arrange records vertically (top to bottom).
- 

### ***Copies***

- Number** Enter or select a number to specify how many copies of the Record band Report Writer will print.
- Field:** Open the Field list to select a numeric field whose value will control the number of record bands printed.  
**NOTE:** Report Writer prints all the copies specified for each record before moving on to the next record. For example, if you specify 3 copies, Report Writer prints three copies of the record band for RecordA, then three copies of the record band for RecordB, then three copies of the record band for RecordC, and so on. To control the number of copies printed of an entire report, use the Print dialog box.
- 

### ***Formatting***

- Compress Record/Group Lines** Checked: Suppresses printing of lines with empty fields in the record, group header, and group footer bands of a report.
- Suppress Record Lines** Checked: Prints summary and header/footer information only. Does not print record lines.
- Begin New Line on Semicolon** Checked: Semicolons in word-wrapped character fields are treated as line terminators.  
**NOTE:** This option does not affect memo fields.
- Headers/Footers in** Checked: Page Header and Page Footer lines are printed in the Summary band each time the Summary

**Summary** band is printed on a new page.  
**Break Record** *Checked:* Begins printing the record band on the  
**Area Across** current page if the first line fits; the rest of the  
**Page** record is continued on the next page.  
*Unchecked:* If an entire record band will not fit on the  
current page, the record band begins printing on the  
next page.

---

***Print Records***

**Non-deleted** Prints only composite records that have no  
component records marked for deletion in the  
database.

**Deleted** Prints only composite records that have all  
components marked for deletion.

**All** Prints all composite records.

## Relations Dialog Box

Displays a list of existing table relations. You can create a new relation, edit the definition of an existing relation, delete a relation, or modify a scan group.

---

### *Settings*

|                    |  |
|--------------------|--|
| <b>Relations</b>   | List of existing relations.<br>Select the relation you want to delete or edit. |
| <b>Description</b> | Detailed description of the relation definition.                               |

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>Close</b>  | Closes the Relations dialog box.   |
| <b>New</b>    | Displays the New Relation dialog box.  |
| <b>Edit</b>   | Displays the Edit Relation dialog box.   |
| <b>Delete</b> | Deletes the currently selected relation in the Relations list.                                     |
| <b>Group</b>  | Displays the Scan Group dialog box.<br>This button is only available for a multiple scan relation. |

## Edit Relation Dialog Box

Redefines an existing relation.

### GROUP BOXES

---

#### 1) Relate From

|                       |  |
|-----------------------|--|
| <b>Table</b>          | File name of the controlling table.  |
| ...                   | Displays the Select Link field dialog to select the field whose value links the controlling table to the related table's index.            |
| <b>Field selector</b> |  |
| <b>Calc</b>           | Displays the calculated field dialog so that you may create a new calculated field that can then be selected using the ... Field selector. |

---

#### 2) Relate To

|                             |  |
|-----------------------------|--|
| <b>Select Related Table</b> | Displays the related table file dialog so that you may select a table that will provide additional fields to the report.   |
| <b>Table</b>                | File name of the table currently related by the linking field.   |
| <b>Alias</b>                | Unique 8 character name for the related table. The default alias is the table file name. If the report draws on more than one table with the same name, enter a unique alias in this edit box. |

---

#### 3) Relation Type

|                     |   |
|---------------------|---|
| <b>Exact Lookup</b> | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to a record in the related table when the value of the linking field is equal to the index key value.   |
| <b>Approximate</b>  | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to the first record in the related table whose index value is equal to or greater than the value of the linking field of the record in the controlling table. |
| <b>Scan</b>         | Matches each record in the controlling table to one or more corresponding records in the related table. Report Writer matches a record in the controlling table to all records in the related table when the value of the linking field is equal to the index key value.  |

---

#### 4) Relate Through

|                             |  |
|-----------------------------|--|
| <b>Select Related Index</b> | Displays the related index dialog so that you can select the index file whose key will match the value of the relate from field. |
| <b>Index</b>                | File name of the related index file. The related index file is used to quickly find the related table records.                   |
| <b>Key</b>                  | Key expression of the currently selected index file.<br>Note that this field is scrollable.                                      |
| <b>Tag</b>                  | Applies to compound and multiple indexes only. Select the index tag that you want to use from the list.                          |
| <b>Index</b>                | The related index file is used to locate related table   |

- records.
- Record # Link** Data is read from the related table by record number. Applies only to Exact Lookup relations based on a numeric linking field.
- FlexLink** Allow R&R to build an index on the fly for the selected related table.
- Edit Key...** This button is enabled when FlexLink is selected and allows you to build the index expression.
- 

**5) Character Match (for character linking fields only)**

- Full** For character linking fields only. Report Writer matches the entire length of the linking field value to the entire length of the index key value.
- Partial Len** For character linking fields only. Report Writer matches the first *n* characters of the linking field value to the first *n* characters of the index key value. Enter the number of characters to match between the linking field value and the index key value.  
Used when the index expression is longer in length than the related field.
- 

**6) Failure Action (no record match)**

- Blank** When Report Writer finds no corresponding record in the related table, it creates the composite record, leaving the fields from the related table blank.
- Skip** When Report Writer finds no corresponding record in the related table, it eliminates the entire composite record from the report.
- Terminate** When Report Writer finds no corresponding record in the related table, it stops processing the report and notifies you of the failure.
- 

**ACTION BUTTONS**

---

- OK** Completes the relation definition and returns to the Relations dialog.
- Cancel** Discards the changes you have made and return to the Relations dialog.
- Help** Displays this help topic
- Join Help** Displays a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian.

## New Relation Dialog Box

Defines a new relation.

---

### 1) Relate From

|                       |  |
|-----------------------|--|
| <b>Table</b>          | File name of the controlling table.  |
| <b>Field selector</b> | ... Displays the Select Link field dialog to select the field whose value links the controlling table to the related table's index.                    |
| <b>Field..</b>        | <b>Calc</b> Displays the calculated field dialog so that you may create a new calculated field that can then be selected using the ... Field selector. |

---

### 2) Relate To

|                             |  |
|-----------------------------|--|
| <b>Select Related Table</b> | Displays the related table file dialog so that you may select a table that will provide additional fields to the report.   |
| <b>Table</b>                | File name of the table currently related by the linking field.   |
| <b>Alias</b>                | Unique 8 character name for the related table. The default alias is the table file name. If the report draws on more than one table with the same name, enter a unique alias in this edit box. |

---

### 3) Relation Type

|                     |   |
|---------------------|---|
| <b>Exact Lookup</b> | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to a record in the related table when the value of the linking field is equal to the index key value.   |
| <b>Approximate</b>  | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to the first record in the related table whose index value is equal to or greater than the value of the linking field of the record in the controlling table. |
| <b>Scan</b>         | Matches each record in the controlling table to one or more corresponding records in the related table. Report Writer matches a record in the controlling table to all records in the related table when the value of the linking field is equal to the index key value.  |

---

### 4) Relate Through

|                             |  |
|-----------------------------|--|
| <b>Select Related Index</b> | Displays the related index dialog so that you can select the index file whose key will match the value of the relate from field. |
| <b>Index</b>                | File name of the related index file. The related index file is used to quickly find the related table records.                   |
| <b>Key</b>                  | Key expression of the currently selected index file. Note that this field is scrollable.   |
| <b>Tag</b>                  | Applies to compound and multiple indexes only. Select the index tag that you want to use from the list.                          |
| <b>Index</b>                | The related index file is used to locate related table records.  |

|                      |   |
|----------------------|---|
| <b>Record # Link</b> | <b>Data is read from the related table by record number. Applies only to Exact Lookup relations based on a numeric linking field.</b> |
| <b>FlexLink</b>      | <b>Allow R&amp;R to build an index on the fly for the selected related table.</b>   |
| <b>Edit Key...</b>   | This button is enabled when FlexLink is selected and allows you to build the index expression.  |

---

**5) Character Match (*for character linking fields only*)**

|                    |   |
|--------------------|---|
| <b>Full</b>        | For character linking fields only. Report Writer matches the entire length of the linking field value to the entire length of the index key value.  |
| <b>Partial Len</b> | For character linking fields only. Report Writer matches the first <i>n</i> characters of the linking field value to the first <i>n</i> characters of the index key value. Enter the number of characters to match between the linking field value and the index key value. |

---

**6) Failure Action (*action when no matching records are found*)**

|                  |  |
|------------------|--|
| <b>Blank</b>     | When Report Writer finds no corresponding record in the related table, it creates the composite record, leaving the fields from the related table blank. |
| <b>Skip</b>      | When Report Writer finds no corresponding record in the related table, it eliminates the entire composite record from the report.                        |
| <b>Terminate</b> | When Report Writer finds no corresponding record in the related table, it stops processing the report and notifies you of the failure.                   |

---

**ACTION BUTTONS**

|                      |  |
|----------------------|--|
| <b>OK</b>            | Completes the relation definition and returns to the Relations dialog.   |
| <b>Cancel</b>        | Discards the relation definition and returns to the Relations dialog.  |
| <b>Related Table</b> | Displays the Related Table dialog box, from which you can select the file name of the table to which you want to relate the controlling table. |
| <b>Related Index</b> | Displays the Related Index dialog box, from which you can select the file name of the index used to find related table records.                |
| <b>Options</b>       | Displays the Character Match, Link Control, and Failure Action group boxes.  |
| <b>Help</b>          | Displays this help topic.  |
| <b>Join Help</b>     | Displays a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian  |

## Open Report/Template from Library Dialog

Opens an existing report or template from the current library or from another library. You can also copy or delete a report or template.

**Library** Name of the current library file.  
Use the Open Library button to open a report/template from a different library file.

**Reports** List of reports/templates in the current library file.  
To open a report/template, double-click on the name or highlight the name and select OK.

---

### ***Action Buttons***

**OK** Opens the currently highlighted report/template.

**Cancel** Closes the dialog without opening a report/template. The previously open report/template remains in the Report Writer window.

**Delete Report** Deletes the currently selected report/template.

**Open Library** Displays the Open Report Library dialog box.

**Copy Report** Displays the Copy Report dialog box.

## **Related Index Dialog Box**

Specifies an index file to be used for a related table. Select an index based on the related table whose index key will contain a matching value for the selected Related field in the relation.

## Preferences Dialog Box

Controls scroll bar display, starting point for new reports, and content of field lists; also specifies memo editor used to prepare database memo fields.

---

### *Display*

|                                 |  |
|---------------------------------|--|
| <b>Horizontal Scroll Bar</b>    | Checked: Horizontal scroll bar is displayed.<br>Unchecked: Horizontal scroll bar is not displayed.                                 |
| <b>Vertical Scroll Bar</b>      | Checked: Vertical scroll bar is displayed.<br>Unchecked: Vertical scroll bar is not displayed.                                     |
| <b>Colored Bands/Preview</b>    | Checked: Colors displayed on layout band indicator and in preview.<br>Unchecked: No color on layout band indicator and in preview. |
| <b>Colored Totals/Groupings</b> | Checked: Colors displayed in total and grouping dialogs.<br>Unchecked: No color displayed in total and grouping dialogs.           |

---

### *File New*

|                       |  |
|-----------------------|--|
| <b>Display Dialog</b> | Report Writer displays a dialog enabling you to choose Report Wizards, Instant Report, Blank Report, or Template as the starting point for a new report.           |
| <b>Report Wizards</b> | When you select File ⇒ New, Report Writer executes its Report Wizards tool, which leads you step-by-step through creation of one of three types of instant report. |
| <b>Instant Report</b> | When you select File ⇒ New, Report Writer prompts for selection of a master table and then creates an Instant Report.  |
| <b>Blank Report</b>   | Report Writer creates a blank report layout with or without a master table and places no fields on layout.   |
| <b>Template</b>       | Report Writer displays a list of templates; you can select one and use it as the starting point for your report.   |

---

### *Memo Editor*

|              |   |
|--------------|---|
| <b>Xbase</b> | Specifies that an Xbase memo editor created database memos used in reports. |
| <b>Other</b> | Specifies that some other memo editor created database memos.               |

---

### *Field Lists*

|                                       |  |
|---------------------------------------|--|
| <b>Field Names</b>                    | Report Writer will display only field names in its field lists.  |
| <b>Report Dictionary Descriptions</b> | In field lists, Report Writer displays the text of the COMMENT field from the report dictionary for your database. |
| <b>Both</b>                           | Report Writer displays both the field names and the report dictionary descriptions in field lists.                 |

**Sort Field Names**

Display field listings in A-Z rather than table name sequence.

## **Related Table Dialog Box**

Specifies a table to be used as a related table.

## Ruler Spacing Dialog

Changes the number of units per inch on the horizontal and/or vertical rulers.

**Horizontal** Number of units per inch indicated on the horizontal ruler. Using the slider control, select a horizontal ruler spacing from 4 through 30. Specify a lower number to display a coarser ruler scale; specify a higher number to display a finer ruler scale.

**Vertical** Number of units per inch indicated on the vertical ruler. Using the slider control, select a vertical ruler spacing from 4 through 30. Specify a lower number to provide a coarser ruler scale; specify a higher number to provide a finer ruler scale.

You can use either the mouse or the keyboard to change ruler settings.



Click to the left or right of the slide pointer to decrease (left) or increase (right) the setting by 4 units at a time. Drag the slider to change the setting in 1-unit increments.



Use the left or right cursor key to decrease (left) or increase (right) the setting by 2 units at a time. Use Page Up or Page Down to decrease (PgUp) or increase (PgDn) the setting by 4 units at a time.

---

View Rulers

---

### ***Action Buttons***

**OK** Closes the dialog and saves changes  
**Cancel** Closes dialog box without saving the changes.  
**Help** Displays this help topic.

## Scan Group Dialog Box

Specifies the order in which multiple related tables that share the same controlling table are scanned. Also specifies a failure action that applies to all the tables.

---

### *Failure Action*

- Continue** When Report Writer finds no corresponding record in any of the related tables, it continues processing the report.
- Terminate** When Report Writer finds no corresponding record in any of the related tables, it stops processing the report and notifies you of the failure.

---

### *Scan Order*

- Move Up** Moves the currently selected table in the Tables list up.
- Move Down** Moves the currently selected table in the Tables list down.

## Sort Order Dialog Box

Specifies the sort order for a report's composite records.

---

### *Options*

|                    |   |
|--------------------|---|
| <b>Sort Fields</b> | Indicates the field assigned to each sort level. The report is sorted on each specified field, in the order in which they are listed.<br>You can select fields for up to 8 levels of sorting. Use the [...] field selection button to display the Select Sort Field dialog where you can select from a list of available sort fields. |
| <b>Ascending</b>   | Indicates whether the report is sorted in ascending (box is checked) or descending (box is unchecked) order for a particular sort level. By default, all levels are sorted in ascending order.  |

---

### *Action Buttons*

|               |  |
|---------------|--|
| <b>OK</b>     | Saves the sort order you have selected.  |
| <b>Cancel</b> | Closes the Sort Order dialog box without saving any changes you made to the sort order.  |
| <b>Insert</b> | Inserts a new sort level above the currently selected sort level, automatically moving down and renumbering the remaining sort levels. |
| <b>Delete</b> | Removes the currently selected sort level from the list, automatically moving up and renumbering the remaining sort levels.            |
| <b>Reset</b>  | Clears all the sort level selections.  |
| <b>Group</b>  | Displays the Group Order dialog box.   |

## Font Dialog Box

Specifies the font, type style, point size, effects, and color applied to the currently selected field or fields.

- Font** List of fonts available for the currently selected printer. The current font is highlighted. Select a font name from the list to apply a different font to the selected field or fields.
- Font Style** Select any combination of type styles: Regular, Bold, Italic, or Bold Italic.  
*NOTE:* If your printer does not support the combination of type styles you select, the printer might substitute a different style. See your printer manual for details.
- Size** Displays a list of point sizes available on the current printer for the selected font. You can select a point size from the list, or type a specific point size in the edit box.
- Effects** Applies strikeout and underline effects to a field. To turn an effect on or off, click the appropriate check box.
- Color** Applies one of 16 colors to the field. Default color is Black.
- Sample** Displays a sample of the current font, reflecting the Style, Size, Effects, and Color settings selected on the dialog.

## Format Time Field Tab

Specifies the output format for a time field.

---

### *Settings*

|               |   |
|---------------|---|
| <b>Time</b>   | List of available time formats.                             |
| <b>Format</b> |   |
| <b>Sample</b> | Displays system time in the currently selected Time format. |

## Edit Total Dialog Box

Redefines an existing total field.

---

### *Group and List Boxes*

|                     |   |
|---------------------|---|
| <b>Name</b>         | Indicates the name of the total field you are editing. You can change the field's name in this edit box.  |
| <b>Type</b>         | Specifies the type of total operation to perform on the source field. The total type you select determines the source fields displayed in the Field list. Only source fields that have an appropriate data type for the total operation you selected are displayed in the Field list. For a list of data types that can be used for each type of total operation, see <i>Selecting a Field to Total</i> . |
| <b>Field</b>        | Specifies the source field on which the total operation will be performed. The field names displayed on this list are determined by the selected total type.  |
| <b>Reset</b>        | Determines when the total field is reset to zero. Select a numbered group level for group totals, Grand for grand totals, or Page for page totals.  |
| <b>Accumulation</b> | Displayed when the Options button is selected. Determines the accumulation frequency of the total field.  |
| <b>Processing</b>   | Displayed when the Options button is selected. Determines whether Report Writer calculates the value of the total as each record contributing to the total is read, or during a preliminary read-through of the data.   |
| <b>Condition</b>    | Displays the condition expression (if any) attached to the current total field.   |

---

### *Action Buttons*

|                  |  |
|------------------|--|
| <b>OK</b>        | Redefines the total field according to the current selections.   |
| <b>Cancel</b>    | Closes the Edit Total dialog box without changing the total field definition.  |
| <b>Options</b>   | Displays the Accumulation and Processing options.  |
| <b>Condition</b> | Displays the Total Condition dialog to create a condition expression that specifies the circumstances in which Report Writer will calculate this total. Syntax for the condition expression is the same as that for a calculated field expression (and the dialog is nearly identical to the New/Edit Calculation dialog). |

## New Total Dialog Box

Creates a new total field.

---

### ***Settings***

|                     |  |
|---------------------|--|
| <b>Name</b>         | Specifies a name for the total field you are creating.   |
| <b>Type</b>         | Determines the type of total operation to perform on the source field. The total type you select determines the source fields displayed in the Field list. Only source fields that have an appropriate data type for the total operation you selected are displayed in the Field list. For a list of data types that can be used for each type of total operation, see <i>Selecting a Field to Total</i> . |
| <b>Field</b>        | Specifies the source field on which the total operation will be performed. The field names displayed on this list are determined by the selected total type.   |
| <b>Reset</b>        | Determines when the total field is reset to zero. Select a group level for group totals; Grand for grand totals; or Page, for page totals.   |
| <b>Accumulation</b> | Determines the accumulation frequency (how often the total value is updated) of the total field.   |
| <b>Processing</b>   | Determines whether Report Writer calculates the value of the total as each record is read for report output, or during a preliminary read-through of the data.   |
| <b>Condition</b>    | Displays the condition expression (if any) defined for the current total field.  |

---

### ***Action Buttons***

|                  |  |
|------------------|--|
| <b>OK</b>        | Creates the new total field according to the current selections.   |
| <b>Cancel</b>    | Closes the New Total dialog box without creating the total field.  |
| <b>Options</b>   | Displays the Accumulation and Processing options.  |
| <b>Condition</b> | Enables entering or editing of a condition expression that controls the circumstances in which Report Writer will calculate the total. |

## Text File Dialog

Attaches a text file to the current report or detaches a text file from the report.

- Text File** Name of the file to attach or detach. Type the file name in this edit box, or use the Select File button to locate the text file you want.
- Alias** Unique name for the text file. Default is the text file name without the extension. Enter a different alias if the default has already been assigned to one of the tables used by the report.
- Character Set** Character set used by the text memo file for extended characters. Generally speaking, select Windows (ANSI) for text files created with a Windows word processor; select DOS (PC) for text files created with a DOS-based word processor.
- 

### ***Action Buttons***

- OK** Closes the Text File dialog box and attaches the file specified in the Text File edit box.
- Cancel** Closes the Text File dialog box without attaching or detaching a text file.
- Select File** Displays the Text File dialog box so that you can select the name of a text file to attach or detach.
- Detach File** Detaches the file specified in the Text File edit box from the report.
- Help** Displays this help topic.

## **Text File Selection Dialog**

Specifies a text file to be attached to the report.

## Text Field Edit Tab

Allows editing or replacement of text in a text field. You can also edit a text field directly on the layout by selecting the field and pressing F2.

---

### *Settings*

|                 |  |
|-----------------|--|
| <b>Field</b>    | Name of the currently selected text field            |
| <b>Old Text</b> | Current text for the selected field                  |
| <b>New Text</b> | Edit box for modifying or replacing the current text |

## Edit User Function Dialog Box

This dialog allows you to redefine the name or expression of an existing User Function.

---

### *Settings*

|                                    |   |
|------------------------------------|---|
| <b>User Function Declaration</b>   | Name and declaration of the user function   |
| <b>Calculated Field Expression</b> | <p>Calculation to be performed by the function you are editing.</p> <p>You can edit an expression using any combination of the following methods:</p> <ul style="list-style-type: none"><li>• Directly enter or modify the expression elements in the Expression edit box;</li><li>• Use one of the Function or Expressions buttons to select an item from a list.</li><li>• Insert operators by selecting them as necessary from the Operators box;</li><li>• Use the Replace button to edit any portion of the calculated expression with alternate text;</li></ul> |

---

### Functions Action Button

|                  |   |
|------------------|---|
| <b>Functions</b> | <p>Displays the Select function dialog which contains all predefined and user defined functions.</p> <p>If the paste function arguments box is checked, function argument placeholders will be included when the function is inserted into the calculated field expression.</p> |
|------------------|---|

---

### *Expressions Action Buttons*

|                       |  |
|-----------------------|--|
| <b>Calculations</b>   | Displays the Calc Expression dialog box. Select a calculated field from the list to insert the field's expression into the Expression edit box.    |
| <b>User Functions</b> | Displays the User Functions dialog box. Select a user function from the list to insert the function's expression into the Expression edit box.     |
| <b>Index Keys</b>     | Displays the Key Expression dialog box. Select an index key value from the list to insert the index key's definition into the Expression edit box. |

---

## ***Operators***

|                  |   |
|------------------|---|
| <b>Operators</b> | Operators that can be inserted in the calculated field expression.<br>To insert the operator into the calculated field expression at the edit cursor position: select an operator button. |
|------------------|---|

---

## ***Expression Editor***

|                |  |
|----------------|--|
| <b>Replace</b> | Displays the Replace dialog dialog that allows you to find and replace characters within the current calculated field expression. Any selected text within the calculated expression when the Replace button is used will become the default Find what: selection in the Replace dialog. |
| <b>Verify</b>  | Verifies the syntax of the expression in the Expression edit box. When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the expression syntax.<br>If the expression syntax is valid, an Expression Okay... message.            |

---

## ***Action Buttons***

|               |  |
|---------------|--|
| <b>OK</b>     | Redefines the function with the current name and expression.             |
| <b>Cancel</b> | Closes the Edit User Function dialog box without preserving any changes. |
| <b>Help</b>   | Displays this help topic.  |

## User Functions

Displays a list of existing User Defined Functions (UDFs). Highlight a UDF name in the Function box and select OK to insert the UDF expression in the calculated field you are creating or editing.

**Function** List of names/declarations for existing UDFs.

**Expression** Expression for the currently highlighted UDF. Select OK to insert the expression.

---

### ***Action Buttons***

**OK** Inserts the expression of the selected UDF into the expression you are creating or editing.

**Cancel** Closes the User Functions dialog box and returns to the New/Edit dialog without inserting any UDF expression.

**Help** Displays this help topic.

## New User Function Dialog Box

Creates a new user-defined function.

---

### ***Settings***

|                                    |   |
|------------------------------------|---|
| <b>User Function Declaration</b>   | Name and declaration of the user function   |
| <b>Calculated Field Expression</b> | <p>Calculation to be performed by the function you are editing.</p> <p>You can edit an expression using any combination of the following methods:</p> <ul style="list-style-type: none"><li>• Directly enter or modify the expression elements in the Expression edit box;</li><li>• Use one of the Function or Expressions buttons to select an item from a list.</li><li>• Insert operators by selecting them as necessary from the Operators box;</li><li>• Use the Replace button to edit any portion of the calculated expression with alternate text;</li></ul> |

---

### Functions Action Button

|                  |   |
|------------------|---|
| <b>Functions</b> | <p>Displays the Select function dialog which contains all predefined and user defined functions.</p> <p>If the paste function arguments box is checked, function argument placeholders will be included when the function is inserted into the calculated field expression.</p> |
|------------------|---|

---

### ***Expressions Action Buttons***

|                       |  |
|-----------------------|--|
| <b>Calculations</b>   | Displays the Calc Expression dialog box. Select a calculated field from the list to insert the field's expression into the Expression edit box.    |
| <b>User Functions</b> | Displays the User Functions dialog box. Select a user function from the list to insert the function's expression into the Expression edit box.     |
| <b>Index Keys</b>     | Displays the Key Expression dialog box. Select an index key value from the list to insert the index key's definition into the Expression edit box. |
| <b>Index Keys</b>     | Displays the Key Expression dialog box. Select   |

an index key value from the list to insert the index key's definition into the Expression edit box.

---

### ***Operators***

**Operators** Operators that can be inserted in the calculated field expression.  
To insert the operator into the calculated field expression at the edit cursor position: select an operator button.

---

### ***Expression Editor***

**Replace** Displays the Replace dialog dialog that allows you to find and replace characters within the current calculated field expression. Any selected text within the calculated expression when the Replace button is used will become the default Find what: selection in the Replace dialog.

**Verify** Verifies the syntax of the expression in the Expression edit box. When you select this button, Report Writer displays a message box indicating what, if any, problems it found in the expression syntax.  
If the expression syntax is valid, an Expression Okay... message.

---

### ***Action Buttons***

**OK** Redefines the calculated field with the current name and expression.

**Cancel** Closes the Edit Calculated Field dialog box without preserving any changes.

**Help** Displays this help topic.

**Value Lists Dialog**

Text to come (ID is 1122)

## Toolbars Dialog

Controls display of the Standard Toolbar, Formatting Toolbar, and ToolTips help. Click the check box next to each to turn the setting on (checked) or off (unchecked).

**Standard** Turns on or off the display of the Standard Toolbar.

**Formattin** Turns on or off the display of the Formatting Toolbar.

**g**

**Show** Enables (checked) or disables (unchecked) display of

**ToolTips** ToolTips help (the small help label that appears when the cursor is positioned over a Toolbar button).

---

### *Action Buttons*

**OK** Closes the Toolbars dialog and saves any changes made to the settings.

**Cancel** Closes the Toolbars dialog, discarding any changes made to the settings.

**Help** Displays this help topic.

## Index Tag Selection Dialog

Enables selection of a different index tag if the tag saved with the report is no longer available. You can do either of the following:

- Select a different tag from the drop-down list;
- Select Cancel, modify the index file to restore the tag, and then retrieve the report.

---

### *Settings*

**Select Index Tag** List of index tags in the index file. Select an index tag from the list.

---

### *Action Buttons*

**OK** Selects the highlighted index tag and opens the report.  
**Cancel** Cancels retrieval of the report.  
**Help** Displays this help topic.

