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Preface

This documentation describes how to create and style reports with Report Painter. Report Painter is available from the local environments area of Developer Studio.

**Note:** The WebFOCUS toolset generates the rich FOCUS fourth generation language. While this language is very extensive, the WebFOCUS toolset only supports a subset of the language and only specific syntax constructs. While the user can manually modify the content of these WebFOCUS procedures or files, there is no guarantee that the user will be able to open the modified procedure in the tool.

---

How This Manual Is Organized

This manual includes the following chapters:

<table>
<thead>
<tr>
<th>Chapter/Appendix</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Report Painter Basics</td>
<td>Provides an overview about the Report Painter layout, toolbars, and reporting features.</td>
</tr>
<tr>
<td>2 Creating Reports With Report Painter</td>
<td>Describes Report Painter reporting features, such as the inclusion of calculated values in reports, options for creating section subtotals, subheadings, and subfootings, control of column formatting, support for hyperlinking (or drill-down functionality), and integration with other business intelligence tools, such as the Financial Report Painter and data visualization.</td>
</tr>
<tr>
<td>3 Creating Guided Reports</td>
<td>Describes how to create Guided Reports in Report Painter. A Guided Report is a highly parameterized report that allows you to select fields and options that participate in a report at run time.</td>
</tr>
<tr>
<td>4 Styling Reports With Report Painter</td>
<td>Describes customized styling features in Report Painter, such as fonts, colors, and grids, styling triggered by conditions you define, embedded graphic images, customized external style sheets, and support for mailing labels and multi-pane reports.</td>
</tr>
</tbody>
</table>

Creating Reports With Report Painter  17
## Documentation Conventions

The following table describes the documentation conventions that are used in this manual.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THIS TYPEFACE</strong> or <strong>this typeface</strong></td>
<td>Denotes syntax that you must enter exactly as shown.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable) in syntax for a value that you or the system must supply.</td>
</tr>
<tr>
<td><strong>underscore</strong></td>
<td>Indicates a default setting.</td>
</tr>
<tr>
<td><strong>this typeface</strong></td>
<td>Represents a placeholder (or variable), a cross-reference, or an important term. It may also indicate a button, menu item, or dialog box option that you can click or select.</td>
</tr>
<tr>
<td><strong>Key + Key</strong></td>
<td>Indicates keys that you must press simultaneously.</td>
</tr>
<tr>
<td><strong>{ }</strong></td>
<td>Indicates two or three choices. Type one of them, not the braces.</td>
</tr>
<tr>
<td><strong>[ ]</strong></td>
<td>Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.</td>
</tr>
<tr>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td><strong>...</strong></td>
<td>Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis (...).</td>
</tr>
</tbody>
</table>
### Convention Description

- Indicates that there are (or could be) intervening or additional commands.

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To learn about the full range of available support services, ask your Information Builders representative about InfoResponse Online, or call (800) 969-INFO.

### Information You Should Have

To help our consultants answer your questions effectively, be prepared to provide the following information when you call:

- Your six-digit site code (xxxx.xx).
Your WebFOCUS configuration:

- The front-end software you are using, including vendor and release.
- The communications protocol (for example, TCP/IP or HLLAPI), including vendor and release.
- The software release.
- Your server version and release. You can find this information using the Version option in the Web Console.
- The stored procedure (preferably with line numbers) or SQL statements being used in server access.
- The Master File and Access File.

The exact nature of the problem:

- Are the results or the format incorrect? Are the text or calculations missing or misplaced?
- Provide the error message and return code, if applicable.
- Is this related to any other problem?
- Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- Is this problem reproducible? If so, how?
- Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- Do you have a trace file?
- How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

User Feedback

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Thank you, in advance, for your comments.
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Report Painter Basics

Report Painter provides you with many powerful reporting features that enable you to create and style complex reports. You can graphically paint the report on the Report Painter window, a graphical representation of the report page.

For details about the many Report Painter reporting features, see *Creating Reports With Report Painter* on page 123. For details about the sophisticated styling features of Report Painter, see *Styling Reports With Report Painter* on page 355.

**In this chapter:**

- Report Painter Layout and Toolbars
- Using the Object Inspector
- Viewing Options
- Business Intelligence Features
- Report Painter Limitations
- Field Properties and Report Options Dialog Boxes
Report Painter Layout and Toolbars

When Report Painter opens for a new report, it appears as shown in the following image.

The main elements of Report Painter are described in the following table.

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<th>Display Feature</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menu Bar</td>
<td>Displays pull-down menus for Report Painter.</td>
</tr>
<tr>
<td>Developer Studio Main Toolbar</td>
<td>Displays tool buttons and operational buttons, such as Open and Run with Message Viewer. For more information about the Main Toolbar, see the <em>Developer Studio Application Development Getting Started</em> manual.</td>
</tr>
<tr>
<td>Report Painter Toolbars</td>
<td>For a list of all Report Painter toolbars and their functions, see <em>Report Painter Toolbars</em> on page 25.</td>
</tr>
<tr>
<td>Object Inspector</td>
<td>Allows a user to add fields to a report, create sort groups, and view column, report, and image properties. For more information, see <em>Using the Object Inspector</em> on page 35.</td>
</tr>
</tbody>
</table>
### Display Feature

<table>
<thead>
<tr>
<th>Feature</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert Mode Symbol</td>
<td>The insert symbol is a large letter I, which indicates that you can add a field in the report window.</td>
</tr>
<tr>
<td></td>
<td>The following example shows the insert symbol between two fields in the Report Painter window.</td>
</tr>
<tr>
<td>Report Painter Window</td>
<td>Displays the fields that are included in the report. This window is a representation of the printed report page.</td>
</tr>
</tbody>
</table>

### Report Painter Toolbars

Report Painter contains built-in docked toolbars that you can show, hide, or move as needed. By default, most of the toolbars are docked in Report Painter. These docked toolbars can be moved from their original position, where they become floating toolbars and can be placed anywhere on your Report Painter window. The docked toolbar locks in place when you drag it to the top or bottom edge of the Report Painter window.

**Procedure: How to Show or Hide a Toolbar**

1. From the View menu, select Toolbars.
2. Click the toolbar you wish to show or hide.

A check mark next to the toolbar indicates it appears in the Report Painter window.

**Tip:** To quickly hide a floating toolbar, click the Close button in the upper-right hand corner of the toolbar.
**Procedure:** How to Move a Toolbar

Drag the move handle on a docked toolbar, or drag the title bar on a floating toolbar to another location. If you drag the toolbar to the bottom edge of the Report Painter window, it will snap in place and become a docked toolbar.

**Reference:** Columns Toolbar

The Columns toolbar contains buttons that are primarily used to perform functions on the selected columns. Depending upon your selection, certain toolbar buttons may be inactive or unavailable.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Detail" /></td>
<td>Displays the individual values of the selected fields when the report is executed. This button