## ParameteRR Value Entry

When you select File Print, File Print Preview, File Export or Database View Result Set from the Main Menu or select their corresponding toolbar buttons, if any ParameteRR fields have been defined and used in the report, a ParameteRR Value Entry dialog box will be presented. This dialog will list any ParameteRR field whose value can be changed for the current execution of the report.

| Name                       | Current Value          |
|----------------------------|------------------------|
| CHAR_PARAMETERR            |                        |
| Max price to display       | 123.00                 |
| Please select a start date | 01/01/2005             |
| DateTimeParam              | 03/17/2005 10:00:00 am |
| Select Department          | Sales                  |
| Select a quarter           | .....                  |

Comments/Instructions

Enter the first few characters of the name you wish to select

CHAR\_PARAMETERR

Enter up to 254 characters. You do not need to add quotes or delimiters.

Accept

OK Cancel Help

### Example ParameteRR Value Entry dialog

To accept all of the current default values for the listed parameteRR fields, you can press OK to execute the report. Pressing Cancel gives a Report Canceled dialog and returns you to the Report Layout.

Typically one or more of the listed parameteRR's will be changed prior to clicking OK to run the report.

## **The ParameteRR list**

---

At the top of the dialog there is a two-column list box showing the **Name** and the **Current Value** of each available parameteRR. You select a ParameteRR to edit by mouse clicking in the list box. You can re-size the columns by selecting and dragging the column separator bar.

## **Comments Instructions**

---

The **Comments/Instructions** area in the middle of the dialog displays information about the currently selected parameteRR.

## **Modify Selected ParameteRR**

---

The lower area of the dialog displays the name of the currently selected value and provides a value entry area where you can **Modify** the selected parameteRR value. Modifying a current value depends on the data type of the parameteRR and whether a selection list has been defined.

### ***Modifying a character value***

For a character value you do not need to add any explicit delimiters such as quotes. R&R will assume that what you enter is an actual string.



Mary Sarah O'Hanlon

### ***Modifying a numeric value***

For a numeric value you enter only signs, decimals and digits. The formatted value for your entry will appear as the current value in the parameteRR list box.

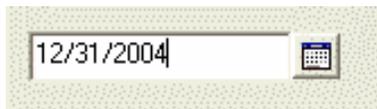


-123.45

### ***Modifying a date or datetime value***

#### **Date entry**

You can enter a date value by typing it in to the value box using the current Windows short date format such as MM/DD/YYYY.



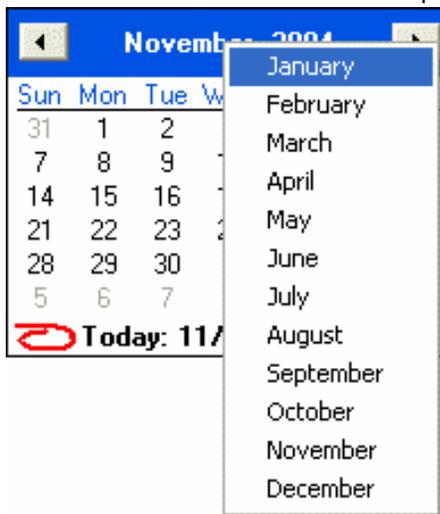
12/31/2004

Alternatively you can select a date by clicking the calendar control button that is next to the value box. This will display a calendar that will initially default to the current system date.

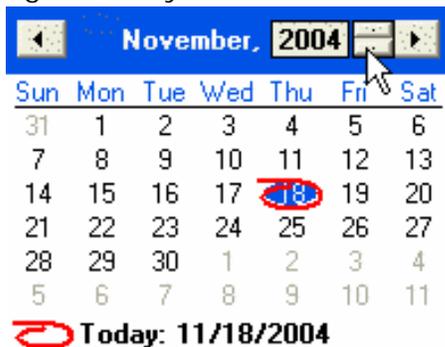


Click on a day to select it.

To scroll by month, use the left and right arrow keys on the calendar header or click on the month name to display the month list.



To scroll by year, click on the year in the header to display spin controls to the right of the year.



### Time Entry

You can enter a time value by typing it in to the value box using the current Windows time format such as HH:MM:SS AM. A new time entry will initially default to the current system time.



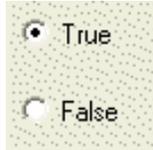
You can also use the spin control to adjust the time. Click the control arrows to initially adjust the hours.

To then adjust any of the other components, use the left and right arrows to select the component and then use the spin arrows to scroll through the available choices.



### **Selecting a logical value**

For a logical value selection is made using True/False radio buttons.



### **Selecting a Static list value**

A static list parameter will be displayed as a scrollable list of values and descriptions. The currently selected value will have a checkmark in the select box that appears before each listed value. To select a different value, click the mouse in the checkbox for that item.



### **Selecting a Dynamic list value**

A dynamic list parameter has an entry box where you can enter a value manually. There is also a Lookup button.



Pressing the Lookup button will display a lookup table where you can select a value from a list. The lookup field is displayed in the first shaded column and any additional data fields from the lookup table are displayed in the columns to the right.

## Lookup EMPLIST.DBF

Table C:\QA\Data\EMPLIST.DBF 4/4/2005 8:14:20

Select a EMPID look up value from the list

| EMPID      | P_LNAME          | P_FNAME     | P_MI | P_SSN       | P_LASTHIRE |
|------------|------------------|-------------|------|-------------|------------|
| 212475 084 | Abbatiello       | Elaine      | A    | 201-36-3130 | 08/19/1996 |
| 219467 084 | Abbonizio        | Charles     | J    | 189-52-5140 | 09/26/1994 |
| 241314 084 | Abdalla          | Suzanne     | M.   | 191-56-4740 | 01/29/2001 |
| 227873 084 | Abdul-Rashid     | Alisa       |      | 211-42-0225 | 02/25/1997 |
| 244412 084 | Abdur-Rahman     | Deborah     | C.   | 221-40-3768 | 01/14/2002 |
| 178567 084 | Abel             | George      | M    | 197-30-1206 | 02/08/1983 |
| 206882 084 | Abrams           | Kimberly    |      | 189-54-2583 | 09/18/2000 |
| 238810 084 | Acello           | Anthony     |      | 203-54-2288 | 05/01/2000 |
| 235092 084 | Acevedo          | Ivette      |      | 136-66-3679 | 04/05/1999 |
| 229923 084 | Acklin           | Tamica      | J    | 168-46-7587 | 07/19/1999 |
| 227153 084 | Ackroyd          | Michelle    |      | 195-50-4522 | 11/25/1996 |
| 201444 084 | Adade            | Joseph      |      | 183-48-6784 | 01/03/1989 |
| 243475 084 | Adair            | Christine   | M.   | 285-44-0232 | 09/04/2001 |
| 121536 084 | Adams            | Alfreda     | R    | 205-36-1116 | 07/21/1969 |
| 184637 084 | Adams            | Christopher |      | 203-32-4775 | 08/27/1984 |
| 236647 084 | Adams            | Jennifer    | A    | 159-60-1558 | 07/26/1999 |
| 155538 084 | Adams            | Sarah       | F    | 191-36-7938 | 09/20/1976 |
| 221298 084 | Aiken,Jr.        | George      | D    | 161-28-5549 | 05/01/1995 |
| 220619 084 | Airey            | David       | S    | 208-66-1179 | 02/06/1995 |
| 196278 084 | Al-Amin          | Lutfiyah    | H    | 208-44-2751 | 10/23/1989 |
| 241179 084 | Alameda-Irizarry | Milagros    |      | 584-36-3830 | 01/02/2001 |
| 219232 084 | Albanese         | Tracey      | B    | 164-48-6077 | 08/15/1994 |
| 201443 084 | Alberts          | Yvonne      |      | 209-44-3232 | 09/14/1992 |
| 176202 084 | Alcaro           | Rocco       |      | 207-40-9626 | 03/30/1987 |
| 168570 084 | Aleo             | Martha      | E    | 147-50-3302 | 01/02/1990 |
| 235291 084 | Alestra          | Vincent     | P    | 185-42-5211 | 05/03/1999 |



Insert

Cancel

Help

Select a value from the list and then press Insert to copy the selected value to the ParameterR value entry screen.

Press Lookup for a list of employees

227153 084

Lookup

If the lookup table is unavailable, a warning message is issued but will not cause the report to abort. You can still manually enter a value for the field or leave it empty and proceed with report execution.

### Processing the Report with the Modified ParameterRs

Pressing the Accept button for the currently selected value or using the Enter key replaces the current value that is displayed in the upper list box with the newly

entered value and moves the cursor to the next parameter field in the list. You can also mouse cursor to a different field to accept the change to the current field.

Once any changes are complete, you can press OK and the report will execute.

## Error Conditions

---

After you press OK, report execution if all listed parameters have current values that do not result in errors.

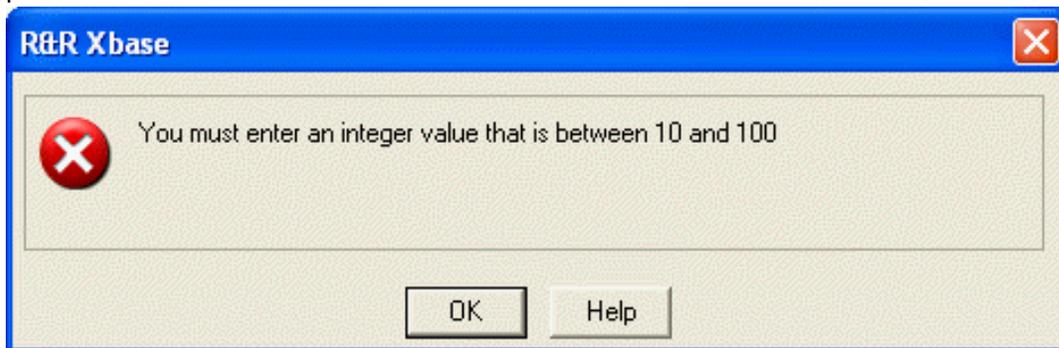
An error can be returned either because the value you have entered is illegal for that data type (for example entering the date 2/29/2005 would return an error because 2005 is not a leap year) or because a parameter does not pass its validation condition.

When a parameter is defined, a validation condition can be set to control the range of values that can be used for that field. For example you could have a numeric parameter where an integer between 10 and 100 is required. If you try to enter the value 500 for this parameter, an error dialog will be displayed.

This error dialog will either be a generic message:



or it may be a custom error message that was designed specifically for this parameter.



You must correct any errors for report execution to proceed.

Pressing the **Cancel** button at any time from the Parameter value entry screen gives a Report Canceled dialog and returns you to the Report Layout.

## HTML Export Tabbed Dialog

Enables export of report data to an HTML (hypertext markup language) file. All data on every line of the report is exported.

To export to an HTML file, first enter the name of the intended output file (optionally including a path) in the Export File Name box on the Location tab. When you click Export, the report data will be exported to an HTML file with the specified name. If the "Open file in default browser after export" setting is selected, your system's default web browser will be launched to display the exported file.

Use the Background tab to specify a background color or graphic image background for the HTML page. Use the Border tab to specify that the exported data be placed in a grid such that each field will be enclosed in a border.

See Exporting to HTML for additional information.

---

### ***Location Settings***

|   |   |
|---|---|
| <b>Export File Name</b>                 | Name and directory location of the HTML export file. You can click the ellipses button to select a specific directory.  |
| <b>Convert all images...</b>            | Specifies the format (BMP, GIF, or JPG) to which all images (including charts and OLE objects, which are saved as images) contained in the report will be converted upon export.  |
| <b>Image Directory</b>                  | Specifies the directory in which image files will be placed upon export.  |
| <b>Sample HTML Image Tag</b>            | Displays an example of the HTML syntax that will be used for image file references in the exported file.  |
| <b>Open File in default browser ...</b> | By default, your system's default web browser will be executed to display the report file after the file has been exported. To specify that the browser not be run immediately upon export, click the check box to turn this setting off. |

---

### ***Background Settings***

|              |   |
|--------------|---|
| <b>Color</b> | To specify a solid color background for the HTML page, click the radio button and select a color from the drop-down menu.   |
| <b>Image</b> | To select a graphic image to serve as the background of the HTML page, enter or select (by clicking the ellipses to the right) the name and location of the image file. |

---

### ***Border Settings***

|              |   |
|--------------|---|
| <b>None</b>  | To specify that no border be placed around report data on the HTML page (the default), select this setting.                             |
| <b>Width</b> | To specify that report data be placed in a grid border on the exported HTML page, select this setting; then specify a border thickness. |

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified HTML file.           |
| <b>Close</b>  | Closes the dialog, saving the settings but without exporting. |
| <b>Cancel</b> | Closes the dialog without saving the settings.                |
| <b>Help</b>   | Displays this help topic.                                     |

## Link Directory

If the Report Writer program directory is write-protected, you can create a writable *link directory* where you can place RRW.LIC and your User-Defined Function (UDF) files (since Report Writer must have write access to those files).

To create and use such a link directory, do the following:

1. Create the link directory.
2. Using Notepad or any text editor that can save unformatted text files, create a file named RRWLINK.INI.
3. Enter the following lines into RRWLINK.INI, substituting the name of the link directory you created for <link\_directory>.

```
[RRWLINK]
```

```
RRWLINK=<link_directory>
```

4. Save RRWLINK.INI in the R&R program directory.
5. Place RRW.LIC and any UDF files in the link directory.

## Export Tab (Text/Memo Properties Dialog)

Controls whether text enclosed within opening and closing brackets (< >) in a text or memo field is treated as an HTML tag. Select the "HTML Options" check box if the selected field includes bracketed items intended to serve as HTML tags.

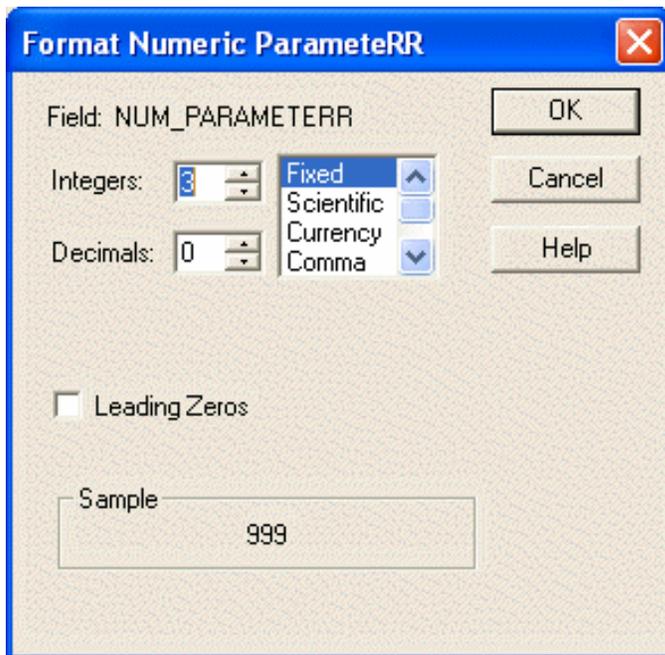
- HTML Options**      Checked: when the report is exported to HTML, text enclosed within opening and closing brackets (e.g., <H1>) will be treated as HTML tags.  
Unchecked: when the report is exported to HTML, opening and closing brackets will be interpreted literally, not as HTML tag indicators.
- OK**                Applies the HTML Options setting and closes the Properties dialog.
- Cancel**            Closes the dialog without applying any changes.
- Apply**             Applies the HTML Options setting and leaves the Properties dialog open.

## Format Numeric ParameteRR

For numeric fields you can choose the number of integer and decimals places to display. It also provides the same Numeric display formats that are available for all numeric fields.

These are Fixed, Scientific, Currency, Comma, General, Percent. You can also select whether leading zeros should be displayed.

For numeric fields, ParameteRR Value entry is not limited to the width set here however any number that is entered that is greater than the width will display as \*\*\*'s in the Present Value parameter display box at runtime.



## ParameteRR Fields Dialog

Displays a list of existing parameteRR fields. You can create a new parameteRR field, edit the definition of an existing parameteRR field, copy a parameteRR field, delete a parameteRR field, change or add a comment to a parameteRR field.

---

### *Options*

**Go To Field:** Enter one or more characters to **limit** the field list to display only field names beginning with the characters you have entered.  
Press backspace to clear the box and display all fields.

**Fields** Lists the name and description, and data type and numbered display order for each parameteRR field.  
An asterisk \* before a field name indicates that the field is currently used within the report.  
Click on a column heading to **sort** the list by that column.  
Click on a sorted column heading to **reverse** the sort order.  
Select and drag a column header separator bar to **resize** a column.  
Use arrow keys or the scrollbars to scroll through the list.  
You can select a field name and then **drag** it from the list onto the report layout.

**Default Value:** Shows the current default value for the selected field.

---

### *Action Buttons*

**Close** Closes the ParameteRR Fields dialog box.  
**New** Displays the New ParameteRR dialog box.  
**Edit** Displays the Edit ParameteRR dialog box.  
**Copy** Allows you to copy the selected field as the basis for new parameteRR field.  
**Delete** Deletes the currently selected parameteRR field.  
**Comment** Displays the Field Comment dialog for entry/edit of an annotation (up to 100 characters) to be attached to the parameteRR field.  
**Help** **Displays help for this dialog box.**  
**Move Up** Allow you to change the field order. This order is used to display fields in the ParameteRR value entry screen when the report is executed.  
**Move Down**

## Preview Window

Use the Preview window to check fonts, field placement, page breaks, and other elements of the page setup before printing a report.

The Preview window consists of a facsimile of the report page, with VCR-like buttons at the top that allow you to page forward and backward through a multi-page report, magnify portions of the page, print the current page or the entire report, and pause or cancel the Preview.

You can either click the appropriate button or hold down Shift and press a function key (for example, Shift+F1 sends the report to the printer).

You can "zoom" the display simply by clicking at the desired location on the preview page. In "zoomed" mode, you can scroll the current page horizontally and vertically using the cursor keys, Page Up, Page Down, Home, and End.

Note that the zoom level is maintained as you page through a report and will be retained if you exit and restart Preview.

**For an explanation of each Preview button, click on it in the illustration below:**



| Button             | Key: | Purpose                                      |
|--------------------|------|--|
| Print              | F1   | Prints report with current settings          |
| Print Current Page | F2   | Prints currently displayed page              |
| Restart            |      | Restart report                               |
| Zoom In            | F3   | Displays magnified page preview              |
| Zoom Out           | F4   | Returns to previous magnification level      |
| First Page         | F5   | Displays first page of multi-page report     |
| Previous Page      | F6   | Displays previous report page                |
| Next Page          | F7   | Displays next page                           |
| Last Page          | F8   | Displays final report page                   |
| Pause              | F9   | Pauses preview when positioning to last page |
| Close              | F10  | Closes Preview window                        |

## Selecting a character match length

### Step 5 - Select how a character linking field will match the related table index key.

The default option for this tab is the Full option button. The partial button is only available for selection when the linking field is of character data type. You need to select the partial button when your linking field will only match the first part of the related table index key rather than the full length of the key. For example your linking field may be a 3 character company code field and the expression for the related index may be CODE+REGION.

When you select the Partial Option button you can then select a Match length using the spin control.

#### *Options*

---

|                     |  |
|---------------------|--|
| <b>Full</b>         | Linking field value must match entire index key  |
| <b>Partial</b>      | Linking field value must match the index key up to the specified match length                            |
| <b>Match Length</b> | The number of matching characters. Must be between 1 and the full length of the character linking field. |

#### *Other Tabs*

---

**Linking Field**

**Related Table**

**Related Index**

**Relation Type**

**Failure Action**

#### *Action Buttons*

---

|                  |   |
|------------------|---|
| <b>Join Help</b> | The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian. |
| <b>OK</b>        | Closes the dialog box and saves changes.  |
| <b>Cancel</b>    | Closes the dialog box without preserving any changes.   |
| <b>Help</b>      | Displays this help topic.   |

## Selecting a Failure Action

### Step 6 – Select behavior when a matching record is not found in the related table.

The selection that is set in the failure action tab determines what happens if the linking field value does not match any value in the related table index. In that case, Report Designer executes the *failure action* (that is, an action to follow if it doesn't find a matching record in the related table) that you specify. There are 3 choices for failure action.

#### *Options*

---

|                  |   |
|------------------|---|
| <b>Blank</b>     | if Report Designer doesn't find a match between the controlling table linking field and the related table linking field, it creates the composite record anyway, leaving fields from the related table blank for that record. This is the default value when you create a new relation. |
| <b>Skip</b>      | When it does not find a matching record, Report Designer eliminates the entire composite record from the report   |
| <b>Terminate</b> | When it does not find a matching record, Report Designer stops processing the report and notifies you of the failure.   |

#### *Other Tabs*

---

**Linking Field**

**Related Table**

**Related Index**

**Relation Type**

**Character Match**

---

#### *Action Buttons*

|                  |   |
|------------------|---|
| <b>Join Help</b> | The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian. |
| <b>OK</b>        | Closes the dialog box and saves changes.  |

**Cancel**  
**Help**

Closes the dialog box without preserving any changes.  
Displays this help topic.

## Selecting a Linking Field

In addition to drawing information from the master table, reports can draw information from up to 99 additional tables, called *related tables*, that are joined to the master table or to each other.

To generate a report that draws information from more than one table, you first define database relations among the tables you want to use.

You use the Database ⇒ Relations command or the Relate button on the Standard Toolbar to set or edit relations between tables. These relations define the composite record structure, making all fields in each table available for your report.

The database relation dialog contains 6 available tabs. Each tab takes you through the one of the steps in defining a database relation.

### Step 1 –Select Linking Field from ‘Controlling’ left side Table:

The first required step in building a relation is to select a linking field.

You can use any of three types of linking fields:

A data field from the controlling table that contains the same data as the field or expression used to index the related table.

A calculated field based on the data in the controlling table. The value of this calculated field must also be the same as the value of the field or expression used to index the related table. You can use the Create Calculated field button to the right of the field box if you determine that you need to create a new calculation.

A total field based on the data in the controlling table. The value of this total field must also be the same as that of the field or expression used to index the related table.

### Relate From Options

---

|                                  |     |  |
|----------------------------------|-----|--|
| <b>Field selector</b>            | ... | Displays the Select Link field dialog to select the field whose value links the controlling table to the related table's index.            |
| <b>Create Calculated Field..</b> |     | Displays the calculated field dialog so that you may create a new calculated field that can then be selected using the ... Field selector. |
| <b>Table Alias</b>               |     | Displays the alias name of the table to which the selected Relate from field belongs.  |
| <b>Table Name</b>                |     | Displays the alias name of the table to which the selected Relate from field belongs.  |

### Other Tabs

---

**Related Table**

**Related Index  
Relation Type**

**Character Match**

**Failure Action**

---

***Action Buttons***

|                  |   |
|------------------|---|
| <b>Join Help</b> | The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian. |
| <b>OK</b>        | Closes the dialog box and saves changes.  |
| <b>Cancel</b>    | Closes the dialog box without preserving any changes.   |
| <b>Help</b>      | Displays this help topic.   |

## Selecting a related index

### Step 3 – Method to locate matching record(s) in the related table:

The third required step to select the method that will be used to locate matching records in the related table. A related index file is much like the index at the back of a reference book. Its purpose is to point you to the specific information. It contains a key expression (which can be a single field or a combination of fields) and a pointer to the records in the indexed table that contain that key value.

There are 3 available Relate Through option buttons. The selected button controls which additional dialog features are available for selection. The default selected option button when creating a new relation is Pre-defined Index.

If you do not have an available index, you can create one on the fly using R&R's FlexLink feature. For numeric linking fields, the third option button of related table record number link will also be available. Record number linking is typically used when you want to link a table to a report where a single specific record will provide parameter information to the report.

### Relate Through Options

---

#### Choices for Pre-defined related table index

**Select Related Index..** Displays the related index dialog so that you can select the index file whose key will match the value of the relate from field.

**Index File Name** Displays file name of the related index file. The related index file is used to quickly find the related table records

**Tag** Applies to compound (CDX) and multiple (MDX) indexes only. These index formats allow a single index file to contain a number of named index tags, each with its own expression. Select the index tag that you want to use from the list.

**Index Key** Displays key expression of the currently selected pre-defined index file.  
Note that this field is scrollable.

#### Choices for Flexlink index

**Edit Flexlink Key...** This button is enabled when FlexLink is selected and allows you to build a Flexlink index expression.

**Index Key** Displays key expression of the currently selected Flexlink index file.

Note that this field is scrollable.

**Index File Name** Displays file name of the Flexlink index file that will be updated on the fly when the report is executed.

#### Related Table record number link

**Selection of record number link is only available for a numeric linking field and contains no subchoices.**

### Other Tabs

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Linking Field

Related Table

**Relation Type**

**Character Match**

**Failure Action**

---

***Action Buttons***

- Join Help**     The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian.
- OK**             Closes the dialog box and saves changes.
- Cancel**        Closes the dialog box without preserving any changes.
- Help**            Displays this help topic.

## Selecting a related table

### Step 2 – Link to 'Related (right side table):

The second required step in building a relation is to select the related table whose record values you want to add to the report.

#### *Relate To Options*

---

|                             |  |
|-----------------------------|--|
| <b>Select Related Table</b> | Displays the related table file dialog so that you may select a table that will provide additional fields to the report.   |
| <b>Table</b>                | File name of the table currently related by the linking field.   |
| <b>Alias</b>                | Unique 8 character name for the related table. The default alias is the table file name. If the report draws on more than one table with the same name, enter a unique alias in this edit box. |

#### *Other Tabs*

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##### **Linking Field**

##### **Related Index Relation Type**

##### **Character Match**

##### **Failure Action**

---

#### *Action Buttons*

|                  |   |
|------------------|---|
| <b>Join Help</b> | The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian. |
| <b>OK</b>        | Closes the dialog box and saves changes.  |
| <b>Cancel</b>    | Closes the dialog box without preserving any changes.   |
| <b>Help</b>      | Displays this help topic.   |

## Selecting a relation type

### Step 4 – Select type of record match

The fourth step in creating a relation is to specify which records should be returned from the related table. There are 3 option buttons available. The default option for a new relation is Exact Lookup.

#### *Options*

---

|                     |   |
|---------------------|---|
| <b>Exact Lookup</b> | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to a record in the related table when the value of the linking field is equal to the index key value.   |
| <b>Scan</b>         | Matches each record in the controlling table to one or more corresponding records in the related table. Report Writer matches a record in the controlling table to all records in the related table when the value of the linking field is equal to the index key value.  |
| <b>Approximate</b>  | Matches each record in the controlling table to only one corresponding record in the related table. Report Writer matches a record in the controlling table to the first record in the related table whose index value is equal to or greater than the value of the linking field of the record in the controlling table. |

#### *Other Tabs*

---

**Linking Field**

**Related Table**

**Related Index**

**Character Match**

**Failure Action**

---

#### *Action Buttons*

|                  |   |
|------------------|---|
| <b>Join Help</b> | The Join Help button can be used after selecting a linking field and a related table. Join Help will then display a report that shows how the selected tables have been linked in previous reports that have been archived in the R&R Report Librarian. See the Report Librarian documentation for information on using the Report Librarian. |
| <b>OK</b>        | Closes the dialog box and saves changes.  |
| <b>Cancel</b>    | Closes the dialog box without preserving any changes.   |
| <b>Help</b>      | Displays this help topic.   |

## Report Dictionary Builder Utility

Enables creation and maintenance of Report Dictionaries in either dBASE or FoxPro format. When a report dictionary is available to Report Writer, the descriptive information contained in the dictionary's COMMENT field appears in the Status Bar when the user highlights a documented field on a report layout.

---

### *File Menu*

|                          |   |
|--------------------------|---|
| <b>New</b>               | Clears the grid (after prompting) and enables creation of a new report dictionary file.   |
| <b>Open</b>              | Clears the grid and opens an existing report dictionary file.   |
| <b>Append</b>            | Appends records from an existing report dictionary file to the grid.  |
| <b>Populate from DBF</b> | Adds TABLE_NAME and FIELD_NAME records for a specified DBF.   |
| <b>Save</b>              | Saves the current report dictionary as a dBASE file (or FoxPro file, if the /f switch was used).  |
| <b>Save As</b>           | Saves the current report dictionary as a dBASE file (or FoxPro file, if the /f switch was used). An overwrite warning prompt displays if the file already exists. |
| <b>Exit</b>              | Exits the Report Dictionary utility.  |

---

### *Edit Menu*

|                        |  |
|------------------------|--|
| <b>Cut (CTRL+X)</b>    | Copies the contents of the currently selected cell to the clipboard and clears the cell.                                 |
| <b>Copy (CTRL+C)</b>   | Copies the contents of the currently selected cell to the clipboard.   |
| <b>Paste (CTRL+V)</b>  | Pastes the contents of the clipboard, replacing the current cell contents.   |
| <b>Edit Record</b>     | Displays the Edit Record dialog to edit the contents of a row of the grid.   |
| <b>Insert Record</b>   | Inserts a record above the currently selected row; TABLE_NAME for the current row is used as TABLE_NAME for the new row. |
| <b>Clear Selection</b> | Clears the contents of the selected cell or cells.   |
| <b>Sort Grid</b>       | Sorts the grid contents in the order of the report dictionary index (TABLE_NAME concatenated with FIELD_NAME).           |

---

### *Column Headings*

| <b>Field Name</b> | <b>Type</b> | <b>Length</b> | <b>Contents</b>  |
|-------------------|-------------|---------------|--|
| TABLE_NAME        | Character   | 50            | Name of table that contains the documented field. Maximum size for this field is 50 characters |
| FIELD_NAME        | Character   | 50            | Name of database or predefined calculated field. Maximum size for this field is 50 characters. |
| COMMENT           | Character   | 80            | Description of database or predefined calculated field.  |
| FORMULA           | Memo        |               | Calculated field formula; you  |

|            |         |   |  |
|------------|---------|---|--|
|            |         |   | can use this to supply a predefined calculated field for use in any report that uses the table specified by TABLE_NAME. (Note that you <i>cannot</i> use the PAGENO( ) function in a predefined calculated field.) |
| EXTENDED   | Logical | 1 | Optional switch for displaying field type, length, and number of decimal places.   |
| FIELD_HIDE | Logical | 1 | Logical value controlling whether a given field appears in field lists in Report Writer.   |
| FILTR_HIDE | Logical | 1 | Logical value controlling whether a given field will be available for use in a Viewer query.   |
| INST_HIDE  | Logical | 1 | Logical field controlling whether a given field will appear in Instant Report layouts.   |

---

**Procedural Topics:**

Procedures for Creating a Report Dictionary

Procedures for Editing a Report Dictionary

## Export to Rich Text Format Dialog

Enables export of all report data to a Rich Text Format (RTF) file, which can then be imported with any word processing program that includes an RTF filter (such as Microsoft Word).

Any formatting applied in the report (e.g. fonts, attributes, line spacing) is retained in the RTF export. Data from fields on a Freeform line will be positioned at the bottom of that line.

Since RTF export saves information about the report's page setup (margins, page size, and so on), you should select an appropriate printer before exporting.

**Note that images, boxes, and drawn lines are not included in RTF export.**

---

### ***Action Buttons***

|               |   |
|---------------|---|
| <b>Close</b>  | Closes the dialog without exporting, retaining any selections or changes on the dialog. |
| <b>Cancel</b> | Closes the dialog without exporting, discarding any changes.                            |
| <b>Export</b> | Exports data to the file specified in the File Name box.                                |
| <b>Help</b>   | Displays this help topic.   |

## **Saving a Report with OLE Objects to a Library**

The report you are trying to save contains one or more OLE objects. In order to retain the OLE objects, you must save the report as a compound file document. If you save the report into a report library, the OLE objects will not be retained.

To save the report as a compound file document so that the OLE objects will be retained, select Report File in the "Save as type" box. Enter a name for the file and select Save.

---

### ***Action Buttons***

- |               |   |
|---------------|---|
| <b>Yes</b>    | Saves the report into the report library, discarding any OLE objects in the report.       |
| <b>No</b>     | Returns to the Save As dialog to enable saving of the report as a compound file document. |
| <b>Cancel</b> | Closes the dialog.  |

## Input File Tab (ActiveX Control Export)

Enables you to specify the file name for exporting a report in a form that is readable by the ActiveX Viewer control; also enables you specify whether OLE objects in the report will be included in the export.

See the Exporting to an ActiveX Viewer Control File topic for a full explanation of exporting to an ActiveX control file.

---

### *Settings*

|                           |  |
|---------------------------|--|
| <b>File Name</b>          | The name (and, optionally, location) of the output file.<br>Default extension is PDI.  |
| <b>Export OLE Objects</b> | When this box is checked, any linked or embedded OLE objects in the report will be included in the export; when this box is not checked (the default), OLE objects will not be included in the export.<br>Including OLE objects increases the size of the export. When the Viewer Control on an internet or intranet site is invoked, all files that it uses are downloaded to the client machine. If large OLE objects are included, this will slow the download. |

---

### *Action Buttons*

|               |   |
|---------------|---|
| <b>Export</b> | Exports the report data to the specified file.  |
| <b>OK</b>     | Accepts all changes to both the Input File and the Object Tags tab and closes the dialog. |
| <b>Cancel</b> | Closes the dialog without saving the settings.  |
| <b>Apply</b>  | Accepts all changes to the current tab and leaves the dialog open.                        |
| <b>Help</b>   | Displays this help topic.   |

## Object Tag Tab (ActiveX Control Export)

Enables you to specify the file name for the HTML file that will serve as the container for the ActiveX control, URLs for the PDI input file and ActiveX control file, and the location of image files. Also enables you to set the dimensions of the ActiveX control window.

See the Exporting to an ActiveX Viewer Control File topic for a full explanation of exporting to an ActiveX control file.

---

### *Settings*

|                            |   |
|----------------------------|---|
| <b>HTML Document Name</b>  | Name (and, optionally, location) for the HTML container document. This file serves as a container for the Viewer control.   |
| <b>Input File URL</b>      | The path and name of the exported report file (the PDI file created using the ActiveX Viewer Control Export dialog).  |
| <b>Control URL</b>         | <p>The location of the Viewer control file on your Web server, either as a full or relative path. This file is packaged in a "cabinet" file named RRPRVIEW.CAB that is installed in the ActiveX subfolder of your program installation folder.</p> <p>Copy the cabinet file to your Web server and reference that location in this field. You can use either a full URL path or one that is relative to the location of the HTML container document. If the cabinet file and the HTML container file are in the same folder, you can reference just the file name (e.g., RRPRVIEW.CAB).</p> |
| <b>Image URL</b>           | If the images used by the exported report are not in the same folder as the PDI file, enter the location of the image folder in the Image Path box.   |
| <b>Viewer Control Size</b> | Enter Width and Height settings to establish the dimensions of the Viewer control window. Enter these settings as percentages of the browser window (if necessary you can remove the % signs in the resulting HTML to specify in pixels instead).   |

---

### *Action Buttons*

|                              |  |
|------------------------------|--|
| <b>Preview HTML Document</b> | Displays the HTML code that will be created for the container document. You can copy all or part of this code and paste it elsewhere as necessary. |
| <b>Create HTML Document</b>  | Creates the container HTML file using the settings you specified.  |
| <b>OK</b>                    | Accepts all changes to both the Input File and the Object Tags tab and closes the dialog.  |
| <b>Cancel</b>                | Closes the dialog without saving the settings.   |
| <b>Apply</b>                 | Accepts all changes to the current tab and leaves the dialog open.   |
| <b>Help</b>                  | Displays this help topic.  |

**(filename) Cannot find this file. Please verify that the correct path and file name are given.**

(filename) Cannot find this file. Please verify that the correct path and file name are given.

See Cannot create/find/open/read/write ...

**(filename) Unable to register document. The document may already be open.**

R&R was not able to register the report file with the Windows OLE system. R&R cannot open a report file that is open by another application.

**<report name> is being used. Do you want to make a copy?**

The report you want to access is currently open by another process. You can either make a copy or wait until the file is closed.

**Abnormal Viewer Termination**

A Viewer DLL error. Viewer EXE terminated and returned an unknown error code to the Viewer DLL. If problem persists, look for clues by turning on error message and status reporting with the `setDisplayStatus()` and `setDisplayErrors()` calls. Or, run Viewer EXE directly with a control file setting the same parameters as you are in the DLL calls.

**Absolute or relative URL address must contain RRPRVIEW.CAB**

The control URL input does not contain the file name RRPRVIEW.CAB.

**Absolute or relative URL address required**

The Input Control File is empty. Export to ActiveX Viewer requires that you provide the absolute or relative URL address.

**An unexpected error occurred while reading (filename)**

An unexpected error occurred while reading (filename)

**Argument name in use**

In entering a UDF declaration, you repeated an argument name. For example, the arguments C\_DATA and N\_DATA have the same name, DATA. Enter a unique argument name.

**Auto Recovery**

On starting R&R, the name of the last file that was being edited was found in RRW.INI. R&R makes an entry to RRW.INI when Auto Recovery has been enabled in Options->Preferences and a fatal error has occurred while editing the report. To recover the edited version of the report, select Yes.

**Bad input line, or invalid text control file: (filename)**

Make sure the runtime command line uses supported switches formatted correctly, and that the specified text file is a valid control file.

**Calculated field (field name) must be edited**

You retrieved or tried to print a report that contains a calculated field that can no longer be evaluated (for example, a calculated field that requires a data field you deleted from your database) or that requires UDFs that have been deleted or modified. You can: 1) edit the calculated field so that it can be evaluated, 2) delete the field from the report, 3) modify the file structure to replace the deleted field, or 4) modify the UDF.

**Calculation buffer overflow**

You tried to enter an expression that's too complex to fit in the storage space allotted for it. Break the expression into subexpressions and then combine the subexpressions. For example, if you want to define field X as  $(A+B) * (C+D)$  but this causes an overflow, create two calculated fields Y and Z. Define Y as  $A+B$ . Define Z as  $C+D$ . Then define X as the expression  $Y*Z$ .

**Calculation code overflow at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid character or argument. The offset number indicates the position of the character that is causing the problem. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. See the Developing Applications manual for information about valid filter expressions. Then edit the expression. (Refer to the explanation of the "Calculation code overflow" message.)

**Can query only on highest level pre-processed totals**

Can query only on highest level pre-processed totals

You can query on a pre-processed total only if no other pre-processed total is defined at a higher (more inclusive) reset level. For example, you cannot query on a pre-processed group total if the report also contains pre-processed grand totals. To run your report, you must either edit your query to remove the pre-processed total or make the higher level totals running rather than pre-processed.

**Cannot access user function library**

So that all network users will have access to the most current user-defined functions (UDFs), only one user at a time can create a UDF. In addition, while a user is creating or editing a UDF, no other network user can open or create a report, since opening or creating causes R&R to read RR.UDF to make the current user-defined functions available for use. Wait a few minutes and try again.

**Cannot activate a static OLE object**

A static OLE object can only be inserted into R&R; it cannot be edited.

**Cannot apply record number scope to empty master table**

Starting and ending record number scope values must be between 1 and the number of records in the master table.

**Cannot compare a memo field to another field**

The comparison value for a memo field cannot be another field.

**Cannot create band line**

The band line specified in the R&R Open Scripting script file could not be created. Check to make sure that band lines have been properly specified within the script file.

**Cannot create/find/open/read/write ...**

All the "Cannot create/find/open/read/write..." error messages indicate that R&R cannot create or access a program-generated or user-requested file. Any of the following conditions can cause these messages. For user-requested files, you may have entered an invalid file name. Check that you used valid file name characters. For any file, your disk may be full or damaged; the FILES parameter in your CONFIG.SYS may not be set high enough (see entry on "Insufficient file handles"), or you may not have enough available memory; on a network, you may not have write access to the specified directory or the directory in which R&R creates temporary files.

If the disk is almost full, move or delete some files to make space available. If the disk isn't almost full, you may have a disk error. On a network, see your network administrator to gain access to the necessary directory.

**Cannot delete linking field (field name)**

This error occurs in three cases: 1) in editing a relation, you tried to change the related table to a table that doesn't contain the linking field; 2) using Database ⇒ Master, you tried to replace the original master table with one that does not contain a linking field of the same name and data type as the original linking field; or 3) using Database ⇒ Relations, you tried to remove a relation in which a related table contains a linking field.

To delete this field and all fields in the related table, first use Database ⇒ Relations to delete the relation to that table. Then you can delete the linking field. Note that if fields in the related table are used as linking fields in other relations, you must remove all of those other relations starting at the last one in the chain. To use a different linking field, first use Database ⇒ Relations Edit to select a new linking field. Then you can delete the old linking field.

**Cannot execute R&R Wizards. Error code: (n)**

The R&R Report Wizard executable file could not be loaded. Verify that the program file RRWIZ.EXE is in your program directory or that the pathname specified by the WizardEXE keyword in the [Special] section of RRW.INI is set to the Wizard program file.

**Cannot execute Viewer EXE: error code <code>**

The RRWRUN.EXE viewer cannot be executed. Make sure that your RRW.INI contains a PROGDIR32= entry in the [Defaults] section that points to the location of RRWRUN.EXE.

**Cannot export to master or related file**

R&R will not export a report to one of the tables used in the report.

**Cannot find printer library file (filename)**

The printer driver file for the printer you selected cannot be loaded. Make sure you have the right files for the selected printer driver and that they are in the appropriate Windows directory or select another printer.

**Cannot find serial number in user file**

The serial number on the diskette you inserted does not exist in the RRW.LIC file.  
Find and insert the diskette marked with the serial number you want to delete.

**Cannot link using NULLable key**

You are trying to set a relation using an index file or tag that is on a key field that has the Fox NULLable property. R&R does not support such files in relations. You must pick a different index file or tag.

**Cannot link with composite record number field**

You cannot edit a calculated field currently used as a linking field so that it results in a memo field or so that its expression uses the RECNO( ) or PAGENO( ) functions. Check your calculation. Either select a different field as the linking field or edit the calculated field to eliminate the reference.

**Cannot load printer library file RRPD.DLL**

R&R could not load the printer driver dynamic link library file RRPD.DLL. Check to make sure that this file is located in your program directory.

**Cannot match printer or port in control file**

The Runtime control table contains a value in RI\_WPTR or RI\_WPORT, or a combination of the two, that cannot be matched to any Windows printer or port on the system.

**Cannot open control file: (file name)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot open database table (file may be in use)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot open index file (file may be in use)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot open library file (file name)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot open memo file (file may be in use)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot open script file (filename)**

R&R could not open the script file passed on the command line. Verify that the file exists; provide a full pathname if required.

**Cannot open status file (filename)**

Runtime was unable to create the runtime status file. Check that it is not already in use. If you have multiple users running runtime, you should use the /O switch to create unique output status files.

**Cannot open text file (file may be in use)**

The file may not exist (enter a valid file name with a complete path); the file may be damaged (restore it from your backup and try again); on a network, the file may be locked by another user (try running the report later); R&R may already have the maximum number of files open (see "Insufficient file handles").

**Cannot query on composite record number field**

You cannot edit a calculated field currently used in a query so that its expression includes the RECNO( ) function. Edit your calculation or change your query.

**Cannot query on page number field**

Cannot query on a calculated field that uses the pageno() or reportpage() page number functions.

**Cannot query on running total if any totals are pre-processed**

You cannot query on a running total if your report contains any pre-processed totals. You will not be able to run your report until you 1) change or eliminate your query or 2) change all pre-processed totals to running totals.

**Cannot read memo file**

The text memo file attached to your report is not in the required format. If the file contains more than one memo, each memo must be identified following the conventions explained in the "Creating Form Letter Reports" chapter of *Using R&R*. See also "Cannot read..."

**Cannot read user file (file name)**

The user management program, RRWUSERS.EXE, cannot read the RRW.LIC user management file. You will need to restore this file from a backup or re-install R&R.

**Cannot scan using total-related linking field**

You tried to create a meaningless scan relation. A total-related field is a total field or a calculated field that refers to a total field. R&R does not allow you to use a total-related field as the linking field in a scan relation, since the value is likely to change after each composite record. To set a scan relation, select a linking field that is not total-related.

**Cannot skip if linking field is total-related**

You tried to skip records that have already contributed to totals. A total-related field is a total field or a calculated field that refers to a total field. You may use a total-related field as the linking field in a lookup relation; however, the Skip failure action is not available, since the totals are calculated before the lookup occurs.

**Cannot sort on composite record number field**

Calculated fields: You cannot edit a calculated field currently used as a sort or group field so that its expression includes a self-referencing calculated field, total field, or running total-related field or so that its expression results in a memo field. In addition, you cannot use the RECNO( ), PAGENO( ), REPORTPAGE() or PREVIOUS( ) function in a calculated field used to sort or group a report. Check your calculation. Total fields: You cannot change the processing mode of a pre processed total that is currently used as a sort or group field, or that is used by a calculated sort or group field.

**Cannot sort on self-referencing field**

Calculated fields: You cannot edit a calculated field currently used as a sort or group field so that its expression includes a self-referencing calculated field, total field, or running total-related field or so that its expression results in a memo field. In addition, you cannot use the RECNO( ), PAGENO( ), REPORTPAGE() or PREVIOUS( ) function in a calculated field used to sort or group a report. Check your calculation. Total fields: You cannot change the processing mode of a pre processed total that is currently used as a sort or group field, or that is used by a calculated sort or group field.

**Cannot sort or group on memo field**

Calculated fields: You cannot edit a calculated field currently used as a sort or group field so that its expression includes a self-referencing calculated field, total field, or running total-related field or so that its expression results in a memo field. Check your calculation. Total fields: You cannot change the processing mode of a pre processed total that is currently used as a sort or group field, or that is used by a calculated sort or group field.

**Cannot sort or group on page number field**

Calculated fields: You cannot use the RECNO( ), PAGENO( ), orREPORTPAGE()function in a calculated field used to sort or group a report. Check your calculation.

**Cannot sort or group on PREVIOUS( )-related field**

You cannot use the PREVIOUS( ) function in a calculated field used to sort or group a report. Check your calculation.

**Cannot sort or group on running-total-related field**

You cannot change the processing mode of a pre processed total that is currently used as a sort or group field, or that is used by a calculated sort or group field.

**Cannot use a field in a list**

You cannot use a field in a comparison list.

**Cannot use a field in a range**

You cannot use a field in a comparison range.

**Cannot use an empty value in a range**

A range comparison must consist of two non-empty values.

**Cannot use index or tag on NULLABLE Key**

The index or tag you have selected is based on a FoxPro field whose null property has been enabled. This is not currently supported.

**Cannot use page total field to control line printing**

In the Logical Field box of the Line Properties dialog, you specified a calculated field derived from a page total to control line printing. R&R doesn't allow you to use a page total as a line logical field, since the total is likely to change if the line doesn't print. Use a different field.

**Cannot use QUERY() in a user-defined function**

You cannot use the QUERY( ) function in a user-defined function.

**Cannot write user file**

The user management program, RRWUSERS.EXE, cannot add, delete, or unlock a serial number because the current user cannot write to the user management file, RRW.LIC. See "Cannot create..."

**Change would cause invalid running total query**

You created a query that includes a running total field or running-total-related calculated field and then edited the field in a way that makes it unusable in a query. Only grand counts, grand sums, and calculations derived from such running totals can be included in a query. Either edit the total or calculated field or change the query.

**Character field (field name) is no longer in table (table name)**

This warning message provides information about a change made to the database file structure since the report was last saved. The field may have been deleted from the file. If you are using Runtime, you may have used the Runtime control table to change one or more of the tables used in the report. If the tables selected at runtime do not have the same fields as the original tables, you will get this message. R&R erases deleted fields, as well as fields that total them, from the report layout. Calculated fields that use deleted fields must be edited before you can run the report. Refer to the "Distributing Reports" chapter of *Developing Applications* for more information.

**Character string required**

The Compared To value in the selection rule you are creating or editing must be a character string.

**Chart must be edited: "Cannot specify a sub-category for a chart in the record band"**

The Sub-category field is used to define a different way of obtaining data for the chart and cannot be specified in the record band. When you specify a Sub-category, you are essentially informing the charting software that the single Selected Field can be thought of as being composed of a series of values of the Sub-category Value Field. In this case, the Selected Field's values are not actually used at all in preparing the chart, though the Sort and Label Field values associated with the Selected Field *are* used. A given chart can contain more than one Selected Field or a Sub-category but not both, since the Sub-category Value Field replaces the Selected Field as the source of data.

**Chart must be edited: "Missing "Selected Fields' or 'Label" or 'Sort field"**

One of the following values expected on the Data page to be charted is missing. You need to provide:

- One or more **Selected Fields** whose values provide the data to chart.
- A **Label Field** whose values provide labels for the data points.
- A **Sort Field** whose values are used to order the data points. By default this will be the same as the Label Field. When specifying the Sort Field, you can also specify whether the sorting is to be ascending or descending and whether to combine duplicate sort field values.

**Circular calculations. Cannot evaluate (field name)**

You tried to define two calculated fields that refer to each other, the field you are editing and the field named in the error message. In simple terms, you said "A=B" and "B=A". Thus, these two fields can never be calculated. This message will also appear if you try to edit the formula for a calculated linking field so that it uses fields from the related table. Remove the circular reference to the calculated field in the message. If the field is used as a linking field in a relation, remove references to fields from the related table.

**Command failed**

See Fatal error: exit and restart

**Condition cannot be memo field**

You are creating or editing a total condition expression, which cannot be a calculated memo field.

**Condition cannot depend on a total**

You are creating or editing a total condition expression which cannot be total-related.

**Could not start print job**

Could not start print job

See Printer initialization error (check available memory)

**Data directory does not exist**

The directory you have specified as the default data directory does not already exist. R&R will not create this directory for you. Specify the name of an existing directory or get out of R&R and create this directory.

**Database encrypted**

R&R has tried to open a database that has been encrypted. If you are creating or editing a report, select another database or exit R&R and decrypt the database. If you are trying to retrieve a report, you will not be able to do so until you decrypt the database.

**Date field (field name) is no longer in file (file name)**

This warning message provides information about a change made to the database file structure since the report was last saved. The field may have been deleted from the table. If you are using Runtime, you may have used the control table to change one or more of the tables used in the report. If the tables selected at runtime do not have the same fields as the original tables, you will get this message. R&R erases deleted fields, as well as fields that total them, from the report layout. Calculated fields that use deleted fields must be edited before you can run the report.

**Date required**

The Compared To value in the selection rule you are creating or editing must be a date.

**Date required. Enter in format MM/DD/YYYY**

Date required. Enter in format MM/DD/YYYY

**Default value must be a constant**

You tried to enter a valid field name or expression as the Default value for a Parameter field. This is not allowed.

**Destination disk drive is full**

See File error (description) (file activity)

**Dictionary index does not exist**

R&R could not find the report dictionary index specified in the File Settings options dialog.

**Disk error**

See File error (description) (file activity)

**Duplicate alias**

The alias you entered is already assigned to one of the report tables or to a text memo file attached to the report. Enter a unique alias.

**Duplicate field name must have table alias qualifier**

You tried to include a field name that exists in more than one table in a calculated field expression. If you are using the same field name in more than one table, expressions that refer to one of these fields must have a file name qualifier, for example, CUSTOMER->NAME. Edit the expression to include the field name's table alias; for example, STATES->NAME instead of NAME. Certain calculated fields - those that depend on constants, PAGENO(), or RECNO() - are not associated with a file and therefore cannot be qualified. If you need to reference such a calculated field, rename that field to give it a unique name.

**Duplicate name must be qualified at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains a duplicate field name. The offset number indicates the beginning character position of the duplicate name. For example, "offset 10" indicates that the duplicate name begins at the 10th character in the filter expression. Edit the expression and add the appropriate table alias to the field name.

**Duplicate names found: (run-in parameter)**

Runtime found a run-in parameter specified more than once in the text control file.

**Duplicate or invalid (runtime command line switch) switch**

Make sure the runtime command line uses supported switches formatted correctly, and that there are no duplicate switches.

**Duplicate sort fields**

You have specified the same field at different sort levels.

**Duplicate switch**

There is a switch specified more than once in the runtime command line.

**Empty control file**

In the Runtime command you specified a control table containing no records.  
Correct the control table or specify a valid control table.

**Error creating or writing to (filename)**

There was an error creating or writing the export or print file name.

**Error creating Print Preview window**

The windows used to display a report preview cannot be created. Your system may not have enough memory available. If possible, close other applications and try again.

**Error loading driver library**

R&R could not find the printer driver library for the current printer. Make sure that the driver still exists and is available to Windows applications.

**Error opening report dictionary file**

R&R received an error when attempting to open the report dictionary file.

**Error reading file <filename>**

This error can result from several circumstances. For example: (1) When R&R is trying to read from a file that is locked by another user. In this case, you are given the option of aborting or retrying the read. Retrying often solves the problem, if done after the other user has unlocked the file. (2) When R&R trying to access either a Visual FoxPro DBC file or another file from the database of such a DBC file that is locked by another user. No retry option is given in this case.

**Error reading report**

The saved report specification is damaged. Restore the report file from your backup copy.

**Error reading report dictionary file**

R&R received an error when attempting to open the report dictionary file.

**Error writing to R&R initialization file**

R&R could not write to the private initialization file RRW.INI. Make sure that RRW.INI is in your program or link directory and that it is not write-protected or damaged.

**Evaluate stack overflow on field (field name)**

R&R could not compute the value for the calculated field specified. The expression may be too complex, contain too many levels of parentheses, or contain too many long character strings. Break the expression into subexpressions and then combine the subexpressions. For example, if you want to define field X as  $(A+B) * (C+D)$  but this causes an overflow, create two calculated fields Y and Z. Define Y as  $A+B$ . Define Z as  $C+D$ . Then define X as  $Y*Z$ .

**Expression required**

You must enter an expression for the calculated field, total condition, parameterRR validation or UDF you are creating.

**Failed to connect. Link may be broken**

The connection between an OLE object inserted into a report and the OLE server which maintains the object has failed. Close the report and restart R&R.

**Failed to convert OLE object**

R&R was not able to perform the conversion specified. Select the OLE object and try again.

**Failed to create empty document**

R&R could not create a new report file. Terminate and restart R&R and try again.

**Failed to launch help**

A help file cannot be found or opened. Check to see that the file exists on your disk. If it doesn't, you need to reinstall help files.

**Failed to launch server application**

The OLE Server application that supports the object in the report cannot be activated. Be sure that the application has been properly installed and registered.

**Failed to open document**

See Cannot open control file: (file name)

**Failed to save document**

An error occurred when writing to a report file. The file may be damaged. Restore it from your backup and try again.

**Fatal error. Save your report; exit and restart R&R**

R&R has detected a fatal program error. Save the current report; then exit and restart R&R.

**Fax/modem device not detected on machine**

Try to right click to send to FAX.

**Field datatype not found**

The defined data type for the lookup table value field does not match the current field datatype so a lookup cannot be performed.

**Field is missing**

You must select a field in the Field edit box as the left element of the selection rule.

**Field is no longer in database**

In opening a report, R&R needed to create a "dummy" linking field. You need to replace the dummy linking field with an actual field.

**Field name already used**

In creating a calculated, parameter or total field, you tried to use the name of a field that already exists in the report. Enter a unique field name.

**Field name is not allowed in a range or list**

A range or list comparison value cannot contain a field name.

**Field name must be qualified**

The field name in the Compared To box must include a table qualifier.

**Field name required**

A valid field name is required for this command. Make sure that the name you selected or entered is actually a field name and not an alias.

**Field not found**

The lookup field name defined for this parameterRR is not available in the current lookup table so a lookup cannot be performed.

**Field types do not match**

The items being compared in the selection rule (the Field and Compared To selections) must be of the same data type.

**Fields won't fit within current margin setting**

R&R can't justify the selected line(s) because the distance between the leftmost and rightmost fields is larger than the right margin. Increase the right margin, move the fields closer together, or don't justify the fields.

**File already exists (file name)**

In naming a new report library, you tried to use a file name that already exists. Use a unique name.

**File contains unknown field type**

File contains a field type that R&R cannot evaluate. You can avoid this error by adding the line `IgnoreU=1` to the `[Defaults]` section of `RRW.INI`

**File error (description) (file activity)**

R&R reports file errors for problems affecting report files or user-defined function (UDF) libraries. The description part of the message explains the specific problem (see list below). The last part of the message explains what file is affected and may provide other information about the problem. A typical message of this sort might read "File error (disk full) creating report library."

The specific problems covered by this error message are as follows:

- Cannot open file — R&R cannot open the specified file for any of the following reasons:
  - The file may not exist. For reports and font information files, enter a valid file name with a complete path.
  - The file may be damaged. Restore it from your backup and try again.
  - On a network, the file may be locked by another user. Try running the report later.
  - R&R may already have the maximum number of files open. See Insufficient file handles
  - Disk error — The specified file is damaged. Exit Windows and run SCANDISK or CHKDSK (depending on the version of DOS you are using) to diagnose the disk problem. Then restore the file from your backup and try again.
  - Disk full — R&R cannot create or write to the specified file because you don't have enough space on your disk. You must move or delete files to free up more disk space.
  - Insufficient memory — Your system does not have enough available memory to continue retrieving, editing, or generating the report. R&R can retrieve and run most reports in 384 KB of memory; however, reports with large numbers of calculated or total fields may require more memory. If you are running R&R, you can maximize the amount of available memory by saving the report (if it has not already been saved), exiting R&R, terminating other Windows applications, and starting R&R again. You may also want to use Calculations ⇒ Purge Calculations to remove unused calculated and total fields (do not use this command if you included calculated or total fields in memo fields).
  - Invalid file revision — You are trying to use a file created by a later version of R&R. Select a file created with the version you are using or with an earlier version.
  - Name in use — You are trying to use the name of an existing user-defined function. Use a unique name.
  - No such name — The report file is damaged. R&R can't access the selected report. Restore your report file from a backup copy. If you still get the error, contact Liveware Technical Support. If you get this message with Runtime, you may have specified a nonexistent report name in RI\_REPORT. Verify the report name and, if necessary, correct the RI\_REPORT entry.

**File error (number)**

R&R has encountered an unanticipated error condition. Contact Liveware Technical Support.

**First four characters of name not unique**

The first four characters of the UDF name you entered duplicate those of another UDF name or of a predefined function name. Use another UDF name that begins with four unique characters.

**Function (function) requires field name argument**

You entered a formula including a UDF that applies the PREVIOUS( ) function to one of its arguments. Since the PREVIOUS( ) function requires a field name argument, the argument supplied to the UDF must also be a field name. Edit your formula.

**Function requires field name argument at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid argument. The offset number indicates the beginning character position of the invalid argument. For example, "offset 10" indicates that the invalid argument begins at the 10th character in the filter expression. Edit the expression.

**Function used in another function cannot contain QUERY()**

You cannot use the QUERY( ) function within other functions. QUERY( ) must be the entire expression.

**Function used in the query cannot contain QUERY( )**

In a query expression, you cannot use a calculated field that uses the QUERY( ) function.

**Functions are not current**

RR.UDF, the file containing user-defined functions, has changed since you last opened or created a report or created a user-defined function. Save your report and retrieve it again. R&R will read the changed UDF library so that you will be working with current user-defined functions.

**General print spooler error**

R&R has detected a failure in the Windows print spooler. Make sure that the Print Manager is working properly and try again.

**Group scan failure**

In a multiple scan report, no records were found in any of the files in the scan group. Terminate was specified as the group failure action. Check your database relations to determine why no records were found. Either edit the relations or change the group failure action.

**Illegal use of QUERY**

The QUERY( ) function must be a calculated field's entire expression. You cannot use QUERY( ) within another function, with operators, or in the filter expression.

**Incorrect Numeric Value**

You must enter a valid numeric value consisting of digits, decimals and a leading sign. For a blank value, enter a 0 and then format the field to not display zeros.

**Incorrect Password File Not Saved.**

The password you have entered when saving a report does not match the password that has been set in File->Security.

**Index block size not supported**

RRW requires that dBase MDX indexes have a block size of 2.

**Index file required**

You have specified use of an index; an index file pathname is required.

**Insufficient file handles**

R&R does not have sufficient file handles to open the required files for the report. The default number is 55. You can increase this number by adding the line the RRWHANDLES=

To the [Special] section of RRW.INI and setting a higher number.

**Insufficient memory ...**

Your system does not have enough available memory to continue retrieving, editing, or generating the report. Reports with large numbers of calculated or total fields may require more memory. You can maximize the amount of available memory by terminating any other Windows applications. You may also want to use Calculations ⇒ Purge Calculations to remove unused calculated, parameterRR and total fields (do not use this command if you included calculated, parameterRR or total fields in memo fields).

**Insufficient memory to copy or paste additional objects**

You pasted a large bitmap; the bitmap was pasted successfully, but there is not enough memory to store an additional copy of the bitmap in memory. Therefore the Edit Paste Objects menu choice will be disabled until you replace the item in memory by cutting, deleting, or copying something else.

**Insufficient memory to create screen font**

A required screen font cannot be created because of insufficient memory. Close other Windows applications and try again.

**Internal application error**

See Fatal error. Save your report; exit and restart R&R

**Internal file setup error**

There is a serious error in the current report. Contact Liveware Technical Support.

**Invalid alias**

The table or text memo file alias you entered is not valid. It cannot contain spaces and must be unique within the current report.

**Invalid argument**

You tried to enter an expression where the specified function contains an argument of the wrong data type. An argument can be a constant, a variable, or an expression. The proper syntax for using the specified function is displayed in the Control Panel for reference. Replace the argument with an argument of the proper data type, (numeric, date, character, memo, or logical). For predefined functions, check either the help screen or the entry for the function in the "Using Functions" chapter in *Using R&R*. A common error is to try to use a date or numeric argument where a character string is required. If this is the case, use either the DTOC( ) or STR( ) function to first convert the date or number to a character string.

**Invalid argument at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid argument. The offset number indicates the beginning character position of the invalid argument. For example, "offset 10" indicates that the invalid argument begins at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Invalid argument to function" error message).

**Invalid argument name**

You've specified an invalid argument name while creating a UDF. Enter a new argument name. Argument names must begin with one of the following valid data type prefixes: C\_, D\_, L\_, M\_, N\_. The name following the prefix can include only letters, numbers, and the underscore character. For more information, see the "Using User-Defined Functions" chapter in *Using R&R*.

**Invalid checkpoint value: (value)**

The field RI\_CHKTIME in the Runtime control table doesn't contain the letter R or P. Check your control table.

**Invalid command line argument**

You used an invalid argument in your command to start Runtime. You used the / without a letter to designate an argument; you used two arguments of the same type; or you entered an invalid letter after / to designate an argument. Refer to the explanation of command switches in the *Developing Applications* manual.

**Invalid control file record number: (n)**

A record matching the specified job number was not found in the runtime control table.

**Invalid control file structure**

The Runtime control file doesn't have the proper structure. See the *Developing Applications* manual for information about control file structure. (Note that if you install the Runtime files during installation, an empty control table named RRUNIN.DBF is placed in your program directory; you can then edit this table.)

**Invalid date**

The month number is not between 1 and 12, the day number is not correct for the month entered, or the date is out of range (date range is 03/01/1600 through 12/31/2999). Enter a correct date value.

**Invalid date value**

You entered a date constant incorrectly. The date must be enclosed in curly braces { } and must be in the form defined by the Windows International date setting, using spaces, hyphens(-), slashes(/), or periods (.) as separator characters.  
Example: DATE={08/27/2002}.

**Invalid Default Data Directory**

The Data Directory specified in the File Settings options dialog does not exist.

**Invalid Default Image Directory**

The Image Directory specified in the File Settings options dialog does not exist.

**Invalid Default Report Directory**

The Report Directory specified in the File Settings options dialog does not exist.

**Invalid 'equivalence' on line (number) of RRW.SRT**

One of the character collation equivalences on the line of RRW.SRT specified in the error message is invalid. See the introductory sections of RRW.SRT for rules that must be observed in specifying collation rules, as well as a definition of the term 'equivalence.' You may not, for example, mix uppercase and lowercase characters in a single collation rule.

**Invalid 'expansion' on line (number) of RRW.SRT**

One of the character collation expansions on the line of RRW.SRT specified in the error message is invalid. See the introductory sections of RRW.SRT for rules that must be observed in specifying collation rules, as well as a definition of the term 'expansion'. You may not, for example, mix uppercase and lowercase characters in a single collation rule.

**Invalid field width value**

The value you entered for field width contains invalid characters or exceeds the maximum value allowed. The maximum character field width is 254 characters.

**Invalid filename**

See file error

**Invalid filename in RI\_OUTFILE**

In the Runtime control table field RI\_OUTFILE you entered a file name that ends with a slash or contains invalid characters. Enter a valid file name.

**Invalid filter in control file**

The RI\_FILTER field in the Runtime control table contains an expression that does not return a logical true or false value. This message may also indicate that the RI\_FILTER expression in the control tables makes invalid use of totals by referencing a running total or pre-processed total that resets at a level other than the highest level at which a pre-processed total is defined. See the *Developing Applications* manual for examples of valid filter expressions. Then change the value in the field.

**Invalid frequency for this total**

You have selected "Once per page" as the accumulation frequency for the total field you are creating/editing. This accumulation frequency is valid only for totals of page totals.

**Invalid function name**

The function name specified in a UDF declaration contains embedded spaces. Edit the declaration to remove the spaces.

**Invalid high scope**

Scope value is not valid for its data type (e.g. an invalid date if the master index is a date index), or is not a valid record number (if no master index).

**Invalid index file**

The file selected either is not supported by R&R or is damaged. Select a valid index file or restore the damaged index file from a backup. You may need to use your database software to rebuild the index.

**Invalid index file pathname**

Verify that the index file pathname is a valid pathname.

**Invalid 'inequality' on line (number) of RRW.SRT**

One of the character collation inequalities on the line of RRW.SRT specified in the error message is invalid. See the introductory sections of RRW.SRT for rules that must be observed in specifying collation rules, as well as a definition of the term 'inequality'. You may not, for example, mix uppercase and lowercase characters in a single collation rule.

**Invalid integer/decimal value**

You entered a value that contains non-numeric characters, has too many decimal places, or is outside the valid numeric range. Re-enter a valid numeric/decimal value.

**Invalid line height**

The line height value you entered either contains non-numeric characters or has too many decimal places. Re-enter a valid height value.

**Invalid link file (filename)**

The structure of the named index file was not recognized by RRW. This could indicate that the index file format is not supported by RRW or that the file is damaged, in which case you could restore the index from a backup copy or simply rebuild it.

**Invalid low scope**

Scope value is not valid for its data type (e.g. an invalid date if the master index is a date index), or is not a valid record number (if no master index).

**Invalid master table pathname**

R&R cannot open the specified master table. Make sure that the path name you entered is correct and try again.

**Invalid number of arguments**

You entered too few or too many arguments to a function. Review the expression and eliminate or add arguments as necessary.

**Invalid number of arguments at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid argument. The offset number indicates the beginning character position of the invalid argument. For example, "offset 10" indicates that the invalid argument begins at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Invalid number of arguments to function CASE" error message).

**Invalid number of copies: xxxx**

The RI\_COPIES field in the Runtime control table contains a number outside the range 0 to 999. Change the value in the field.

**Invalid number of lines**

The number you specified either is too large to fit within the maximum number of lines allowed (256) or contains invalid numeric characters. Re-enter a valid number of lines.

**Invalid numeric value or value out of range**

You entered a value that contains non-numeric characters, has too many decimal places, or is outside the valid numeric range.

**Invalid operation**

You tried to apply an operator to an argument of the wrong data type. Some operators don't apply to all data types. For example, you can't multiply a date. Correct the formula or expression.

**Invalid operation at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid argument. The offset number indicates the beginning character position of the invalid argument. For example, "offset 10" indicates that the invalid argument begins at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Invalid operation" error message).

**Invalid or duplicate command line argument**

Make sure the runtime command line uses supported switches formatted correctly, and that there are no duplicate switches.

**Invalid page range: xxxxxxxx to xxxxxxxx**

The field RI\_BEGPAGE in the Runtime control table contains a higher number than RI\_ENDPAGE. The beginning page number must be less than or equal to the ending page number.

**Invalid parameter: (parameter) Script line: (n)**

R&R has detected an invalid section or keyword name (parameter) in the script file at line n. Verify that the line in the script file has the proper format.

**Invalid partial length value**

The partial length value specified is not within range. Make sure the length specified is less than the length of the specified field.

**Invalid pathname: (pathname)**

You entered an invalid pathname. Verify the file name and directory path and re-enter.

**Invalid picture file format**

You are trying to insert an image that is not supported by R&R. Supported image types are: BMP, DCX, DIB, EPS, GIF, JPEG, PCX, PICT, TGA, TIFF, WMF, WPG. You can use graphic conversion programs to convert the image to one of the supported image types. This message may also mean that the image on the clipboard cannot be saved due to an invalid file extension or invalid image data; try a different extension (e.g. BMP).

**Invalid point size: Range is 4.0 to 500.0 points**

Invalid point size: Range is 4.0 to 500.0 points

**Invalid printer indicator: (indicator)**

The RI\_PRINTER field in the Runtime control table contains a character other than D, A, or a question mark.

**Invalid query type: (character)**

You tried to start Runtime using a control table that contains an invalid character in the RI\_QUERY field. Valid characters are S (use saved query), E (use entire file), O (override saved query with expression in RI\_FILTER field), or a question mark (allow user to enter or edit query at time). Edit the control table and place a valid character in RI\_QUERY.

**Invalid related table pathname**

You entered an invalid pathname for a related table.

**Invalid report dictionary index file (name)**

R&R received an error when attempting to open the report dictionary index file specified in the File Settings options dialog.

**Invalid report library**

You tried to select a file that is damaged or not a report library. Check to see that you selected or entered the correct library name.

**Invalid report name**

When saving a report, you either omitted the report name or entered a name consisting only of spaces.

**Invalid report revision**

The saved report is damaged or you were trying to use a report created with a later version of R&R. If your problem is compatibility, use a version that is the same as or later than the version used to create the report. Try restoring your report from its backup copy.

**Invalid report type**

You attempted to open a report saved with a different version of R&R such as the SQL edition.

**Invalid RI\_WCONTROL value**

The RI\_WCONTROL value may range from zero to three. Consult the *Developing Applications* manual for the acceptable values.

**Invalid RI\_WHEIGHT value**

The value specified is below the minimum height allowed by R&R or is too large for the current display device.

**Invalid RI\_WPARENT window handle**

The value passed is not a valid Windows window handle

**Invalid RI\_WTOP/RI\_WLEFT value**

The value specified is not within the proper range for the current display device.

**Invalid RI\_WWIDTH value**

The value specified is not within the proper range for the current display device.

**Invalid running total query**

You are trying to query on a running total that is not a Grand Count or Sum.

**Invalid runtime output file argument**

The path and/or file name you specified with the /O switch is not valid. If you specified a path, the directory may not exist. You may also have used an invalid file name.

**Invalid scope type: (c)**

Runtime encountered an unsupported value in RI\_SCOPE. Consult the *Developing Applications* manual for the acceptable values.

**Invalid scope value: (character, numeric, or date scope value)**

An error applying a scope override in Runtime has occurred. Check your RI\_SCOPE, RI\_LOSCOPE, and RI\_HISCOPE values.

**Invalid setting for (name) ((value)) in RRW.SRT**

The combination of name and value specified in the error message is not a valid combination. See the introductory section of RRW.SRT for information about the valid setting names and values.

**Invalid setting (name) on line (number) of RRW.SRT**

On the specified line number of RRW.SRT, you attempted to specify a 'setting' with the specified name. R&R does not recognize a setting with this name. See the introductory section of RRW.SRT for information about the valid setting names.

**Invalid Starting/Ending page value(s)**

You either entered a starting page value that is larger than the ending page value or the values you entered contain non-numeric characters.

**Invalid use of QUERY function**

You tried to use a calculated field that contains the QUERY( ) function in a UDF definition or a query expression, or you tried to use the QUERY( ) function within another function. QUERY( ) must be the entire expression. Edit the expression.

**Invalid user function library**

RR.UDF, the file containing user-defined functions, is damaged. Try restoring the file from your backup.

**Invalid user management file**

The RRW.LIC file in the program or link directory is damaged or does not match the R&R version you are using. You may need to re-install R&R to provide a valid RRW.LIC.

**Invalid value**

The comparison value you entered in the Compared To box is not valid.

**Invalid value in alias field (n)**

Runtime was unable to use the specified related table override. Consult the *Developing Applications* manual for the RI\_ALIAS format, and confirm that the alias and table values are correct.

**Invalid value in Copies field**

You entered a zero or an invalid value in the Copies field. Enter a numeric value.

**Invalid value in (Runtime input field)**

This message indicates that the value in the specified field in the Runtime control table is too long. See *Developing Applications* for information about the maximum length of control table fields.

**Invalid wildcard for memo field query**

The selection rule entered contained an asterisk (\*) as other than the first or last character. The \* wildcard character is valid only as the first or last character of the query (e.g., \*stuff, stuff\*, or \*stuff\*).

**Library directory does not exist**

The directory you have specified as the default library directory does not already exist. R&R will not create this directory for you. Specify the name of an existing directory or get out of R&R and create this directory.

**Linking and index key fields are different types**

You tried to link a field with an index of a different data type. Indexes may be one of three data types: numeric, date, or character. Refer to the "Working with Calculated Fields" chapter in *Using R&R* for more information.

**Linking field (field name) is no longer in table (table name)**

These warning messages provide information about changes to the database file structure since the report was last saved. You tried to retrieve a report with a database relation based on a field that no longer exists in the database structure. If you are using Runtime, you may have used the Runtime control table to change one or more of the tables used in the report. If the tables selected at runtime do not contain the linking fields used in the original report, you will get this message. To change the linking field and preserve the report in its entirety, exit R&R and use your database software to modify the database structure. Insert the missing field temporarily. Then retrieve the report and change the linking field. To do so, retrieve the report and then use Database ⇒ Relations to change the linking field. Finally, save the report. After you have modified the report, you can use your database software to delete the temporary field.

**Linking field 'name' is no longer in file 'name'**

You attempted to print or preview a report for which R&R needed to create a 'dummy' linking field when it opened the report. You must replace the dummy linking field with an actual field before you can print or preview the report.

**List must contain at least two items**

You tried to end a comparison list that contains only one value. If you want to compare with only one value, use either the "equal to" or "not equal to" comparison operator. If you want to compare with more than one value, highlight the blank data-entry choice and enter another value.

**Logical field (field name) is no longer in file (file name)**

This warning message provides information about a change made to the database file structure since the report was last saved. The field may have been deleted from the table. If you are using Runtime, you may have used the control table to change one or more of the tables used in the report. If the tables selected at runtime do not have the same fields as the original tables, you will get this message. R&R erases deleted fields, as well as fields that total them, from the report layout. Calculated fields that use deleted fields must be edited before you can run the report.

**Logical value required**

This operation requires you to supply a logical true or false value.

**Mail system DLL is invalid/Unable to load mail system support**

The Windows mail system dynamic link library file (MAPI32.DLL) is missing, invalid or damaged. You may need to run Windows ScanDisk system tool or other disk diagnostic utility to diagnose the problem.

**Master index discrepancy**

This warning message may occur if you change master indexes. It indicates that characteristics of the master index originally saved with the report do not match characteristics of the current index. This message may also indicate that the scope value saved with the report is longer than the index key length of the current numeric index. Although you can continue to run your report after acknowledging this message, you may want to redefine any scope values and/or rebuild the index.

**Master table (table name) not found**

RRWRUN can't find the master table named in RI\_MASTER. Enter the correct table name in the Runtime control file field.

**Match length must be between 1 and N**

The partial link match length cannot be greater than the length of the linking field.

**Maximum decimal places is 15**

The maximum number of decimal places allowed for a numeric field is 15.

**Maximum picture width and height is 25.4 inches (64.5 centimeters)**

The image width or height you entered exceeds the 25.4 inch/64.5 centimeter maximum. Enter a smaller width or height.

**Maximum record height is 99.99 inches/centimeters**

The record height you entered exceeds the 99.99 inches (or 99.99 centimeters) maximum. Enter a valid record height value.

**Maximum record width is 99.99 inches/centimeters**

The record width you entered exceeds the 99.99 inches (or 99.99 centimeters) maximum. Enter a valid record width value.

**Memo field (field name) is no longer in file (file name)**

This warning message provides information about a change made to the table or text-memo file structure since the report was last saved. The field may have been deleted from the file. If you are using Runtime, you may have used the control table to change a table or memo file used in the report. If the files selected at runtime do not have the same fields as the original files, you will get this message. R&R erases deleted fields from the report layout, and you may have to edit calculated fields.

**Missing argument**

Your UDF declaration contains a comma as an argument separator, but no argument follows the comma. Delete the comma from the declaration or follow it with an argument.

**Missing user management file**

The user management file, RRW.LIC, isn't in the program directory or link directory. If the file has been moved, copy it to the R&R program directory or link directory. If the file has been deleted, restore it from your backup.

**Multiple (name) settings in RRW.SRT**

RRW.SRT contains more than one value for the setting with the name specified in the error message. Remove all but one of the lines specifying a value for that setting.

**Name in use**

A user defined function's name is already in use. Use a different name for this user function.

### **Access Denied to File**

R&R cannot access the specified file because it is a read-only file, because it is opened for exclusive use by another user on the network, or because it is a directory. Make sure you have specified a valid file name and verify that the file is not read-only.

**No available network user ID**

All serial numbers in RRW.LIC are in use. To check the status of or unlock serial numbers, run the User Management program (RRWUSERS.EXE). Wait until one or more users exit the program and try again.

**No closing parenthesis**

Your UDF declaration has no closing parenthesis. Add the closing parenthesis.

**No fields to export on selected line**

There are no exportable fields in the selected band area.

**No index expression defined**

The Define Expression dialog for a FlexLink index has been left blank. You must enter a valid index expression.

**No library specified**

In running Runtime, you specified a control table that contains no data in the RI\_LIBRARY field. Edit the control table so that it specifies a report library file.

**No master table specified**

No master table was specified for the MasterTable keyword in the Report section of the script file. A master table must be specified in this section.

**No opening parenthesis**

Your UDF declaration has no opening parenthesis. Add the opening parenthesis.

**No Parameter fields available**

You have tried to select a parameter field as a starting or end scope value and there are no parameter fields defined in the report that are of the appropriate data type.

**No printer fonts available**

No printer fonts are currently available; make sure that at least one Windows printer is installed and that it is active (see your Windows documentation).

**No Printer Specified**

You must specify the printer that you want the report sent to. The system does not send the report to the default printer.

**No printers installed or no default printer**

No printers are installed or active in Windows; see your Windows documentation for information about installing printers.

**No records found**

The report definition resulted in no records selected. Check any query the report contains. For a detailed list of report characteristics, print a report specification.

**No records in file**

No records in file

**No reports defined**

You tried to retrieve a report from an empty report library. If you want to use a different library, use Open Library on the Open Report dialog to select a library.

**Not a database table**

There is a problem with the database table file you selected.

- You may have selected a file that is not a database table; if so, select the correct file.
- The table may be locked; if so, use your database software to unlock the table.
- If the table file is not locked and you still get this error, the file may be damaged. Restore the table file from a backup.

**Not a valid report field name**

The name you have chosen for a calculated or total field contains characters that are not valid in an R&R field name. Use only valid field name characters. See the "Working with Fields" chapter in *Using R&R*.

**Numeric field (field name) is no longer in table (table name)**

This warning message provides information about a change made to the database table structure since the report was last saved. The field may have been deleted from the table. If you are using Runtime, you may have used the Runtime control file to change one or more of the tables used in the report. If the tables selected at Runtime do not have the same fields as the original tables, you will get this message. R&R erases deleted fields, as well as fields that total them, from the report layout. Calculated fields that use deleted fields must be edited before you can run the report. Refer to the "Distributing Reports" chapter in *Developing Applications* for more information.

**Numeric required**

The new value that was entered in the Parameter Value entry screen for a numeric Parameter contains one or more invalid characters.

**Numeric value required**

This operation requires that you supply a numeric value.

**Object is positioned on new page line**

You tried to move one or more objects to a line designated as a new-page line.  
Move the object off the line.

**Only left parentheses may be entered**

You can enter only left parentheses (one or more) in this field.

**Only right parentheses may be entered**

You can enter only right parentheses (one or more) in this field.

**Output file append is not supported in this version**

Runtime does not allow you to append to an existing file when printing to file.

**Page header/footer may not contain new-page lines**

You cannot create a new-page line in a Page Footer or Page Header band. See the "Working with Bands" chapter in *Using R&R* for information about new-page lines.

**ParameteRR does not pass validation**

The new value that was entered in the ParameteRR Value entry screen does not meet the validation condition for the field.

**Partial match not allowed on numeric field**

A partial match can only be applied to a character linking field and index.

**Picture directory does not exist**

The directory you have specified as the default image directory does not already exist.

**Please select a burst field from the Burst drop-down list**

The Mail options field Burst level cannot be blank.

**Point size not supported in current printer**

You entered a point size that is not supported by the current Windows printer.  
Select a point size from the list box.

**Pre-processed total at total-related group level**

Totals that reset or accumulate on group fields that are themselves pre-processed totals (or calculated fields whose expressions include pre-processed totals) cannot be designated as pre-processed. You will not be able to run your report until you change either of the offending totals to a running total.

**Pre-processed total at unassigned group level**

You have a pre-processed total field that resets at group level  $n$ , but no field has been assigned to this group level. Assign a field to that group level.

**Print spooler out of disk space**

The Windows print spooler has run out of disk space. You must move or delete files to free up additional disk space.

**Print spooler out of memory**

The Windows print spooler has run out of memory. Terminate other Windows applications to free up memory and try again.

**Printer does not support landscape orientation**

The current printer does not support this orientation. Either select another printer or change to Portrait orientation.

**Printer initialization error (check available memory)**

R&R was unable to call the specified printer driver. Make sure that the printer driver associated with the current Windows printer is available. Also, your system may not have enough memory available. If possible, close other applications and try again.

**Query is too complex. Simplify and try again.**

The current query is too complex for proper evaluation. Simplify the query and try again.

**Query must be edited: field(s) deleted**

You tried to output a report when the query contains references either to fields that were deleted from the database or to calculated or total fields that were deleted from the report. Use Database ⇒ Query to edit the query. Note that R&R has inserted question marks in the query where deleted fields were referenced.

**QUERY() used indirectly**

You cannot use the QUERY() function within other functions. QUERY() must be the entire expression.

**R&R no longer supports rewriting a report into a library file**

You tried to save a report to an RP5 report library file, which is no longer allowed. You must save to an RRW compound file.

**Range must contain two items**

You tried to end a range list that contains only one value. Enter two values, the first for the lower limit of the range and the second for the upper limit.

**Range or list value is too long**

The range or list value is too long to evaluate. Shorten the value if possible, or specify the query using additional selection rules.

**Range out of order**

You must list range values in the Compared To box in ascending order.

**Record caching error**

R&R has encountered a problem in generating the temporary file it uses to prevent widows or orphans in your report. Contact Liveware Technical Support.

**Record copies: Invalid field name or numeric value**

In the Copies group box, you either entered an invalid numeric value or selected an invalid field.

**Record number scope must be between 1 and N**

Record number scope values must be less than or equal to the number of records in the master file.

**Relation must be edited**

The report you retrieved uses a field that has been deleted from the database as a linking field. You need to use Database  $\Rightarrow$  Relations to correct or remove every relation whose description in the list of relations is flagged with a question mark. You cannot print or view the report until you have corrected or deleted all incomplete joins.

**Report canceled**

The cancel button was pressed to terminate report execution.

**Report dictionary does not exist**

R&R could not find the report dictionary specified in the File Settings options dialog.

**Report Dictionary error in incorrect file format**

One or more of the required report dictionary fields — TABLE\_NAME, FIELD\_NAME, or COMMENT — is missing. If you have created a dictionary with non-standard field names, be sure to specify your dictionary's field names in the Data Dictionary section of RRW.INI.

**Report dictionary requires a table and an index file**

You must specify both a report dictionary filename and the name of its index file if you specify either.

**Report File does not exist, (report name)**

In the Runtime control file, RI\_REPORT contains an invalid report file name. Edit the control file and try again.

**Required argument**

The specified function is missing an argument. You may have omitted a comma between arguments. For predefined functions, check either the help screen or the entry for this function in the "Using Functions" chapter in *Using R&R*. Then change the expression to include the correct number of arguments.

**Required argument at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it is missing a required argument. The offset number indicates the character position where the argument was expected to begin. For example, "offset 10" indicates that the argument was expected to begin at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Required argument for function" error message).

**Reset level inconsistent with (field name)**

When you are selecting the reset level of a total field that totals another total field (or a calculated field derived from another total field), this message indicates that you are trying to reset the current total at a less inclusive level than the reset level of the existing total. Select a reset level that is more inclusive than the reset level of the field being totaled. From least inclusive to most inclusive, the reset levels are Level 8, Level 7, Level 6, Level 5, Level 4, Level 3, Level 2, Level 1, Page, Grand.

**RI\_ID value not found or control table empty**

The specified runin table has no records, or no RI\_ID values matching the specified job number.

**Ruler spacing may be 4 to 30 units per inch**

Ruler Spacing must be an integer between 4 and 30

**Saved tag name is missing: (tag) of (file name)**

R&R was unable to find the tag saved in the report in the selected file. Select another tag or select the file that contains the saved tag.

**Scan failure**

You selected the Terminate failure action and R&R was unable to find any matching records in the related table. R&R will display additional information about the name of the linking field, the data value it was attempting to scan for, and the related table alias. Using this information, you should be able to locate and correct the problem. If you want to allow scans to fail on this report, change the failure action to Skip or Blank.

**Selected Fields must not be from shallower level than header band containing chart**

You can't make a chart of totals from shallower group levels than the band the chart is in if the chart is in a header band. It's OK in use totals from shallower group levels in charts in footers.

For example, suppose you have a report with group levels of order-id within customer-id and totals for both group levels. Order-id is the deeper group level, customer-id the shallower level. It's OK to have charts of order totals in customer headers and footers, and it's OK (though, perhaps strange) to have charts of customer totals in order footers, but it's forbidden to have charts of customer totals in order headers.

**Send Mail failed to send message**

R&R encountered an internal error when attempting to mail a report file. Save your work and exit R&R; then restart Windows and try again. This error also occurs when the Send To field for a burst group level evaluated to blank so that the burst file could not be sent for that group.

**Single value required**

You can enter multiple values in the Compared To box only for range or list comparisons. All other comparisons require a single value in the Compared To box.

**Sort and group fields are out of synch**

In a report that sorts on a pre-processed total (or a calculated field whose expression includes such a total), your sort and group fields must be in the same order. See the "Sorting and Grouping Data" chapter in *Using R&R* for information about how pre-processed totals affect sort fields.

**Starting page too large**

You tried to print the report starting at a page number higher than the total number of pages in the report. On the Print dialog, enter a lower starting page number.

**Syntax error**

You tried to enter a meaningless expression. This is often caused by an incomplete expression such as Amount +. Refer to the "Using Calculated Fields" chapter in *Using R&R* for more information.

**Syntax error at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains a syntax error. The offset number indicates the beginning character position of the incorrect syntax. For example, "offset 10" indicates that the incorrect syntax begins at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Syntax error" message).

**Syntax stack overflow**

You tried to enter an expression that's too complex. First try to eliminate any unnecessary parentheses. Also try to simplify the expression. For example, if you want to define field X as  $(A+B) * (C+D)$  but this causes an overflow, create two calculated fields Y and Z. Define Y as  $A+B$ . Define Z as  $C+D$ . Then define X as the expression  $Y*Z$ .

**Syntax stack overflow at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it is too complex. The offset number indicates the position of the character that is causing the problem. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. Edit the expression (refer to the explanation of the "Syntax overflow" error message).

**Table contains no supported fields**

The table does not contain any fields that can be reported on by R&R.

**Table contains unknown field type**

Table contains unknown field type

**Template library does not exist**

R&R could not find the default template library specified in the File Settings options dialog.

**The /G switch requires a valid Library file and Report name**

You have used the /G switch without providing a valid library and report to run.

**The operating system ran out of memory during the operation**

The operation could not proceed when the operating system ran out of memory.  
Please shut down other applications or reboot the system

**There is no bitmap <file> in <filename>**

The image file you are trying to insert contains no bitmap information. EPS, WMF, WPG, and PCT files can contain both bitmapped and vector components. R&R can use a file in these formats only if the file contains bitmapped information. You will be able to insert this image into a report only if you first use a graphic conversion program to convert the file to a bitmapped format such as TIF, PCX, or BMP. Note that many commonly available EPS, WMF, WPG, and PCT clip art files are vector format files that do not contain bitmapped information. You will have to convert such files to bitmapped format for use in reports.

**There is no master table, so no data to export**

The current report has no master table attached, so there are no composite records to export.

**This value could not be read**

Windows could not read the value from a control in a common dialog. Enter a value in the control and try again.

**To override the printer selection, you must specify a printer name**

To properly use the "Printer" or "Port" properties, you must supply a valid printer name. This is a Viewer OCX error.

**Too many arguments**

The specified function includes too many arguments. You may have entered an extra comma after the last argument. For predefined functions, check either the help screen or the entry for the function in the "Using Functions" chapter in *Using R&R*. Then edit the expression to include the correct number of arguments.

**Too many arguments at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains too many arguments. The offset number indicates the beginning character position of the excess argument. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. Edit the expression (refer to the explanation of "Too many arguments to function").

**Too many 'equivalences' in RRW.SRT**

You have attempted to specify more than 128 'equivalences' in RRW.SRT. See the introductory section of RRW.SRT for a definition of 'equivalence.'

**Too many 'expansions' in RRW.SRT**

You have attempted to specify more than 128 'inequalities' in RRW.SRT. See the introductory section of RRW.SRT for a definition of 'inequality.'

Too many 'inequalities' in RRW.SRT

Too many 'inequalities' in RRW.SRT

**Too many lines. Maximum is 256**

The number of lines you are trying to insert or create will make the report exceed the maximum of 256 band lines. Enter a number that will not force the report to exceed this limit.

**Too many nested IIFs**

You tried to enter an expression that is too complicated to fit in the storage space allotted for it. Break the expression into subexpressions and then combine the subexpressions.

**Too many nested IIFs at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it is too complicated to fit in the allotted storage space. The offset number indicates the position of the character that is causing the problem. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. Edit the expression (refer to the explanation of the "Too many nested IIFs" error message).

**Top plus bottom margin exceeds page length**

The sum of the values entered for the "Top margin" and "Bottom margin" print options is greater than or equal to the value entered for "Page length." Check your values for these print options.

**Total condition for '<total field>' must be edited**

You retrieved or tried to print a report that contains a total field with an attached condition expression that can no longer be evaluated or that requires UDFs that have been deleted or modified. You can: 1) edit the condition expression so that it can be evaluated, 2) delete the field from the report, 3) modify the file structure to replace the deleted field, or 4) modify the UDF.

**Total (field name) cannot be evaluated**

This warning message provides information about changes that have been made to the database file structure since the report was last saved. When you retrieve a saved report, R&R checks to make sure that total fields don't refer to fields that have been renamed or deleted from the database. No action is needed. A total field referring to a field that no longer exists in the database is automatically deleted.

**Please select a send-to field from the Send To field drop-down list**

The Mail options field Send To cannot be blank.

**Type cannot be changed. Field is linking field**

You tried to change the data type of a calculated field used in another part of the report. This is not allowed, since it would invalidate the other reference to this field. First delete the reference to the field in the part of that report that is specified in the message; then try again.

**Type cannot be changed. Field is totaled**

You tried to change the data type of a calculated field used in another part of the report. This isn't possible since it would invalidate the other reference to this field. First delete the reference to the field in the part of the report that's specified in the message. Then try again.

**Unable to load mail system support**

Unable to load mail system support

Unable to read from (filename), it is opened by someone else

See Access Denied to File

**Unable to read RRLABELS.INI**

R&R could not initialize the list of label types because it could not find or read the RRLABELS.INI file in the program directory.

**Unable to read write-only property**

Unable to read write-only property

**Unable to start print job**

R&R cannot communicate with the printer driver for the current printer. Verify that the current printer is correctly installed and that the driver file is available; then try again.

**Unable to write read-only property**

Unable to write read-only property

**Unable to write to (filename), it is read-only or opened by someone else**

Unable to write to (filename), it is read-only or opened by someone else

**Unbalanced parentheses**

You tried to save a query or calculated field expression that contains an unequal number of left and right parentheses. Either delete the extra parenthesis or insert the missing one.

**Unbalanced parentheses at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an unequal number of left and right parentheses. The offset number indicates the position of the character that is causing the problem. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. Edit the expression (refer to the explanation of the "Unbalanced parentheses" error message).

**Unexpected file format**

The file specified is not a valid R&R report file.

**Unknown or ambiguous group field (field)**

The group field passed in the runtime control file either does not exist in the database or is ambiguous. Verify that the field name exists in the database and that there is no other field with the same name in other related tables.

**Unknown or ambiguous sort field (field)**

The sort field passed in the runtime control file either does not exist in the database or is ambiguous. Verify that the field name exists in the database and that there is no other field with the same name in other related tables.

**Unrecognized name or operator**

You tried to enter an expression that contains an invalid operator or the name of a non-existent field or function. This is often the result of a spelling error or a character constant without delimiters. Delete the unrecognized item and then, to avoid spelling errors, select the item from the appropriate list box.

**Unrecognized name or operator at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it contains an invalid field, function, or operator. The offset number indicates the position of the character that is causing the problem. For example, "offset 10" indicates that the 10th character in the filter expression is invalid. Edit the expression (refer to the explanation of the "Unrecognized name or operator" error message).

**Unsupported combination of pre-processed totals**

Fields that total other total fields cannot be pre-processed when the total-of-total accumulates more frequently than the field being totaled resets. You will not be able to run your report until you 1) change the total-of-total field to a running total or 2) change the reset level of the field being totaled.

**Unsupported totals sort**

You cannot sort on a calculated field whose expression includes both a pre-processed total and a database field. Either edit the calculated field you are sorting on or select another sort field.

**Unterminated string**

You tried to enter an expression that contains a character string that isn't terminated with a delimiter. Character strings must be enclosed within single quotes, double quotes, or square brackets. Enter the second delimiter and try again.

**Unterminated string at offset (n) of RI\_FILTER**

The expression in the RI\_FILTER field in the Runtime control table cannot be compiled because it is missing a character string delimiter. The offset number indicates the position where the delimiter was expected to be found. For example, "offset 10" indicates that a delimiter was expected at the 10th character in the filter expression. Edit the expression (refer to the explanation of the "Unterminated string" error message).

**Use of invalid user function**

A calculated field or UDF formula in your report contains a reference to an invalid UDF name, perhaps because the name conflicts with the name of an internal R&R function. You must change the invalid UDF name and then edit the calculated field or UDF formula.

**User file does not exist (file name)**

The user management file, RRW.LIC, does not exist in the R&R program or link directory. Move the file to the appropriate directory. If the file has been deleted, restore it from your backup.

**User function access error**

See the explanation of the "Cannot create ..." error messages.

**User function declaration required**

You omitted the declaration for the UDF you are creating or editing. You must supply a UDF declaration.

**User function used in linking field '<field name>'**

The user function cannot be deleted, as it is required by its use in the named linking field.

**User function (user-function) must be edited**

R&R can no longer evaluate the user-function, perhaps because it references other user-functions that have been deleted. Edit the user function declaration and/or formula.

**Validate expression must be logical type**

The ParameteRR validation expression that you entered does not evaluate to a logical true or false value.

**Value(s) not in range**

You tried to enter a value outside the range of values. Enter a value within the acceptable range.

**You are attempting to remove a volume that is being used by the current report. Please close the report and try again.**

You are trying to remove a drive that the current report is using. You must first close the report before removing the drive.

**You cannot copy to the current library**

You are trying to copy the report to the library it is already in. Copy it to a different library or use the File Save As command to save the report under a new name in the same library.

**You have removed a volume that is being used by the current report. Please replace the volume or close the report**

You have removed a volume that is being used by the current report. Please replace the volume or close the report

**You must select a DBF**

When working with a report *not* based on a Visual FoxPro DBC file, the master and related files must all be DBFs. This error results if you change the master file of a DBF-based report using multiple files and attempt to select the replacement master file from a DBC.

**You must select a field name**

You tried to use a command that applies to a field when the field is not selected. Point to the appropriate field and try the command again.

**You must select a related table**

You must select a related table in order to define a database relation.

**You must select a table from the DBC**

When working with a report based on a Visual FoxPro DBC file, the master file and all related files must be selected from the same DBC file. The change you are making, selecting a related file or changing the master file, would violate this restriction, so is not allowed.

**You must specify either .HTM or .HTML extension**

When exporting to an ActiveX file, you must provide the .HTM or .HTML extension. The system does not automatically provide one.

**Accumulation frequency**

Accumulation frequency determines how often the value of a total field will be incremented as a report is processed. It can be changed by using the Options button on the Edit Total Dialog.

**Alias**

A name that uniquely identifies a table. Used to identify which table contains a particular field from the composite record structure (for example, CUSTOMER >NAME and EMPLOYEE >NAME, where CUSTOMER and EMPLOYEE are table aliases).

**Approximate lookup**

A type of database relation in which R&R locates the first record in the related table whose index value is equal to or greater than the value of the linking field from the controlling table.

**Band line**

The Report Designer layout screen consists of one or more band lines. Report data is placed on band lines on the layout. The type of band line determines how often report data will be displayed in the report.

| <b>Band Type</b> | <b>Print Frequency</b>                           |
|------------------|--|
| Title            | Once at the start of the report                  |
| Page Header      | At the top of each report page                   |
| Group Header     | At the start of each change in group field value |
| Record           | Once per composite record                        |
| Group Footer     | At the end of each change in group field value   |
| Page Footer      | At the bottom of each report page                |
| Summary          | Once at the end of the report                    |

**Calculated field**

A field created in R&R whose value is calculated as a report is generated. You specify a formula that R&R uses to calculate the field's value; for example, PRICE\*QUANTITY multiplies the value of the PRICE field by the value of the QUANTITY field to produce a calculated field value.

**Composite record**

A single record (row) from the composite record structure.

**Composite record structure**

The combination of all fields from all tables (master and related) used by a report, as well as all calculated and total fields created in that report.

**Controlling table**

The table used to initiate a database relation (that is, the table that contains the linking field for a relation).

**Data Dictionary**

Data Dictionary is an R&R utility program that allows you to provide meaningful descriptions for field names, set default alias names for tables, set default display formats for fields and define calculations that will be available across reports.

**Data files**

Files that contain specific data used to generate a report. Data files include database or table files, index files, and memo files.

**Data type**

The type of data a field contains. Fields can have one of six data types: character, numeric, date, date/time, logical, or memo. Data types determine the available display formats and the types of calculations and comparison operators that can be used for a field.

**Database**

A collection of logically-related tables. For example, an Employees database might include the tables EMPLOYEE, for employee names and addresses; BENEFITS, for benefits information; and SALARIES, for salary information.

**Database field**

A field that is contained in database table. The contents of database fields are maintained outside of R&R.

**Database relation**

A link defined between two tables so that data from both tables is available for a report.

**Exact lookup**

A type of database relation in which R&R locates the first record in the related table whose index key value (or record number for record number links) matches the value of the linking field in the controlling table. An exact lookup only brings back a single related record.

**Export**

Export allows you to send the output of a report to an external file such as a text file, a spreadsheet or a database file.

**Expression**

A formula used to compute a value using fields, constants, operators, and functions.

**Failure action**

In a database relation, specifies the action R&R should take if there is no matching record in the related table for a record in the controlling table. R&R can leave the related table field blank, skip the entire composite record, or terminate processing.

**Field**

The basic unit of information in a table or in the composite record structure.

**Flexlink Index**

A Flexlink index is one that R&R can build on the fly for use in a database relation. To use Flexlink you specify the related table and build an index expression that will be used to match the selected linking field.

**Footer**

A band type. A report can have Page Footers, which print once at the bottom of every page, or Group Footers, which print once at the end of each group. Page Footers often contain information such as page numbers and dates. Group Footers often contain summary information for each group, such as a group total.

**Freeform Line**

A freeform band line is a line whose height has been adjusted. Free form band lines will contain blue sizing arrows in the Line status area on the left of the report designer layout screen.

**Function**

A function allow you to performs a special operation such as converting lowercase letters to uppercase or calculating the number of days between two dates. Functions always return a single value and may require one or more arguments that are used for their computation. R&R includes over 100 pre-defined functions and also allows you to create your own special use functions, called User-Defined Functions (UDFs).

**Group field**

A field used to determine break levels in a report so that records having the same group value can be aggregated. For example, in a customer report you can use a COUNTRY field to group customers by country. R&R allows up to eight group levels in a report.

**Group footer**

A footer that prints once for each change in group field value. Group Footers often contain summary information for the group. For example, in a customer report grouped by country, a Group Footer might include a total field that counts the number of customers in each country.

**Group header**

A header that prints once for each change in group field value. For example, in a customer report grouped by country, a Group Header might include the country name.

**Header**

A band type. Reports can have Page Headers, which print once at the top of every page, or Group Headers, which print once at the beginning of each group. Page Headers often contain information such as page numbers and dates. Group Headers often contain the name of the group field or column headings.

**Index files**

Database files that enable R&R to access information in a table file quickly. Indexes are associated with a particular database table and es contain data that is ordered by an index key which can contain both fields and expressions. A compound index such as a CDX or MDX may contain multiple index tags. For example an EMPLOYEE file might have an index with a tag called EMPNO whose expression is the EMPNO field and another tag called NAME whose expression is UPPER(LNAME)+UPPER(FNAME).

**Instant Report**

An Instant Report is an option for creating a new report. Selecting Instant Report prompts you to select a database table and then creates report layout consisting of a record band containing as many fields in the master table as will fit horizontally with field names above each on a page header band, as well as title, summary, and page footers.

**Library file**

File structures used in earlier releases of R&R that act as "file folders" to contain report definitions. Version 10 can read reports from report library files but cannot write back to a library.

**Linking field**

In a database relation, the field in the controlling table that is used to search for matching records in the related table. The index key field or expression from the related table must contain the same value as the linking field in the controlling table.

**Lookup**

A type of database relation in which there is a one-to-one matching of each record in the controlling table with a single record in the related table. R&R provides two types of lookup relations: Exact and Approximate. There are also a number of lookup functions that allow you to bring back a single field from an exact lookup relation.

**Master index**

An index for the master table of a report that determines the order in which R&R will read data from that table.

**Master table**

The table that serves as the primary source of data for a report. R&R will always read all records from the master table.

**Memo files**

Database files that contain text and, optionally, field references that R&R uses to generate merge documents such as form letters. R&R can use two types of memo files: database memo files or text memo files.

**Multiple Scan**

A multiple scan report is one where a parent file has two or more scan relations to child files. These file are scanned in the sequence defined using the Database Relations Group button.

**New Page Line**

A New Page line is a band line option that tells R&R to start a new page. A New Page line appears on the report layout as a dashed line.

**Open Scripting**

Open Scripting allows you to use a specially formatted text file to create a single file report that can be used by either the Report Designer or runtime.

**Operator**

A symbol (such as a plus sign) that performs an operation within an expression. R&R provides five types of operators: arithmetic, date, character, relational, and logical.

**Page Footer**

An area of a report containing data that will print or display at the bottom of each report page.

**Page Header**

An area of a report containing data that will print or display at the top of each report page.

**Parameter field**

A parameter field is a calculated constant whose value can be determined when a report is executed through user input to a Parameter value entry screen. Parameters are often used to supply information for report queries.

**Partial Relation**

A type of database relation in which R&R matches a specified number of characters of the linking field to the same number of characters of the index key value. Partial matches are required when the linking field matches only the first part of an index key expression. For example a linking field of DEPT would require a partial match to an index whose expression is DEPT+CODE.

**Pre-processed total**

A Pre-processed total is a total whose Options processing has been changed from the default value of running. A pre-processed total is computed by a preliminary pass through the database to derive a group or grand total. This allow you to use this total in a header or to create percent of total calculation.

**Query**

A set of user-defined selection rules that are used to test whether to include or exclude records within a report. For example you may have a daily transaction database with 5 years of data but may want to report on only last month's transactions.

### **Rapid Runner**

Rapid Runner is a menu driven utility program that can be used automate and batch the execution of reports.

**Reference Information**

License Agreement

Data Types Supported by R&R

What's New in Version 11

Glossary

**Record**

A row of information in a database table or in a composite record structure.

**Record number**

The number of a record in a table. Record number order is usually the order in which the data was originally entered into the table. A table record number is always unique within a table.

**Related table**

In a database relation, the table that is joined to the controlling table. To generate a report that draws information from more than one table, you first define database relations among the related tables you want to use. Unlike the master table, only matching records from a related table are available in a report. If you have a customer table and an order table, selecting the customer table as the master file will allow you to find only orders that have a matching customer record. To see all orders (including those without a customer match) you would need to select the order file rather than the customer file as your master file.

**Report Librarian**

Report Librarian is a utility program that allow you to track the location and contents of report files.

### **Report Specifications**

A Report Specification is a document that lists the complete contents of a report. To create a report specification, you use the command File Print to display the print dialog. In the Print What list at the bottom left, click the right area and select the third choice Report Specification.

**Report Wizard**

You can select Report Wizard to create a new report. This wizard allows you to create either a label, basic columnar or grouped columnar report layout using a set of simple selection screens. This report can then be edited within the Report Designer just as if it had been created manually.

**Result set**

A result set consists of all of the active report fields from composite records that are built by Report Designer. You can both view and export result sets during report design.

**Ruler spacing**

R&R allows you to control the horizontal and vertical ruler spacing for the report designer layout screen. This spacing control the number of increments per inch on each ruler and also controls the grid of dots that can optionally be displayed. Changes in ruler will impact the spacing between fields on the layout.

**Runtime**

Runtime allows you to execute reports created by the Report Designer without needing to use a Report Designer license. Runtime consists of a set of freely redistributable files.

**Runtime Shortcuts**

Runtime Shortcuts can be created using the Quick Runtime Shortcuts utility program. This program is menu driven utility that allows you to create Windows shortcuts to run R&R reports using R&R runtime.

**Scan relation**

A type of database relation that establishes a one-to-many relationship between table records; in other words, R&R uses each record in the controlling table to search for all the corresponding records in the scanned table.

**Scope**

A user-defined restriction on the range of records to be read from the master table. By specifying a range of index values or record numbers, you can tell R&R to read only selected records in the master table.

**Snap to grid**

Enabling Format Snap to Grid causes fields placed on the report layout to be aligned/snapped to the nearest grid dot. It also controls the available free form line height size in Band Line Properties.

**Sort field**

A field that you select in R&R that controls the order in which data is presented from the composite record structure.

**Summary**

An area of a report containing data that will print or display at the end of the report or, optionally, on a separate page.

**Swap header/footer**

Swap header/footer is an available option within Database Group Order. When swap header or footer is enabled, a new page is started for each group change. Any swap header is printed in place of the page header for the first page of the group and any swap footer is printed in place of the page footer for the last page of the group. To work appropriately, the report layout needs to have an equal area of group and and page lines.

**Table**

A database file containing fields (columns) and records (rows).

**Template**

A template is a report definition with a specialized purpose. It uses a different file extension and is designed to serve as a starting point for a series of reports. You can create and modify templates in the same way as you do for reports.

**Text memo file**

A specially designed text file used to supply memo fields to a report.

**Title**

An area of a report containing data that will print or display once at the beginning of the report or, optionally, on a separate page.

**Total field**

A field that contains summary information such as subtotal and total figures. The value of a total field is calculated according to the total options you select.

**Trim**

A field setting that controls whether R&R removes or retains blank space between fields on the same line in your report.

**User-defined function**

A function that processes field values according to an expression or formula that you define. You can create UDFs to perform complex operations beyond those available through the use of predefined functions.

## **Updated Charting Support**

We have updated the graphics support library routines that are used for creating charts in R&R from Version 5 to the latest 6.2 Graphics Server release.

### ***Using R&R Wizards***

#### **Using the Label Wizard**

**Selecting and Arranging Label Data**

**Determining Printing Order**

**Specifying Label Type or Dimensions**

#### **Using the Basic Columnar Wizard**

**Selecting and Arranging Data**

**Defining Totals**

**Determining Printing Order**

**Defining Band Areas**

#### **Using the Grouped Columnar Wizard**

**Selecting and Arranging Data**

**Defining Totals**

**Determining Printing Order**

Defining Band Areas

# Index

\*

|                           |               |
|---------------------------|---------------|
| * wildcard character..... | 433           |
| in expressions.....       | 433           |
| in queries.....           | 750, 751, 752 |

?

|                                  |     |
|----------------------------------|-----|
| ? wildcard character.....        | 433 |
| in expressions.....              | 433 |
| <b>in Line Status area</b> ..... | 250 |
| in queries.....                  | 751 |

@

|                            |     |
|----------------------------|-----|
| @ wildcard character ..... | 433 |
| in expressions.....        | 433 |
| in queries.....            | 752 |

A

|   |                  |
|---|------------------|
| A4 paper.....                                     | 860              |
| ABS .....   | 545              |
| Absolute value.....                               | 545              |
| Accumulation frequency.....                       | 478, 479         |
| ActiveX Viewer Control.....                       | 916              |
| exporting to .....                                | 916              |
| <b>ActiveX Viewer Control Export dialog</b> ..... | 1370             |
| ADDDAYS .....                                     | 546              |
| Adding calculations to the Data Dictionary .....  | 440              |
| ADDMONS.....                                      | 547              |
| ADDWKS .....                                      | 548              |
| ADDYRS .....                                      | 549              |
| AGED .....  | 550              |
| <b>Alias</b> .....                                | 389, 408         |
| <b>Aligning</b> .....                             | 815              |
| <b>Boxes</b> .....                                | 815              |
| Images.....                                       | 850              |
| <b>Lines</b> .....                                | 1103             |
| Aligning fields.....                              | 242              |
| Aligning Multiple Fields.....                     | 305              |
| <b>Alignment</b> .....                            | 1229, 1240, 1292 |
| Alignment buttons.....                            | 129              |
| Alignment tab.....                                | 131, 295, 1240   |
| <b>Alphabetical List of Error Messages</b> .....  | 1072             |
| <b>Alt+F4</b> .....                               | 146              |
| <b>annotation</b> .....                           | 1255             |
| <b>Annotations</b> .....                          | 1247             |
| <b>Approximate lookup</b> .....                   | 1318, 1320       |
| <b>Approximate Lookup relations</b> .....         | 359              |
| Arguments.....                                    | 671              |
| Arithmetic operators.....                         | 429              |
| ASC .....   | 551              |

|  |                    |
|--|--------------------|
| ASCII.....                                     | 558                |
| <i>conversion</i> .....                        | 558                |
| Asterisks.....                                 | 435                |
| <i>indicating evaluation errors</i> .....      | 435                |
| <i>indicating field width errors</i> .....     | 437                |
| AT .....                                       | 552                |
| Attributes .....                               | 988                |
| <i>applying</i> .....                          | 988, 990           |
| <b>Author box</b> .....                        | 215                |
| Auto.....                                      | 129, 246           |
| <b>Auto Recovery</b> .....                     | 63                 |
| Auto Save .....                                | 324                |
| <b>Auto Total</b> .....                        | 1245               |
| Auto Total dialog.....                         | 163, 462, 1245     |
| <b>Auto Total Name</b> .....                   | 1123               |
| Automatic lines.....                           | 244                |
| Automatic totals .....                         | 462, 1245          |
| Automatic trim .....                           | 240                |
| <i>and field alignment</i> .....               | 242                |
| Avery labels .....                             | 854, 866           |
| <br><b>B</b>                                   |                    |
| <b>Background</b> .....                        | 820                |
| <b>for boxes</b> .....                         | 820                |
| Backslash .....                                | 426                |
| <i>in calculated field expressions</i> .....   | 426                |
| <i>in queries</i> .....                        | 755                |
| <b>in text memo files</b> .....                | 983                |
| Band Area.....                                 | 137                |
| <b>Band Line Properties</b> .....              | 1295               |
| <b>Band Line Properties Condtion Tab</b> ..... | 1125               |
| <b>Band Line Properties dialog</b> .....       | 223, 246, 968, 970 |
| <b>Logical Field</b> .....                     | 248, 898           |
| <b>New Page Line setting</b> .....             | 899, 902           |
| <b>Scan Table</b> .....                        | 961, 973           |
| <b>Scan Table setting</b> .....                | 960, 969           |
| <b>Band Line Properties Height Tab</b> .....   | 1126               |
| <b>Band lines</b> .....                        | 1294               |
| <b>copying</b> .....                           | 234                |
| <b>moving</b> .....                            | 234                |
| <b>Batch totals</b> .....                      | 1245               |
| <i>Begin New Line on Semicolon</i> .....       | 870                |
| Blank lines .....                              | 1013               |
| <i>printing</i> .....                          | 870, 1013          |
| <i>suppressing</i> .....                       | 870, 1013          |
| <b>Blank Report</b> .....                      | 1298               |
| Blank spaces .....                             | 634                |
| <i>inserting</i> .....                         | 634                |
| <i>trimming</i> .....                          | 240, 429           |
| BLANKNUM .....                                 | 553                |
| BMP .....                                      | 833                |
| Bold.....                                      | 130                |
| <i>applying to fields</i> .....                | 130                |

|                                     |           |
|-------------------------------------|-----------|
| <b>Border</b> .....                 | 1246      |
| <b>Borders</b> .....                | 817       |
| <b>Bottom margin</b> .....          | 897       |
| <b>Box</b> .....                    | 1246      |
| <b>Boxes</b> .....                  | 813, 1229 |
| <b>extending across pages</b> ..... | 826       |
| <b>Foreground</b> .....             | 820       |
| <b>Pattern</b> .....                | 820       |
| <i>Break Line on New</i> .....      | 303       |
| <i>Break Record Area</i> .....      | 870, 898  |

## C

|  |                    |
|--|--------------------|
| <b>Calc button</b> .....                           | 402                |
| <i>Calculated field expressions</i> .....          | 406                |
| <i>backslash in</i> .....                          | 426                |
| <i>copying</i> .....                               | 408                |
| <i>entering</i> .....                              | 406                |
| <i>errors in evaluating</i> .....                  | 435                |
| <i>expressions in</i> .....                        | 408                |
| <i>fields in</i> .....                             | 408                |
| <i>functions in</i> .....                          | 408, 540           |
| <i>key expressions in</i> .....                    | 408                |
| <i>operators in</i> .....                          | 408                |
| <i>user</i> .....                                  | 408                |
| <b>Calculated fields</b> .....                     | 709, 762, 1261     |
| <b>as linking fields</b> .....                     | 363, 381           |
| <b>creating</b> .....                              | 402, 413           |
| <b>Deleting</b> .....                              | 447                |
| <b>editing</b> .....                               | 442, 675, 1248     |
| <b>expressions</b> .....                           | 415                |
| <b>in calculated field expressions</b> .....       | 443                |
| <i>in expressions</i> .....                        | 426                |
| <b>in Field Menu</b> .....                         | 404                |
| <b>in multiple</b> .....                           | 960                |
| <b>in queries</b> .....                            | 443, 763           |
| <b>in totals</b> .....                             | 443                |
| <b>naming</b> .....                                | 402                |
| <i>question mark before name</i> .....             | 675, 677           |
| <i>width of</i> .....                              | 437, 443           |
| <i>Calculated Fields dialog</i> .....              | 163, 447           |
| <b>Calculated fields in multiple</b> .....         | 964                |
| <b>Calculated/Total Field Comment dialog</b> ..... | 1255               |
| <i>Calculating</i> .....                           | 459                |
| <i>averages</i> .....                              | 459                |
| <i>dates</i> .....                                 | 549                |
| <i>standard deviations</i> .....                   | 459                |
| <i>variances</i> .....                             | 458, 459           |
| <i>Calculations commands</i> .....                 | 462                |
| <i>Auto Total</i> .....                            | 462                |
| <i>Calculated Field</i> .....                      | 163, 402, 442, 443 |
| <i>Purge Calculations</i> .....                    | 163                |
| <i>Total Field</i> .....                           | 163, 455           |
| <i>User Function</i> .....                         | 163                |

|  |  |
|--|--|
| <i>CAPFIRST</i> .....                  | 554                                      |
| <i>Capitalization</i> .....            | 658                                      |
| <i>CASE</i> .....                      | 555, 1012                                |
| <b>Case sensitivity</b> .....          | 351                                      |
| <b>changing</b> .....                  | 351                                      |
| <i>CDLL</i> .....                      | 556                                      |
| <i>CDOW</i> .....                      | 557                                      |
| <b>Centering</b> .....                 | 303                                      |
| <i>data fields</i> .....               | 303                                      |
| <b>fields</b> .....                    | 238, 242                                 |
| <i>text fields</i> .....               | 300                                      |
| <i>Changing</i> .....                  | 303                                      |
| <i>field format</i> .....              | 303                                      |
| <i>format of embedded fields</i> ..... | 1010                                     |
| <i>width of embedded fields</i> .....  | 1010                                     |
| <i>Character constants</i> .....       | 427                                      |
| <i>Character expressions</i> .....     | 597                                      |
| <i>calculating length of</i> .....     | 597                                      |
| <i>repeating</i> .....                 | 624                                      |
| <i>replacing</i> .....                 | 642                                      |
| <i>searching</i> .....                 | 596, 627                                 |
| <i>truncating</i> .....                | 596, 627                                 |
| <i>Character fields</i> .....          | 1253                                     |
| <i>format</i> .....                    | 303                                      |
| <i>Character operators</i> .....       | 429                                      |
| <i>Character Set</i> .....             | 996                                      |
| <b>chart</b> .....                     | 1131, 1135, 1139                         |
| <b>Anchoring</b> .....                 | 803                                      |
| <b>inserting</b> .....                 | 770                                      |
| <b>Modifying</b> .....                 | 776                                      |
| <b>selecting Type</b> .....            | 771                                      |
| <b>Special considerations</b> .....    | 800                                      |
| <b>specifying Style</b> .....          | 771                                      |
| <i>Styles</i> .....                    | 784                                      |
| <b>Chart button</b> .....              | 770                                      |
| <b>Chart property sheet</b> .....      | 770                                      |
| <b>Data tab</b> .....                  | 772, 786                                 |
| <b>Font tab</b> .....                  | 774, 794                                 |
| <b>Options tab</b> .....               | 774, 792                                 |
| <i>Style tab</i> .....                 | 782                                      |
| <b>Text tab</b> .....                  | 773, 790                                 |
| <b>Type tab</b> .....                  | 779                                      |
| <b>Charting</b> .....                  | 1131, 1231, 1233, 1234, 1235, 1236, 1237 |
| <b>Data</b> .....                      | 1231                                     |
| <b>Font</b> .....                      | 1233                                     |
| <b>Options</b> .....                   | 1234                                     |
| <b>Style</b> .....                     | 1235                                     |
| <b>Text</b> .....                      | 1236                                     |
| <b>Type</b> .....                      | 1237                                     |
| <i>Charting reports</i> .....          | 944                                      |
| <i>Charts</i> .....                    | 944                                      |
| <i>Check boxes</i> .....               | 174                                      |
| <i>CHR</i> .....                       | 558                                      |

|   |                    |
|---|--------------------|
| <i>Clipboard</i> .....                                  | 836                |
| <i>pasting images from</i> .....                        | 836                |
| <b>Clipboard image</b> .....                            | 1254               |
| <b>CLOOKUP</b> .....                                    | 361, 559           |
| <b>Close Dialog After Inserting Field setting</b> ..... | 260                |
| <i>CMONTH</i> .....                                     | 432, 560           |
| <b>Collate Copies setting</b> .....                     | 875                |
| <i>Collate setting</i> .....                            | 885                |
| <b>Collating</b> .....                                  | 1308               |
| <i>Color</i> .....                                      | 1110               |
| <b>applying to boxes</b> .....                          | 817                |
| <i>applying to fields</i> .....                         | 278                |
| <b>Color coding</b> .....                               | 313                |
| <i>Combo boxes</i> .....                                | 167                |
| <b>Command</b> .....                                    | 176                |
| <i>Command buttons</i> .....                            | 172                |
| <i>selecting</i> .....                                  | 172                |
| <b>comment</b> .....                                    | 1255               |
| <b>Comments</b> .....                                   | 1247, 1284         |
| <b>Adding to reports</b> .....                          | 215                |
| <i>for total fields</i> .....                           | 439, 488           |
| <b>Compared To edit box</b> .....                       | 1276               |
| <b>Comparison operators</b> .....                       | 716                |
| <b>in queries</b> .....                                 | 716                |
| <b>Composite records</b> .....                          | 358, 359, 360, 363 |
| <i>in multiple</i> .....                                | 957                |
| <b>Compound document file</b> .....                     | 180                |
| <i>Compress Record</i> .....                            | 870, 898, 1013     |
| <i>Concatenation</i> .....                              | 429                |
| <i>Condition expression</i> .....                       | 486                |
| <b>Conditional Expression</b> .....                     | 1128               |
| <i>Connectors</i> .....                                 | 733                |
| <i>in queries</i> .....                                 | 733                |
| <i>Constants</i> .....                                  | 427                |
| <i>character</i> .....                                  | 427                |
| <i>date</i> .....                                       | 427                |
| <i>in expressions</i> .....                             | 427                |
| <i>logical</i> .....                                    | 427                |
| <i>numeric</i> .....                                    | 427                |
| <b>Container files</b> .....                            | 396                |
| <i>Controlling table</i> .....                          | 355                |
| <i>Converting reports</i> .....                         | 1067               |
| <i>COPY</i> .....                                       | 561                |
| <b>Copy button</b> .....                                | 234                |
| <i>Copying</i> .....                                    | 408                |
| <i>calculated field expressions</i> .....               | 408                |
| <b>Copying a Calculated Field</b> .....                 | 445                |
| <b>Copying a Parameter field</b> .....                  | 532                |
| <b>Copying a report</b> .....                           | 1256, 1306         |
| <i>Copying a Total Field</i> .....                      | 470                |
| <b>Copying band lines</b> .....                         | 234                |
| <i>Counting</i> .....                                   | 458                |
| <i>records</i> .....                                    | 458                |

|   |                  |
|---|------------------|
| <i>words</i> .....                                      | 660              |
| <b>Create Band Line dialog</b> .....                    | 227              |
| <b>Create Report without Master Table</b> .....         | 1298             |
| <b>Create Report Without Master Table setting</b> ..... | 185              |
| <i>Creating</i> .....                                   | 413              |
| <i>calculated fields</i> .....                          | 413              |
| <b>queries</b> .....                                    | 738              |
| <i>Total fields</i> .....                               | 455              |
| <i>user</i> .....                                       | 669              |
| <i>Creating and Using a System UDF file</i> .....       | 683              |
| <b>Creating database relations</b> .....                | 363              |
| <b>Creating lines</b> .....                             | 1294             |
| <b>Creating relations</b> .....                         | 1320             |
| <b>creating totals</b> .....                            | 1333             |
| <b>Creating UDFs</b> .....                              | 1340             |
| <b>Crosstab</b> .....                                   | 1132, 1136, 1138 |
| <i>Crosstab reports</i> .....                           | 949              |
| <i>CTDT</i> .....                                       | 562              |
| <i>CTOD</i> .....                                       | 427, 563         |
| <i>CTOS</i> .....                                       | 564              |
| <i>CTOT</i> .....                                       | 565              |
| <b>Ctrl+C</b> .....                                     | 147, 234, 264    |
| <i>Ctrl+F11</i> .....                                   | 155, 227, 231    |
| <b>Ctrl+N</b> .....                                     | 146              |
| <b>Ctrl+O</b> .....                                     | 146, 193         |
| <b>Ctrl+P</b> .....                                     | 146              |
| <b>Ctrl+S</b> .....                                     | 146              |
| <b>Ctrl+V</b> .....                                     | 147, 234, 265    |
| <b>Ctrl+X</b> .....                                     | 147, 234, 265    |
| <b>Ctrl+Z</b> .....                                     | 147, 235, 266    |
| <i>Currency format</i> .....                            | 290              |
| <i>Current date</i> .....                               | 566              |
| <i>printing</i> .....                                   | 566              |
| <i>Current time</i> .....                               | 648              |
| <i>printing</i> .....                                   | 648              |
| <b>Cut button</b> .....                                 | 234              |

## D

|  |                              |
|--|------------------------------|
| <b>Data Dictionary Table Pairs</b> ..... | 83                           |
| <i>Data type</i> .....                   | 591                          |
| <i>checking</i> .....                    | 591, 593, 594                |
| <i>conversion</i> .....                  | 558, 563, 574, 578, 638, 659 |
| <b>numeric</b> .....                     | 540, 671                     |
| <i>of expressions</i> .....              | 417                          |
| <i>of UDF arguments</i> .....            | 671                          |
| <b>Data types</b> .....                  | 1048                         |
| <i>Database commands</i> .....           | 161                          |
| <i>Group Order</i> .....                 | 161, 692                     |
| <i>Master Table</i> .....                | 161, 386                     |
| <i>Query</i> .....                       | 161, 738                     |
| <i>Relations</i> .....                   | 161, 363, 376, 978           |
| <i>Sort Order</i> .....                  | 161                          |
| <i>View Result Set</i> .....             | 161                          |

|  |   |
|--|---|
| <b>Database container files</b> .....      | 396   |
| <b>Database memo editor</b> .....          | 985, 986  |
| <b>Database relations</b> .....            | 363, 380, 381, 384                                    |
| <b>Approximate Lookup</b> .....            | 359   |
| <b>based on partial matching</b> .....     | 384   |
| <b>creating</b> .....                      | 363   |
| <b>deleting</b> .....                      | 371   |
| <b>Exact Lookup</b> .....                  | 358   |
| <b>removing</b> .....                      | 371   |
| <b>Scan</b> .....                          | 360, 956  |
| <i>DATE</i> .....                          | 432, 566, 681   |
| <i>Date constants</i> .....                | 427   |
| <i>Date differences</i> .....              | 568   |
| <i>calculating</i> .....                   | 568, 609, 662, 665                                    |
| <i>Date fields</i> .....                   | 1258  |
| <i>format of</i> .....                     | 286   |
| <i>Date formats</i> .....                  | 286   |
| <i>abbreviated</i> .....                   | 286   |
| <i>full</i> .....                          | 286   |
| <i>Windows Long</i> .....                  | 286   |
| <i>Windows Short</i> .....                 | 286   |
| <i>Date operators</i> .....                | 429   |
| <i>Dates</i> .....                         | 429   |
| <i>calculating</i> .....                   | 429, 643, 644, 646, 647                               |
| <i>converting</i> .....                    | 557, 560, 563, 567, 572, 573, 578, 610, 620, 661, 664 |
| <i>printing</i> .....                      | 566   |
| <i>selecting records by</i> .....          | 752   |
| <i>Datetime</i> .....                      | 288   |
| <i>adding</i> .....                        | 574   |
| <i>calculating difference</i> .....        | 575   |
| <i>converting</i> .....                    | 649, 650  |
| <i>DateTime Expressions</i> .....          | 422   |
| <b>Datetime fields</b> .....               | 1257  |
| <i>Datetime formats</i> .....              | 288   |
| <i>DAY</i> .....                           | 567   |
| <i>Day of the week</i> .....               | 557   |
| <i>printing</i> .....                      | 557   |
| <i>DAYSBTWN</i> .....                      | 568, 681  |
| <b>DBC files</b> .....                     | 396   |
| <i>DBF</i> .....                           | 569   |
| <i>DCX</i> .....                           | 833   |
| <i>Decimal places</i> .....                | 290   |
| <i>Declarations</i> .....                  | 671   |
| <i>Default Data Folder setting</i> .....   | 337   |
| <b>Default directories</b> .....           | 1287  |
| <i>Default File Settings dialog</i> .....  | 159, 1259   |
| <i>Default Image Folder setting</i> .....  | 339   |
| <i>Default index file</i> .....            | 344   |
| <b>Default margins</b> .....               | 1287  |
| <i>Default Report Folder setting</i> ..... | 338   |
| <b>Default Settings</b> .....              | 1287  |
| <b>Logical Strings</b> .....               | 331   |
| <b>Ruler Spacing</b> .....                 | 330   |

|   |                    |
|---|--------------------|
| <i>Default Settings dialog</i> .....          | 159, 275, 326, 855 |
| <i>Default template folder</i> .....          | 341                |
| <i>Defaults</i> .....                         | 1259               |
| <i>Template folder</i> .....                  | 341                |
| <b>Define Index Expression dialog</b> .....   | 363                |
| <b>Del</b> .....                              | 147                |
| <i>DELETED</i> .....                          | 570                |
| <i>Deleted status</i> .....                   | 570                |
| <i>listing</i> .....                          | 570                |
| <b>Dialog boxes</b> .....                     | 165                |
| <b>using</b> .....                            | 165                |
| <i>DIB</i> .....                              | 833                |
| <b>Dictionary</b> .....                       | 1366               |
| <b>Directories</b> .....                      | 1259, 1287         |
| <b>Displaying</b> .....                       | 738                |
| <b>queries</b> .....                          | 738                |
| <b>DLOOKUP</b> .....                          | 361, 571           |
| <i>DOW</i> .....                              | 572, 673           |
| <i>DQTR</i> .....                             | 573                |
| <b>Drag and drop</b> .....                    | 260                |
| <b>Drawing boxes</b> .....                    | 813                |
| <b>Drawing lines</b> .....                    | 809                |
| <i>DTEADD</i> .....                           | 574                |
| <i>DTEDIFF</i> .....                          | 575                |
| <i>DTEPART</i> .....                          | 576                |
| <i>DTLOOKUP</i> .....                         | 577                |
| <i>DTOC</i> .....                             | 578                |
| <i>DTTOC</i> .....                            | 579                |
| <b>Duplicate Exported Field Warning</b> ..... | 1143               |
| <b>Duplicate Field Export Warning</b> .....   | 90                 |
| <i>Duplicate values</i> .....                 | 698                |

## E

|  |                |
|--|----------------|
| <i>Edit boxes</i> .....                | 169            |
| <i>Edit Calculation dialog</i> .....   | 442, 443, 1248 |
| <i>displaying with F2</i> .....        | 163            |
| <b>Edit commands</b> .....             | 235            |
| <b>Clear</b> .....                     | 147, 235, 266  |
| <b>Copy</b> .....                      | 147, 234, 264  |
| <b>Cut</b> .....                       | 147, 234, 265  |
| <b>Duplicate Fields</b> .....          | 147            |
| <b>Links</b> .....                     | 147            |
| <b>Move Fields</b> .....               | 147, 265       |
| <b>Object</b> .....                    | 147            |
| <b>Paste</b> .....                     | 147            |
| <b>Paste Fields</b> .....              | 264            |
| <b>Paste Lines</b> .....               | 234            |
| <b>Paste Special</b> .....             | 1018           |
| <b>Undo</b> .....                      | 147            |
| <b>Undo Last Clear</b> .....           | 235            |
| <b>Undo Last Move</b> .....            | 265            |
| <b>Edit Parameter Validation</b> ..... | 1145           |
| <i>Edit Reset</i> .....                | 464, 1275      |

|  |  |
|--|--|
| <b>Edit Total Accumulation</b> .....                   | 1146                                     |
| <b>Edit Total Condition</b> .....                      | 1147                                     |
| <i>Edit Total dialog</i> .....                         | 163                                      |
| <i>displaying with F2</i> .....                        | 163                                      |
| <b>Edit Total Name</b> .....                           | 1148                                     |
| <b>Edit Total Processing</b> .....                     | 1149                                     |
| <b>Edit Total Reset</b> .....                          | 1150                                     |
| <b>Edit Total Type</b> .....                           | 1151                                     |
| <i>Edit User Function dialog</i> .....                 | 675                                      |
| <i>Editing</i> .....                                   | 675                                      |
| <i>calculated fields</i> .....                         | 675                                      |
| <b>Editing calculated fields</b> .....                 | 1248                                     |
| <b>Editing relations</b> .....                         | 1318                                     |
| <b>Editing text fields</b> .....                       | 1336                                     |
| <b>Editing totals</b> .....                            | 1332                                     |
| <b>Editing UDFs</b> .....                              | 1337                                     |
| <b>Editing user functions</b> .....                    | 1337                                     |
| <b>Embedded fields</b> .....                           | 983                                      |
| <i>Embedded object</i> .....                           | 1023                                     |
| <i>Modifying</i> .....                                 | 1023                                     |
| <b>Enhanced Field Lists</b> .....                      | 69                                       |
| <b>Enhanced Ruler Display</b> .....                    | 64                                       |
| <b>Enhanced Undo and Redo</b> .....                    | 68                                       |
| <i>Entering</i> .....                                  | 406                                      |
| <i>calculated field expressions</i> .....              | 406                                      |
| lists in queries .....                                 | 730                                      |
| Entering Numeric Values .....                          | 722                                      |
| Entering String Values .....                           | 720                                      |
| <i>Envelope feeder</i> .....                           | 861                                      |
| <i>Selecting as paper source</i> .....                 | 861                                      |
| <i>EPS</i> .....                                       | 833                                      |
| <b>Equaltoqueryoperator</b> .....                      | 716                                      |
| <b>Erasing</b> .....                                   | 371                                      |
| <b>a database relation</b> .....                       | 371                                      |
| <i>ERROR</i> .....                                     | 580                                      |
| <i>Error values</i> .....                              | 435                                      |
| <i>customizing</i> .....                               | 436                                      |
| <i>defining</i> .....                                  | 580                                      |
| <i>sorting</i> .....                                   | 435                                      |
| <i>Escape character in queries</i> .....               | 755                                      |
| <b>Exact lookup</b> .....                              | 1318, 1320                               |
| <b>Exact Lookup relations</b> .....                    | 358                                      |
| <i>Excel 5.0 PivotTable Specification Dialog</i> ..... | 950                                      |
| <b>Excel Chart Specification dialog</b> .....          | 1131                                     |
| <i>Executive paper</i> .....                           | 860                                      |
| <i>EXP</i> .....                                       | 581                                      |
| <i>Exponentiation</i> .....                            | 429                                      |
| <i>in calculations</i> .....                           | 581                                      |
| <i>export</i> .....                                    | 1131, 1132, 1135, 1139, 1238, 1281, 1368 |
| <i>ActiveX Viewer Control</i> .....                    | 916                                      |
| <i>HTML</i> .....                                      | 913                                      |
| <i>to Rich Text Format (RTF)</i> .....                 | 911                                      |
| <i>to Worksheet file</i> .....                         | 927                                      |

|   |                    |
|---|--------------------|
| to Xbase file .....                       | 927                |
| via MAPI .....                            | 904                |
| Export to Excel 5.0 Chart .....           | 944                |
| <b>Export to file</b> .....               | 146, 888           |
| <b>Exporting to ActiveX Control</b> ..... | 1370, 1371         |
| <b>Exporting to HTML</b> .....            | 1351               |
| <b>Exporting to text</b> .....            | 1279               |
| <b>Exporting to Worksheet</b> .....       | 1280               |
| <b>Exporting to Xbase</b> .....           | 1280               |
| <b>Expressions</b> .....                  | 415                |
| character .....                           | 418                |
| constants in .....                        | 427                |
| data type of .....                        | 417                |
| date .....                                | 420                |
| fields in .....                           | 426                |
| functions in .....                        | 432                |
| logical .....                             | 421                |
| memo .....                                | 423                |
| numeric .....                             | 419                |
| operators in .....                        | 429                |
| order of evaluation .....                 | 429                |
| parentheses in .....                      | 429                |
| user .....                                | 671, 679, 680, 681 |
| wildcard characters in .....              | 433                |
| <b>Extensions</b> .....                   | 1259               |

## F

|                                   |                    |
|-----------------------------------|--------------------|
| <b>F10</b> .....                  | 125, 145           |
| <b>F11</b> .....                  | 260                |
| <i>F2</i> .....                   | 163, 442           |
| <i>F3</i> .....                   | 157                |
| <i>F5</i> .....                   | 157, 276           |
| <b>F7</b> .....                   | 147, 265           |
| <b>F8</b> .....                   | 1111               |
| <i>F9</i> .....                   | 131, 145, 157, 223 |
| <i>Field</i> .....                | 242                |
| centering .....                   | 242                |
| <i>Field Comment dialog</i> ..... | 439, 488           |
| <b>Field comments</b> .....       | 1247               |
| <i>Field format</i> .....         | 303, 1010          |
| center .....                      | 303                |
| changing .....                    | 303                |
| character fields .....            | 302, 303           |
| currency .....                    | 290                |
| date fields .....                 | 286                |
| datetime fields .....             | 288                |
| identifying .....                 | 303                |
| left .....                        | 303                |
| logical fields .....              | 303                |
| <b>memo fields</b> .....          | 1003               |
| numeric fields .....              | 290                |
| right .....                       | 303                |
| text fields .....                 | 303                |

|  |                 |
|--|-----------------|
| <b>Field insert</b> .....                          | 1291            |
| <b>Field menu</b> .....                            | 404             |
| <b>calculated fields in</b> .....                  | 404             |
| <i>memo fields in</i> .....                        | 1000            |
| <i>question mark in</i> .....                      | 675             |
| <b>Field placement</b> .....                       | 1291            |
| <i>Field symbols</i> .....                         | 302, 303        |
| <i>Field Total Options Condition command</i> ..... | 486             |
| <i>Field width</i> .....                           | 437, 1009, 1010 |
| <i>in inches</i> .....                             | 284             |
| <i>Fields</i> .....                                | 163             |
| <i>aligning</i> .....                              | 242             |
| <i>alignment of</i> .....                          | 131             |
| <i>applying bold</i>                               |                 |
| <i>italic</i>                                      |                 |
| <i>underline to</i> .....                          | 130             |
| <b>centering</b> .....                             | 238             |
| <b>group</b> .....                                 | 693             |
| <i>in expressions</i> .....                        | 426             |
| <b>left</b> .....                                  | 238             |
| <b>right</b> .....                                 | 238             |
| <i>selecting</i> .....                             | 168             |
| <b>sort</b> .....                                  | 693             |
| <i>total</i> .....                                 | 163, 451        |
| <i>File</i> .....                                  | 888             |
| <i>printing to</i> .....                           | 888             |
| <i>File alias</i> .....                            | 408, 426        |
| <b>File commands</b> .....                         | 146             |
| <b>Close</b> .....                                 | 146             |
| <b>Exit</b> .....                                  | 146             |
| <b>Export</b> .....                                | 146             |
| <b>New</b> .....                                   | 146             |
| <b>Open</b> .....                                  | 146, 193        |
| <b>Page Setup</b> .....                            | 146             |
| <b>Print</b> .....                                 | 146, 874        |
| <b>Print Preview</b> .....                         | 146, 860        |
| <b>Properties</b> .....                            | 146, 215        |
| <b>Save</b> .....                                  | 146, 185        |
| <b>Save As</b> .....                               | 146             |
| <b>Send</b> .....                                  | 146             |
| <b>File export</b> .....                           | 1281            |
| <b>File Export ActiveX</b> .....                   | 1155            |
| <b>File Export HTML</b> .....                      | 1157            |
| <b>File Export MAPI</b> .....                      | 1158            |
| <b>File Export Options</b> .....                   | 1160            |
| <b>File Export Type</b> .....                      | 1165            |
| <b>File New</b> .....                              | 1282            |
| <b>File Properties dialog</b> .....                | 215, 1284       |
| <b>File relations</b> .....                        | 384             |
| <b>File Security</b> .....                         | 1168            |
| <b>File write access</b> .....                     | 332, 1287       |
| <b>Find and Replace in Expressions</b> .....       | 72              |
| <i>First</i> .....                                 | 168             |

|   |                    |
|---|--------------------|
| <i>First name</i> .....                   | 582                |
| <i>flipping</i> .....                     | 582                |
| <i>Fixed numeric format</i> .....         | 290                |
| <i>Fixed point numbers</i> .....          | 671                |
| <b>FlexLink</b> .....                     | 363                |
| <b>Flexlink Index Expression</b> .....    | 1169               |
| <b>Flexlink Index Key</b> .....           | 1171               |
| <b>Flexlink Indexes</b> .....             | 383                |
| <i>FLIP</i> .....                         | 582                |
| <i>Floating point numbers</i> .....       | 671                |
| <b>Font</b> .....                         | 1330               |
| <b>default</b> .....                      | 329                |
| <i>Font characteristics</i> .....         | 270                |
| <i>Fonts</i> .....                        | 989                |
| <i>applying</i> .....                     | 988, 989           |
| <i>proportional</i> .....                 | 300                |
| <i>scalable</i> .....                     | 989                |
| <b>Foreground</b> .....                   | 820                |
| <b>for boxes</b> .....                    | 820                |
| <i>Form letters</i> .....                 | 977, 978           |
| <i>blank lines in</i> .....               | 1013               |
| <i>conditionally including text</i> ..... | 1012               |
| <b>layout for</b> .....                   | 1002               |
| <i>page breaks in</i> .....               | 1014               |
| <b>printing</b> .....                     | 1004               |
| <b>sample layout</b> .....                | 1002               |
| <i>Format</i> .....                       | 651                |
| <i>TRANSFORM function</i> .....           | 651                |
| <i>word</i> .....                         | 303                |
| <b>Format Character ParameteRR</b> .....  | 1230               |
| <b>Format commands</b> .....              | 242                |
| <i>Band Line Justify</i> .....            | 157, 238, 242      |
| <i>Font</i> .....                         | 157, 276, 277      |
| <b>Properties</b> .....                   | 145, 157, 248, 295 |
| <i>Record Layout</i> .....                | 157, 865           |
| <i>Rulers</i> .....                       | 157                |
| <i>Snap to Grid</i> .....                 | 157                |
| <i>Trim</i> .....                         | 240                |
| <b>Format Date Field tab</b> .....        | 1258               |
| <b>Format Date ParameteRR</b> .....       | 1243               |
| <b>Format Date/Time ParameteRR</b> .....  | 1244               |
| <b>Format Datetime Field Tab</b> .....    | 1257               |
| <b>Format Numeric Field tab</b> .....     | 1301               |
| <b>Format Numeric ParameteRR</b> .....    | 1354               |
| <i>Format tab</i> .....                   | 290                |
| <i>for numeric field</i> .....            | 290                |
| <i>for numeric fields</i> .....           | 290                |
| <b>Format Time Field tab</b> .....        | 1331               |
| <i>Formatting ToolBar</i> .....           | 129                |
| <i>displaying and hiding</i> .....        | 129                |
| <i>Formulas</i> .....                     | 673                |
| <b>FoxPro</b> .....                       | 1048               |
| <i>Free Earlier Pages option</i> .....    | 881                |

|  |                    |
|--|--------------------|
| <i>Freeform lines</i> .....                  | 244                |
| <i>sizing</i> .....                          | 246                |
| <i>Function keys</i> .....                   | 878                |
| <i>for Print Preview</i> .....               | 878                |
| <i>Function menu</i> .....                   | 675                |
| <i>question mark in</i> .....                | 675                |
| <i>Functions</i> .....                       | 432                |
| <i>in calculated field expressions</i> ..... | 408                |
| <i>predefined</i> .....                      | 406, 408, 415, 540 |
| <i>user</i> .....                            | 406, 408, 415, 679 |
| <i>FUTURE</i> .....                          | 583                |

## G

|  |                    |
|--|--------------------|
| <i>GIF</i> .....                               | 833                |
| <b>Grand totals</b> .....                      | 493, 757           |
| <b>Graphic image</b> .....                     | 1290               |
| <i>Graphics</i> .....                          | 833                |
| <b>Greaterthanorequaltoqueryoperator</b> ..... | 716                |
| <b>Greaterthanqueryoperator</b> .....          | 716                |
| <b>Grid</b> .....                              | 313                |
| <b>turning on or off</b> .....                 | 313                |
| <i>Grid Snap</i> .....                         | 134, 330           |
| <b>Group button</b> .....                      | 692                |
| <b>Group failure action</b> .....              | 377, 971           |
| <b>Group fields</b> .....                      | 693                |
| <b>and the SCANNING function</b> .....         | 973                |
| <b>calculated fields</b> .....                 | 709                |
| <b>total fields</b> .....                      | 708                |
| <b>Group footers</b> .....                     | 491, 704, 870, 902 |
| <b>in multiple</b> .....                       | 961, 973           |
| <b>swapped</b> .....                           | 231, 701           |
| <b>Group Headers</b> .....                     | 870, 902           |
| <b>in multiple</b> .....                       | 961, 973           |
| <i>repeating</i> .....                         | 702                |
| <b>swapped</b> .....                           | 231, 700           |
| <b>Group Order dialog</b> .....                | 692, 1289          |
| <b>Group Order Dialog Box</b> .....            | 694                |
| <b>Group totals</b> .....                      | 491                |
| <b>Grouping</b> .....                          | 1289               |
| <i>Grouping records</i> .....                  | 699                |
| <i>and page numbering</i> .....                | 699                |
| <i>resetting page numbers</i> .....            | 699                |

## H

|                               |           |
|-------------------------------|-----------|
| <i>HALF</i> .....             | 584       |
| <i>Headers</i> .....          | 870       |
| <i>Highest number</i> .....   | 605       |
| <i>calculating</i> .....      | 605       |
| <i>HISCOPE</i> .....          | 585       |
| <i>Horizontal ruler</i> ..... | 134, 1327 |
| <i>HTML</i> .....             | 913       |
| <i>exporting to</i> .....     | 913       |

|                                 |      |
|---------------------------------|------|
| <b>HTML Export dialog</b> ..... | 1351 |
|---------------------------------|------|

## I

|  |   |
|--|---|
| <i>If586</i>                                 |   |
| <b>IgnoreU setting</b> .....                 | 1048                                    |
| <i>IIF</i> .....                             | 423, 427, 555, 586, 680, 964, 973, 1012 |
| <b>Image</b> .....                           | 1254, 1290                              |
| <i>Image file types</i> .....                | 833                                     |
| <b>Image folder</b> .....                    | 1259                                    |
| <i>Images</i> .....                          | 1229                                    |
| <i>Crop scaling setting</i> .....            | 847                                     |
| <i>File types supported in R&amp;R</i> ..... | 833                                     |
| <i>importing</i> .....                       | 835                                     |
| <i>pasting from Clipboard</i> .....          | 836                                     |
| <i>scaling</i> .....                         | 845                                     |
| <i>sizing</i> .....                          | 840                                     |
| <i>Stretch scaling setting</i> .....         | 848                                     |
| <i>Zoom scaling setting</i> .....            | 846                                     |
| <b>Indenting</b> .....                       | 328, 863, 1009                          |
| <b>Index</b> .....                           | 1300                                    |
| <b>Index Key Expression dialog</b> .....     | 1293                                    |
| <b>Index Tag Selection dialog</b> .....      | 1344                                    |
| <b>Index tags</b> .....                      | 1286                                    |
| <b>Indexes</b> .....                         | 1241, 1323, 1344                        |
| <i>INLIST</i> .....                          | 588                                     |
| <i>INRANGE</i> .....                         | 589                                     |
| <b>Insert</b> .....                          | 260                                     |
| <i>Insert commands</i> .....                 | 155                                     |
| <i>Band Line</i> .....                       | 155                                     |
| <i>Box</i> .....                             | 155                                     |
| <i>Chart</i> .....                           | 155, 770                                |
| <i>Create Band Line</i> .....                | 155, 227, 899                           |
| <b>Create Line</b> .....                     | 231                                     |
| <i>Field</i> .....                           | 155, 260                                |
| <i>Line</i> .....                            | 155, 229                                |
| <i>Object</i> .....                          | 155                                     |
| <i>Picture</i> .....                         | 155                                     |
| <i>Text File</i> .....                       | 155, 978, 996                           |
| <b>Insert Field dialog</b> .....             | 260, 1291                               |
| <b>Insert Picture from Field</b> .....       | 1176                                    |
| <b>Insert Selection Rule dialog</b> .....    | 738                                     |
| <i>Insert Text File dialog</i> .....         | 996                                     |
| <i>Inserting</i> .....                       | 744                                     |
| <i>elements in queries</i> .....             | 744                                     |
| <i>Inserting a Picture from Field</i> .....  | 837                                     |
| <b>Instant report</b> .....                  | 185, 1324                               |
| <b>Instant Reports</b> .....                 | 321                                     |
| <b>generating</b> .....                      | 182                                     |
| <i>INT</i> .....                             | 590                                     |
| <b>Inthelistqueryoperator</b> .....          | 716                                     |
| <b>Intherangequeryoperator</b> .....         | 716                                     |
| <b>Introduction</b> .....                    | 1031                                    |
| <i>Introduction to Data Dictionary</i> ..... | 1058                                    |

|   |      |
|---|------|
| <i>Introduction to Rapid Runner</i> .....     | 1061 |
| <i>Introduction to Report Librarian</i> ..... | 1056 |
| <i>ISALPHA</i> .....                          | 591  |
| <i>ISBLANK</i> .....                          | 592  |
| <i>ISLOWER</i> .....                          | 593  |
| <i>ISUPPER</i> .....                          | 594  |
| <i>Italic</i> .....                           | 130  |
| <i>applying to fields</i> .....               | 130  |

## J

|                  |     |
|------------------|-----|
| <i>JPG</i> ..... | 833 |
|------------------|-----|

## K

|   |      |
|---|------|
| <b>Key Expression dialog (multiple-key index)</b> ..... | 1286 |
| <i>Key expressions</i> .....                            | 408  |
| <i>in calculated field expressions</i> .....            | 408  |
| <b>Keywords box</b> .....                               | 215  |

## L

|   |                         |
|---|-------------------------|
| <i>Label Format settings</i> .....          | 866                     |
| <i>Labels</i> .....                         | 866                     |
| <i>Landscape mode</i> .....                 | 862                     |
| <i>Last name</i> .....                      | 582                     |
| <i>flipping</i> .....                       | 582                     |
| <i>LASTPAGE</i> .....                       | 595                     |
| <i>Layout Area</i> .....                    | 137                     |
| <i>Leading spaces</i> .....                 | 293                     |
| <i>trimming</i> .....                       | 603                     |
| <i>Leading Zeros setting</i> .....          | 293                     |
| <b>Left</b> .....                           | 238, 300, 303, 596      |
| <b>Left margin</b> .....                    | 328, 863                |
| <i>Legal paper</i> .....                    | 860                     |
| <i>LEN</i> .....                            | 597                     |
| <i>Length calculation</i> .....             | 597                     |
| <b>Lessthanorequaltoqueryoperator</b> ..... | 716                     |
| <b>Lessthanqueryoperator</b> .....          | 716                     |
| <i>Letter paper</i> .....                   | 860                     |
| <i>LIBNAME</i> .....                        | 598                     |
| <b>Line color</b> .....                     | 811                     |
| <b>Line draw</b> .....                      | 1296                    |
| <i>Line height</i> .....                    | 244, 897, 1295          |
| <i>Automatic</i> .....                      | 129                     |
| <b>effect on pagination</b> .....           | 896                     |
| <i>Freeform</i> .....                       | 129                     |
| <b>Line Justify</b> .....                   | 1292                    |
| <b>Line logical</b> .....                   | 1295                    |
| <b>Line printing</b> .....                  | 960                     |
| <b>conditional</b> .....                    | 248, 960, 961, 969, 973 |
| <b>Line Properties dialog</b> .....         | 811                     |
| <i>Line Status Area</i> .....               | 138, 246                |
| <b>Line thickness</b> .....                 | 811                     |
| <b>Lines</b> .....                          | 1229, 1294              |

|  |          |
|--|----------|
| <b>marking</b> .....                     | 222      |
| <b>selecting</b> .....                   | 222      |
| <b>Link Control</b> .....                | 382      |
| <b>Link directory</b> .....              | 1352     |
| <b>Linking fields</b> .....              | 359      |
| <b>and approximate matching</b> .....    | 359      |
| <b>and partial matching</b> .....        | 384      |
| <b>calculated</b> .....                  | 381      |
| <b>data type of</b> .....                | 363      |
| <i>List boxes</i> .....                  | 168      |
| <b>List Parameters</b> .....             | 1355     |
| <i>Lists</i> .....                       | 588      |
| <i>in calculations</i> .....             | 588      |
| <i>in queries</i> .....                  | 730      |
| <b>LLOOKUP</b> .....                     | 361, 599 |
| <i>LOG</i> .....                         | 600      |
| <i>Logarithm</i> .....                   | 581      |
| <i>in calculations</i> .....             | 581, 600 |
| <i>Logical constants</i> .....           | 427      |
| <i>Logical fields</i> .....              | 302      |
| <i>format of</i> .....                   | 302      |
| <i>Logical operators</i> .....           | 429      |
| <b>Logical strings</b> .....             | 331      |
| <b>default</b> .....                     | 331      |
| <b>Longer Computed Field Names</b> ..... | 71       |
| <b>Lookup functions</b> .....            | 361      |
| <b>Lookup relations</b> .....            | 359      |
| <b>Approximate</b> .....                 | 359      |
| <b>Exact</b> .....                       | 358      |
| <i>LOSCOPE</i> .....                     | 601      |
| <i>Low memory</i> .....                  | 881      |
| <i>during Print Preview</i> .....        | 881      |
| <i>LOWER</i> .....                       | 602      |
| <i>Lower case conversion</i> .....       | 602      |
| <i>Lowest number</i> .....               | 606      |
| <i>calculating</i> .....                 | 606      |
| <i>LTRIM</i> .....                       | 603      |
| <i>LUPDATE</i> .....                     | 604      |

## M

|                                  |                     |
|----------------------------------|---------------------|
| <i>Mail merge</i> .....          | 977, 978, 983, 1334 |
| <b>Mail Options Dialog</b> ..... | 937                 |
| <i>Mailing labels</i> .....      | 866                 |
| <i>Manual feed</i> .....         | 861, 886, 1311      |
| <b>Margins</b> .....             | 1287                |
| <b>Marking lines</b> .....       | 222                 |
| <b>Master index</b> .....        | 1300                |
| <b>Master Table</b> .....        | 1241                |
| <b>Master Table button</b> ..... | 386                 |
| <b>Master Table dialog</b> ..... | 389, 1298           |
| <b>scope settings</b> .....      | 386                 |
| <i>MAX</i> .....                 | 605                 |
| <i>Memo editor</i> .....         | 985, 986            |

|   |  |
|---|--|
| <i>specifying</i> .....                   | 322  |
| <i>Memo fields</i> .....                  | 978, 982, 1253                                   |
| <b>and word</b> .....                     | 1007   |
| <i>applying attributes to</i> .....       | 988, 990   |
| <i>applying fonts to</i> .....            | 988, 989   |
| <i>ASCII control characters in</i> .....  | 991  |
| <b>blank lines in</b> .....               | 985  |
| <i>conditional printing</i> .....         | 1012   |
| <i>format</i> .....                       | 303  |
| <b>format of</b> .....                    | 1003   |
| <i>format of embedded fields in</i> ..... | 1010   |
| <b>formatting</b> .....                   | 985  |
| <i>in queries</i> .....                   | 754  |
| <i>in tables</i> .....                    | 999  |
| <b>including data in</b> .....            | 983  |
| <b>indenting</b> .....                    | 986, 1009  |
| <b>line breaks in</b> .....               | 985  |
| <i>names of</i> .....                     | 1000   |
| <b>spaces in</b> .....                    | 985, 986   |
| <b>symbols for</b> .....                  | 1003   |
| <b>tabs in</b> .....                      | 985, 986   |
| <i>width of</i> .....                     | 1009   |
| <i>width of embedded fields in</i> .....  | 1010   |
| <i>Memos</i> .....                        | 978, 1334  |
| <b>Menu Bar</b> .....                     | 125  |
| <b>Merging data in memo fields</b> .....  | 983  |
| <i>MIN</i> .....                          | 606  |
| <i>MOD</i> .....                          | 607  |
| <i>MONLEN</i> .....                       | 608  |
| <i>MONSBTWN</i> .....                     | 609  |
| <i>Month</i> .....                        | 560, 610   |
| <i>printing</i> .....                     | 560  |
| <b>Moving band lines</b> .....            | 234  |
| <i>Multi</i> .....                        | 866  |
| <b>Multiple</b> .....                     | 375, 956, 957, 960, 961, 964, 968, 969, 973, 975 |
| <b>Multiple Field Alignment</b> .....     | 65   |
| <b>Multiple-key indexes</b> .....         | 1286, 1344                                       |
| <b>MultiTotal Accumulation</b> .....      | 1180   |
| <b>MultiTotal Condition</b> .....         | 1181   |
| <b>MultiTotal Processing</b> .....        | 1182   |
| <b>MultiTotal Reset</b> .....             | 1183   |
| <b>MultiTotal Select</b> .....            | 1184   |
| <b>MultiTotal Target</b> .....            | 1185   |
| <b>MultiTotal Type</b> .....              | 1186   |
| <i>Mutli Editing Totals</i> .....         | 466  |
| <b>N</b>                                  |  |
| <b>Name</b> .....                         | 1112   |
| <i>Names</i> .....                        | 582  |
| <i>reversing order of</i> .....           | 582  |
| <i>NDOW</i> .....                         | 611  |
| <b>New</b> .....                          | 382  |
| <b>New Calculation dialog</b> .....       | 402  |

|   |          |
|---|----------|
| <b>New Page Line setting</b> .....          | 231      |
| <b>effect on pagination</b> .....           | 896      |
| <b>New ParameteRR validation</b> .....      | 1188     |
| <b>New Relation dialog</b> .....            | 363      |
| <i>New Total dialog</i> .....               | 455      |
| <i>New User Function dialog</i> .....       | 670      |
| <b>NLOOKUP</b> .....                        | 361, 612 |
| <b>No ParameteRR fields available</b> ..... | 1609     |
| <b>No Records Found Band Line</b> .....     | 66       |
| <b>No records found band lines</b> .....    | 252      |
| <b>Not equal toqueryoperator</b> .....      | 716      |
| <b>Notinthelistqueryoperator</b> .....      | 716      |
| <b>Notintherangequeryoperator</b> .....     | 716      |
| <i>NOW</i> .....                            | 613      |
| <i>Number of records</i> .....              | 622      |
| <i>printing</i> .....                       | 622      |
| <i>Number of words</i> .....                | 660      |
| <i>printing</i> .....                       | 660      |
| <i>Numbers</i> .....                        | 635      |
| <i>spelling</i> .....                       | 635      |
| <i>Numeric constants</i> .....              | 427      |
| <b>Numeric expressions</b> .....            | 540, 671 |
| <i>converting to integer</i> .....          | 590      |
| <i>rounding</i> .....                       | 629      |
| <i>Numeric fields</i> .....                 | 1301     |
| <i>format</i> .....                         | 290      |
| <i>format of</i> .....                      | 290      |

## O

|   |            |
|---|------------|
| <i>Object Linking and Embedding (OLE)</i> ..... | 1016       |
| <b>Object Properties dialog</b> .....           | 1302       |
| <b>Object Tags tab</b> .....                    | 1371       |
| <i>OLE</i> .....                                | 1016, 1302 |
| <i>OLE automation</i> .....                     | 944, 949   |
| <b>OLE Objects</b> .....                        | 1229       |
| <b>Open Report (from Library)</b> .....         | 1322       |
| <b>Open Template (from Library)</b> .....       | 1322       |
| <i>Operators</i> .....                          | 429        |
| <i>arithmetic</i> .....                         | 429        |
| <i>character</i> .....                          | 429        |
| <i>date</i> .....                               | 429        |
| <i>in calculated field expressions</i> .....    | 408        |
| <i>in expressions</i> .....                     | 429        |
| <i>logical</i> .....                            | 429        |
| <i>order of evaluation</i> .....                | 429        |
| <i>precedence of evaluation</i> .....           | 429        |
| <i>relational</i> .....                         | 429        |
| <i>string</i> .....                             | 429        |
| <i>Options commands</i> .....                   | 159        |
| <i>Chart Settings Settings</i> .....            | 159        |
| <i>Default Settings</i> .....                   | 159, 326   |
| <i>File Settings</i> .....                      | 159, 334   |
| <i>Preferences</i> .....                        | 159, 320   |

|  |      |
|--|------|
| <b>Options Preferences AutoSave</b> .....    | 1190 |
| <b>Options Preferences Display</b> .....     | 1191 |
| <b>Options Preferences Field Lists</b> ..... | 1192 |
| <b>Options Preferences File New</b> .....    | 1193 |
| <b>Options Preferences Memo Editor</b> ..... | 1194 |
| <b>Output to file</b> .....                  | 1308 |
| <i>OVER</i> .....                            | 614  |

## P

|                                     |                         |
|-------------------------------------|-------------------------|
| <b>Page breaks</b> .....            | 231, 870, 896, 899      |
| <b>and word</b> .....               | 900                     |
| <b>Page Footers</b> .....           | 231, 701, 870           |
| <b>Page Headers</b> .....           | 231, 700, 702, 870      |
| <b>Page layout</b> .....            | 1311                    |
| <i>Page length</i> .....            | 860, 897                |
| <b>Page margins</b> .....           | 328                     |
| <b>left</b> .....                   | 328                     |
| <i>right</i> .....                  | 863                     |
| <b>top</b> .....                    | 328, 863                |
| <i>Page numbers</i> .....           | 699                     |
| <i>printing</i> .....               | 615                     |
| <i>resetting</i> .....              | 699                     |
| <b>Page orientation</b> .....       | 897                     |
| <b>Page Setup</b> .....             | 1311                    |
| <i>Page Setup dialog</i> .....      | 855, 857                |
| <b>Page Setup settings</b> .....    | 857                     |
| <b>defining</b> .....               | 857                     |
| <b>effect on pagination</b> .....   | 896                     |
| <i>Page totals</i> .....            | 484                     |
| <i>PAGENO</i> .....                 | 484, 615, 709, 762, 866 |
| <b>Pagination</b> .....             | 870, 896, 899, 1014     |
| <i>and Group Footers</i> .....      | 870, 902                |
| <i>and Group Headers</i> .....      | 870, 902                |
| <b>see Page Breaks</b> .....        | 231                     |
| <b>Paper Size</b> .....             | 327, 860, 1287, 1311    |
| <i>user defined</i> .....           | 860                     |
| <i>Paper source</i> .....           | 886, 1311               |
| <i>selecting</i> .....              | 886                     |
| <i>Paper source setting</i> .....   | 861                     |
| <b>Paper tray selection</b> .....   | 1311                    |
| <b>ParameteRR</b> .....             | 715                     |
| <i>ParameteRR fields</i> .....      | 163                     |
| <b>ParameteRR Lists</b> .....       | 78                      |
| <b>ParameteRR Value Entry</b> ..... | 1345                    |
| <i>Parentheses</i> .....            | 429                     |
| <i>in expressions</i> .....         | 429                     |
| <i>in queries</i> .....             | 735                     |
| <i>nested</i> .....                 | 429                     |
| <b>Partial links</b> .....          | 384                     |
| <b>Partial scan relations</b> ..... | 361                     |
| <b>and indexes</b> .....            | 361                     |
| <b>Password Protection</b> .....    | 62                      |
| <i>PAST</i> .....                   | 616                     |

|  |                           |
|--|---------------------------|
| <b>Paste</b> .....                           | 1307                      |
| <b>Paste button</b> .....                    | 234                       |
| <b>Paste dialog</b> .....                    | 234                       |
| <i>Paste Function Arguments</i> .....        | 408, 673                  |
| <b>Paste Special</b> .....                   | 1018, 1020, 1122          |
| <b>Pasting multiple fields</b> .....         | 265                       |
| <i>Pathname</i> .....                        | 569                       |
| <i>calculating</i> .....                     | 569                       |
| <i>Pattern</i> .....                         | 750                       |
| <i>Pause Print Process option</i> .....      | 881                       |
| <i>PCT</i> .....                             | 833                       |
| <i>PCX</i> .....                             | 833                       |
| <i>PDOW</i> .....                            | 617                       |
| <i>Percent</i> .....                         | 483, 499                  |
| <i>Percent format</i> .....                  | 290                       |
| <i>PERCOMP</i> .....                         | 618                       |
| <b>Picture File Selection dialog</b> .....   | 1303                      |
| <i>Picture file types</i> .....              | 833                       |
| <b>Picture Properties dialog</b> .....       | 1290                      |
| <i>Pictures</i> .....                        | 835                       |
| <i>inserting</i> .....                       | 835                       |
| <i>PivotTable</i> .....                      | 949, 1132, 1136, 1138     |
| <b>Point size</b> .....                      | 329                       |
| <b>default</b> .....                         | 329                       |
| <i>Portrait mode</i> .....                   | 862                       |
| <b>Pre</b> .....                             | 496, 708, 757, 758, 759   |
| <i>Precedence of evaluation</i> .....        | 429                       |
| <i>in calculated field expressions</i> ..... | 429                       |
| <i>in queries</i> .....                      | 733, 735                  |
| <i>Precedence of operators</i> .....         | 429                       |
| <b>Preferences</b> .....                     | 1324                      |
| <i>Preferences dialog</i> .....              | 159, 319, 320             |
| <i>Blank Report setting</i> .....            | 321                       |
| <i>Both setting</i> .....                    | 323                       |
| <i>Display Dialog setting</i> .....          | 321                       |
| <i>Field Names setting</i> .....             | 323                       |
| <i>Instant Report setting</i> .....          | 321                       |
| <i>Report Template setting</i> .....         | 321                       |
| <i>Report Wizards setting</i> .....          | 321                       |
| <b>Preview</b> .....                         | 1356                      |
| <b>Preview Window</b> .....                  | 1356                      |
| <i>PREVIOUS</i> .....                        | 619                       |
| <b>Print button</b> .....                    | 1004                      |
| <b>Print dialog</b> .....                    | 217, 855, 875, 1004, 1308 |
| <i>Print Preview</i> .....                   | 860, 878                  |
| <b>Print to file</b> .....                   | 1308                      |
| <i>Print To File dialog</i> .....            | 888                       |
| <b>Printer Properties dialog</b> .....       | 876                       |
| <i>Printing</i> .....                        | 1308                      |
| <i>blank lines</i> .....                     | 870                       |
| <i>horizontally on page</i> .....            | 862                       |
| <i>repeating data</i> .....                  | 698                       |
| <i>vertically on page</i> .....              | 862                       |

|                                     |      |
|-------------------------------------|------|
| <i>Printing to a file</i> .....     | 888  |
| <i>Printing to a PDF file</i> ..... | 890  |
| <i>Program item</i> .....           | 1063 |
| <b>Prompt Text Dialog</b> .....     | 1310 |
| <i>Properties</i> .....             | 131  |
| <i>Properties dialog</i> .....      | 1009 |

## Q

|                                      |           |
|--------------------------------------|-----------|
| <i>QTR</i> .....                     | 620       |
| <i>Quarter</i> .....                 | 620       |
| <i>calculating</i> .....             | 620       |
| <i>converting to date</i> .....      | 573       |
| <b>Queries</b> .....                 | 716       |
| <b>and scopes</b> .....              | 387       |
| <i>and total fields</i> .....        | 758       |
| <i>calculated fields in</i> .....    | 763       |
| <b>comparison operators in</b> ..... | 716       |
| <i>comparison values in</i> .....    | 718       |
| <i>connectors in</i> .....           | 733       |
| <i>constants in</i> .....            | 718       |
| <b>creating</b> .....                | 738       |
| <b>displaying</b> .....              | 738       |
| <i>entering lists in</i> .....       | 730       |
| <i>fields in</i> .....               | 718       |
| <i>inserting elements in</i> .....   | 744       |
| <i>on calculated fields</i> .....    | 762       |
| <i>on total fields</i> .....         | 757, 759  |
| <i>parentheses in</i> .....          | 735       |
| <i>patterns in</i> .....             | 718       |
| <i>precedence in</i> .....           | 733, 735  |
| <i>wildcards in</i> .....            | 750, 751  |
| <i>QUERY</i> .....                   | 621       |
| <b>Query dialog</b> .....            | 738, 1313 |

## R

|                                     |               |
|-------------------------------------|---------------|
| <b>R&amp;R Open Scripting</b> ..... | 1108          |
| <i>Radio buttons</i> .....          | 171           |
| <b>Range for printing</b> .....     | 1308          |
| <i>Ranges</i> .....                 | 589           |
| <i>in calculations</i> .....        | 589           |
| <i>RECCOUNT</i> .....               | 622           |
| <i>RECNO</i> .....                  | 623, 709, 762 |
| <i>Record band</i> .....            | 961           |
| <b>in multiple</b> .....            | 961           |
| <i>page breaks in</i> .....         | 870           |
| <i>suppressing</i> .....            | 870           |
| <i>Record copies</i> .....          | 866           |
| <i>field</i> .....                  | 866           |
| <i>number of</i> .....              | 866           |
| <i>Record height</i> .....          | 866           |
| <i>Record Layout</i> .....          | 1315          |
| <i>defining</i> .....               | 865           |

|  |                          |
|--|--------------------------|
| <i>Record Layout dialog</i> .....                          | 157, 855, 865, 866, 1013 |
| <i>Begin New Line on Semicolon</i> .....                   | 870                      |
| <b>Break Record Area</b> .....                             | 898                      |
| <b>Record Layout settings</b> .....                        | 896                      |
| <b>effect on pagination</b> .....                          | 896                      |
| <i>Record numbers</i> .....                                | 623                      |
| <i>in calculations</i> .....                               | 623                      |
| <b>Record width</b> .....                                  | 866                      |
| <b>and justifying lines</b> .....                          | 238                      |
| <i>Records</i> .....                                       | 866                      |
| <i>number across page</i> .....                            | 866                      |
| <i>Records Across</i> .....                                | 866, 902                 |
| <b>effect on pagination</b> .....                          | 898                      |
| <i>Regional Date settings</i> .....                        | 752                      |
| <b>Regional settings</b> .....                             | 1258                     |
| <b>Relate button</b> .....                                 | 363                      |
| <i>Related tables</i> .....                                | 355                      |
| <i>Relational operators</i> .....                          | 429                      |
| <b>Relations</b> .....                                     | 1318, 1320               |
| <i>Remainder</i> .....                                     | 607                      |
| <i>calculating</i> .....                                   | 607                      |
| <b>Removing</b> .....                                      | 371                      |
| <b>a database relation</b> .....                           | 371                      |
| <b>Repeat Header</b> .....                                 | 1289                     |
| <i>Repeating</i> .....                                     | 624                      |
| <i>character expression</i> .....                          | 624                      |
| <i>Group Headers</i> .....                                 | 702                      |
| <i>Repeating data</i> .....                                | 698                      |
| <i>printing</i> .....                                      | 698                      |
| <i>suppressing</i> .....                                   | 698                      |
| <b>Replace Calculated Expression</b> .....                 | 1212                     |
| <i>Replacing character expression</i> .....                | 642                      |
| <i>Replacing text within a Calculated Expression</i> ..... | 411                      |
| <i>REPLICATE</i> .....                                     | 624                      |
| <i>REPNAME</i> .....                                       | 625                      |
| <i>Report and Library Conversion Dialog</i> .....          | 1067                     |
| <b>Report comments</b> .....                               | 146, 1284                |
| <b>Report copy</b> .....                                   | 1256, 1306               |
| <b>Report definitions</b> .....                            | 180                      |
| <b>Report design</b> .....                                 | 960, 1002                |
| <b>Report dictionary</b> .....                             | 1366                     |
| <i>Report Dictionary Descriptions setting</i> .....        | 323                      |
| <b>Report folder</b> .....                                 | 1259                     |
| <b>Report layout</b> .....                                 | 960                      |
| <i>Report name</i> .....                                   | 625                      |
| <i>including in report</i> .....                           | 625                      |
| <b>Report Properties Properties</b> .....                  | 146                      |
| <b>Report Security</b> .....                               | 188                      |
| <b>Report specification</b> .....                          | 217                      |
| <b>Report templates</b> .....                              | 181                      |
| <i>Report Templates Templates</i> .....                    | 321                      |
| <b>Report transfer</b> .....                               | 1306                     |
| <b>Report Wizards</b> .....                                | 195                      |

|   |                               |
|---|-------------------------------|
| <i>REPORTPAGE</i> .....                     | 626                           |
| <b>Reports</b> .....                        | 180                           |
| <b>Adding comments to documenting</b> ..... | 215                           |
| <i>Reset</i> .....                          | 460, 1275                     |
| <i>Reset Page</i> .....                     | 699                           |
| <i>Resetting page numbers</i> .....         | 699                           |
| <b>Result Set Browser Window</b> .....      | 1104                          |
| <b>Result Set Help Screen</b> .....         | 1104                          |
| <i>Rich Text Format</i> .....               | 911                           |
| <b>Rich Text Format export</b> .....        | 1368                          |
| <b>Right</b> .....                          | 238, 300, 303, 627            |
| <i>Right margin</i> .....                   | 863                           |
| <i>RIPARAM</i> .....                        | 628                           |
| <i>ROUND</i> .....                          | 629                           |
| <i>Rounding numeric expressions</i> .....   | 629                           |
| <b>RR.UDF</b> .....                         | 667                           |
| <b>location of</b> .....                    | 667                           |
| <i>RRUNIN</i> .....                         | 630                           |
| <b>RRW.INI</b> .....                        | 1032                          |
| <b>RRW.SRT</b> .....                        | 351, 552, 639, 640, 641, 1040 |
| <b>RRWFIF.INI</b> .....                     | 1041                          |
| <b>RRWHANDLES setting</b> .....             | 353                           |
| <i>RTF</i> .....                            | 911, 1368                     |
| <i>RTRIM</i> .....                          | 631                           |
| <i>Ruler grid</i> .....                     | 313                           |
| <i>changing units of</i> .....              | 134                           |
| <b>Ruler spacing</b> .....                  | 1327                          |
| <b>Ruler Spacing default</b> .....          | 330                           |
| <i>Ruler Spacing dialog</i> .....           | 134                           |
| <i>Rulers</i> .....                         | 134                           |
| <i>Running totals</i> .....                 | 482, 494, 758                 |

## S

|                                       |                              |
|---------------------------------------|------------------------------|
| <b>Save As dialog</b> .....           | 1283                         |
| <b>Saving a Report</b> .....          | 187                          |
| <b>Saving a Report Template</b> ..... | 189                          |
| <b>Scaling</b> .....                  | 1290                         |
| <b>Scan</b> .....                     | 1320                         |
| <b>Scan conditions</b> .....          | 1295                         |
| <b>Scan Group dialog</b> .....        | 376, 971                     |
| <b>Scan order</b> .....               | 376, 971                     |
| <b>Scan relations</b> .....           | 360, 375, 956                |
| <i>SCANNING</i> .....                 | 632, 961, 964, 968, 973, 974 |
| <b>Scope</b> .....                    | 386, 1241                    |
| <i>in calculations</i> .....          | 585, 601                     |
| <i>scroll bars</i> .....              | 141, 313                     |
| <i>controlling display of</i> .....   | 320                          |
| <i>Searching</i> .....                | 596                          |
| <i>character expression</i> .....     | 596, 627                     |
| <b>Select Field Name</b> .....        | 1213                         |
| <b>Select Group Field</b> .....       | 1214                         |
| <b>Select Link Field</b> .....        | 1215                         |

|  |               |
|--|---------------|
| <b>Select Logical Field</b> .....          | 1216          |
| <b>Select Message Field</b> .....          | 1217          |
| <b>Select ParameteRR Scope field</b> ..... | 1218          |
| <b>Select Record Copies Field</b> .....    | 1219          |
| Select Report Source Dialog .....          | 1305          |
| <b>Select Send To Field</b> .....          | 1220          |
| <b>Select Sort Field Dialog</b> .....      | 1221          |
| <b>Select Subject Field</b> .....          | 1222          |
| <b>Select Target Field Dialog</b> .....    | 1223          |
| <b>Selecting</b> .....                     | 222           |
| <b>group failure action</b> .....          | 377           |
| <b>lines on report layout</b> .....        | 222           |
| <b>records</b> .....                       | 386, 387, 716 |
| <b>scan order</b> .....                    | 376           |
| Selecting Date and Datetime Values .....   | 724           |
| Selecting logical values .....             | 723           |
| <i>Selecting records</i> .....             | 752           |
| <i>by date</i> .....                       | 752           |
| <b>Selection Rule dialog</b> .....         | 1314          |
| <b>Selection rules</b> .....               | 716           |
| <i>joining</i> .....                       | 733           |
| <i>Semicolons</i> .....                    | 303           |
| <i>in word</i> .....                       | 303           |
| <b>Send Burst Report</b> .....             | 937           |
| <i>Send Via MAPI</i> .....                 | 904, 937      |
| <b>Shading</b> .....                       | 820, 1246     |
| <i>Shift+F11</i> .....                     | 155, 229      |
| <b>Shift+F4</b> .....                      | 248           |
| <b>Shift+F7</b> .....                      | 147           |
| <b>Shift+F8</b> .....                      | 330           |
| <i>Shortcut</i> .....                      | 1063          |
| <i>Shortcut Maker</i> .....                | 1063          |
| <i>Show</i> .....                          | 292           |
| Single Value Comparisons .....             | 729           |
| <b>Sizing</b> .....                        | 816           |
| <b>boxes</b> .....                         | 816           |
| <b>lines</b> .....                         | 810           |
| <b>Sizing images</b> .....                 | 1290          |
| <i>Snaked columns</i> .....                | 854, 866      |
| <i>Snap</i> .....                          | 129           |
| <b>Snap to grid</b> .....                  | 816, 840      |
| <i>Sort by sound</i> .....                 | 633           |
| <b>Sort fields</b> .....                   | 693           |
| <b>and the SCANNING function</b> .....     | 974           |
| <b>calculated fields</b> .....             | 709           |
| <b>total fields</b> .....                  | 708           |
| <b>Sort order</b> .....                    | 387, 1329     |
| <b>Sort Order dialog</b> .....             | 688           |
| <b>Sorting</b> .....                       | 1329          |
| <b>Sorting records</b> .....               | 387           |
| <b>levels of</b> .....                     | 708           |
| <i>SOUNDEX</i> .....                       | 633           |
| <i>SPACE</i> .....                         | 634           |

|  |                    |
|--|--------------------|
| <i>Spaces</i> .....                        | 293                |
| <i>in numeric fields</i> .....             | 293                |
| <i>trimming</i> .....                      | 603, 631, 654      |
| <i>SPELLNUM</i> .....                      | 635                |
| <i>splitter bar</i> .....                  | 137                |
| <i>SQRT</i> .....                          | 636                |
| <i>Square root</i> .....                   | 636                |
| <i>calculating</i> .....                   | 636                |
| <i>Standard Deviation</i> .....            | 459                |
| <b>Standard Toolbar</b> .....              | 126                |
| <b>Startup dialog</b> .....                | 185                |
| <i>Status Bar</i> .....                    | 141                |
| <i>STOC</i> .....                          | 637                |
| <i>STR</i> .....                           | 432, 638           |
| <i>STRCOUNT</i> .....                      | 639                |
| <i>String operators</i> .....              | 429                |
| <i>STRREP</i> .....                        | 640                |
| <i>STRSEARCH</i> .....                     | 641                |
| <i>STUFF</i> .....                         | 642                |
| <i>Style buttons</i> .....                 | 129                |
| <i>SUBDAYS</i> .....                       | 643                |
| <b>Subject box</b> .....                   | 215                |
| <i>SUBMONS</i> .....                       | 644                |
| <i>SUBSTR</i> .....                        | 645                |
| <i>Substring count</i> .....               | 639                |
| <i>Substring replace</i> .....             | 640                |
| <i>Substring search</i> .....              | 552, 641, 645, 663 |
| <b>Subtotals</b> .....                     | 491                |
| <i>SUBWKS</i> .....                        | 646                |
| <i>SUBYRS</i> .....                        | 647                |
| <b>Summary area</b> .....                  | 493                |
| <i>Summary band</i> .....                  | 870, 1295          |
| <b>support</b> .....                       | 1084               |
| <b>Support for &gt;2GB DBF files</b> ..... | 84                 |
| <b>Supported data types</b> .....          | 1048               |
| <i>Supported Image File Formats</i> .....  | 834                |
| <i>Suppress Record Lines</i> .....         | 870, 898, 902      |
| <i>Suppressing duplicate values</i> .....  | 698                |
| <i>Swap Footer</i> .....                   | 701, 1289          |
| <b>Swap Footers</b> .....                  | 231                |
| <i>Swap Header</i> .....                   | 700, 1289          |
| <b>Swap Headers</b> .....                  | 231                |
| <i>System time</i> .....                   | 648                |

## T

|   |          |
|---|----------|
| <b>Table alias</b> .....                      | 389      |
| <b>for master table</b> .....                 | 389      |
| <b>technical support</b> .....                | 1084     |
| <i>Template</i> .....                         | 651      |
| <b>Template folder</b> .....                  | 1259     |
| <b>Templates</b> .....                        | 181      |
| <i>Terminate Preview Process option</i> ..... | 881      |
| <i>Test pattern</i> .....                     | 884, 894 |

|   |               |
|---|---------------|
| <b>Text Data File export</b> .....        | 1238          |
| <i>Text Data File Export Dialog</i> ..... | 935           |
| <b>Text export</b> .....                  | 1281          |
| <i>Text Export Dialog</i> .....           | 909, 1279     |
| <b>Text fields</b> .....                  | 1336          |
| <i>alignment of</i> .....                 | 300           |
| <i>centering</i> .....                    | 300           |
| <i>format of</i> .....                    | 300           |
| <i>left</i> .....                         | 300           |
| <i>right</i> .....                        | 300           |
| <b>Text File dialog</b> .....             | 1334          |
| <i>Text File Dialog Box</i> .....         | 996           |
| <b>Text File Selection dialog</b> .....   | 1335          |
| <i>Text memo file</i> .....               | 345           |
| <i>default extension for</i> .....        | 345           |
| <i>Text memo files</i> .....              | 978           |
| <b>conventions for</b> .....              | 981           |
| <i>detaching</i> .....                    | 997           |
| <i>TGA</i> .....                          | 833           |
| <i>TIF</i> .....                          | 833           |
| <i>TIME</i> .....                         | 648           |
| <i>printing</i> .....                     | 648           |
| <i>Time fields</i> .....                  | 288           |
| <i>format of</i> .....                    | 288           |
| <i>Time formats</i> .....                 | 288           |
| <b>Title band</b> .....                   | 1295          |
| <i>TODATE</i> .....                       | 649           |
| <b>Toolbars</b> .....                     | 1343          |
| <b>ToolTips</b> .....                     | 1343          |
| <i>Top margin</i> .....                   | 863, 897      |
| <b>Total</b> .....                        | 476           |
| <b>processing</b> .....                   | 476           |
| <b>Total condition</b> .....              | 1140          |
| <i>Total Condition dialog</i> .....       | 486           |
| <b>Total field enhancements</b> .....     | 73            |
| <i>Total fields</i> .....                 | 163, 451, 708 |
| <i>Creating</i> .....                     | 455           |
| <b>description of</b> .....               | 490           |
| <i>errors in evaluating</i> .....         | 435           |
| <i>in calculations</i> .....              | 483, 496      |
| <i>in queries</i> .....                   | 483, 500, 758 |
| <i>location on report layout</i> .....    | 483, 494, 496 |
| <i>Naming</i> .....                       | 455, 457      |
| <b>position on report layout</b> .....    | 490           |
| <b>reset levels</b> .....                 | 490           |
| <i>Sorting on</i> .....                   | 483, 499      |
| <i>types of</i> .....                     | 458           |
| <b>using in report</b> .....              | 490           |
| <i>width</i> .....                        | 437           |
| <i>Total Fields dialog</i> .....          | 163, 1277     |
| <i>Edit Reset button</i> .....            | 464           |
| <i>Totals</i> .....                       | 1332, 1333    |
| <b>accumulation</b> .....                 | 476           |

|   |   |
|---|---|
| <i>default</i> .....                        | 478   |
| <i>manual adjustment of</i> .....           | 478, 479                                    |
| <i>Automatic</i> .....                      | 462   |
| <i>Average</i> .....                        | 458, 459                                    |
| <i>changing processing setting of</i> ..... | 482   |
| <i>Conditional</i> .....                    | 486   |
| <i>Count</i> .....                          | 458, 459                                    |
| <i>default accumulation of</i> .....        | 480   |
| <i>default processing setting</i> .....     | 482   |
| <b>Grand</b> .....                          | 490, 493                                    |
| <i>Grand Total</i> .....                    | 460   |
| <i>group</i> .....                          | 460, 490, 491                               |
| <i>highest value</i> .....                  | 459   |
| <i>in queries</i> .....                     | 757, 759                                    |
| <i>lowest value</i> .....                   | 459   |
| <i>Maximum</i> .....                        | 458   |
| <i>Minimum</i> .....                        | 458   |
| <i>of total fields</i> .....                | 480   |
| <b>page</b> .....                           | 490, 492                                    |
| <i>Page Total</i> .....                     | 460   |
| <i>performance of pre</i> .....             | 483   |
| <i>pre</i> .....                            | 482, 483, 484, 496, 499, 500, 708, 757, 759 |
| <i>processing</i> .....                     | 482   |
| <i>resetting</i> .....                      | 460, 491                                    |
| <i>running</i> .....                        | 482   |
| <i>Standard Deviation</i> .....             | 459   |
| <i>Sum</i> .....                            | 458, 459                                    |
| <i>types of</i> .....                       | 458   |
| <i>Variance</i> .....                       | 458, 459                                    |
| <i>Totals button</i> .....                  | 455   |
| <i>Totals fields</i> .....                  | 483   |
| <i>location on report layout</i> .....      | 483   |
| <i>Totals of totals</i> .....               | 484   |
| <i>TOTIME</i> .....                         | 650   |
| <i>Trailing spaces</i> .....                | 240   |
| <i>trimming</i> .....                       | 240, 429, 631, 654                          |
| <i>TRANSFORM</i> .....                      | 651   |
| <i>Trashcan button</i> .....                | 129, 235, 266                               |
| <i>TRIM</i> .....                           | 654   |
| <i>Trim button</i> .....                    | 129   |
| <i>Trim fields</i> .....                    | 241   |
| <i>Trimming</i> .....                       | 240   |
| <i>blank space</i> .....                    | 240   |
| <i>leading spaces</i> .....                 | 603   |
| <i>trailing spaces</i> .....                | 429, 631, 654                               |
| <i>Truncating</i> .....                     | 596   |
| <i>character expression</i> .....           | 596, 627                                    |
| <i>TTOC</i> .....                           | 655   |
| <i>TTOS</i> .....                           | 656   |

## U

|                      |          |
|----------------------|----------|
| <i>UDF</i> .....     | 408, 679 |
| <i>UDFNAME</i> ..... | 657      |

|   |   |
|---|---|
| <b>UDFs</b> .....                         | 1337, 1339, 1340                            |
| <i>Underline</i> .....                    | 130   |
| <i>applying to fields</i> .....           | 130   |
| <b>Undo Last Move</b> .....               | 265   |
| <b>Unsupported data types</b> .....       | 1048  |
| <b>Updated Charting Support</b> .....     | 1796  |
| <b>Updated Export</b> .....               | 89  |
| <b>Updated Parameter Dialog</b> .....     | 75  |
| <b>Upgrade information</b> .....          | 59  |
| <i>UPPER</i> .....                        | 658   |
| <i>Upper case conversion</i> .....        | 658   |
| <i>User</i> .....                         | 408, 667, 669, 671, 673, 675, 677, 680, 681 |
| <i>User Function dialog</i> .....         | 163   |
| <b>User functions</b> .....               | 1337  |
| <b>User Functions dialog</b> .....        | 1339  |
| <b>Using R&amp;R Report Wizards</b> ..... | 195   |
| <i>Using the Edit Reset Button</i> .....  | 468   |

## V

|                                      |           |
|--------------------------------------|-----------|
| <i>VAL</i> .....                     | 659       |
| <b>Value Lists Dialog</b> .....      | 1342      |
| <i>Variances</i> .....               | 458, 459  |
| <i>Vertical ruler</i> .....          | 134, 1327 |
| <i>View commands</i> .....           | 317       |
| <i>Field Names</i> .....             | 153, 317  |
| <i>Format Bar</i> .....              | 129       |
| <i>Grid</i> .....                    | 152       |
| <b>Horizontal Ruler</b> .....        | 1111      |
| <i>Toolbars</i> .....                | 129, 150  |
| <b>Vertical Ruler</b> .....          | 1111      |
| <b>View menu</b> .....               | 1343      |
| <b>View Ruler</b> .....              | 1228      |
| <b>Visual Basic</b> .....            | 195       |
| <b>Visual FoxPro</b> .....           | 396, 1048 |
| <b>Visual FoxPro 9 Support</b> ..... | 85        |

## W

|  |               |
|--|---------------|
| <i>WDCOUNT</i> .....                   | 660           |
| <i>WEEK</i> .....                      | 661           |
| <i>Widow</i> .....                     | 870, 896, 902 |
| <i>Width</i> .....                     | 866           |
| <i>of records</i> .....                | 866           |
| <b>Width tab</b> .....                 | 1253          |
| <i>Wildcards</i> .....                 | 433           |
| <i>in expressions</i> .....            | 433           |
| <i>in queries</i> .....                | 750, 751      |
| <i>querying for</i> .....              | 755           |
| <i>Windows Regional settings</i> ..... | 290, 347      |
| <b>Currency Format</b> .....           | 349           |
| <b>Date Format</b> .....               | 349           |
| <b>Number Format</b> .....             | 349           |
| <b>Unit of Measurement</b> .....       | 348           |

|  |  |
|--|--|
| <b>Wizards</b> .....                         | 195                                      |
| <i>WKSBTWN</i> .....                         | 662                                      |
| <i>WMF</i> .....                             | 833                                      |
| <i>WORD</i> .....                            | 302, 303, 663, 866, 896, 900, 1003, 1007 |
| <b>Word merge file export</b> .....          | 1238                                     |
| <i>Word order</i> .....                      | 582                                      |
| <b>Word wrap</b> .....                       | 1292                                     |
| <b>Word-wrap</b> .....                       | 1240                                     |
| <b>Worksheet export</b> .....                | 1280                                     |
| <i>Worksheet Export Options dialog</i> ..... | 927                                      |
| <i>WPG</i> .....                             | 833                                      |
| <b>Writable directory</b> .....              | 1352                                     |

## X

|  |          |
|--|----------|
| <b>Xbase export</b> .....                | 1280     |
| <i>Xbase Export Options dialog</i> ..... | 927, 929 |
| <i>Xbase functions</i> .....             | 406      |

## Y

|                      |          |
|----------------------|----------|
| <i>YEAR</i> .....    | 432, 664 |
| <i>YRSBTWN</i> ..... | 665      |

## Z

|                         |          |
|-------------------------|----------|
| <i>Zeros</i> .....      | 292      |
| <i>counting</i> .....   | 292      |
| <i>displaying</i> ..... | 292, 293 |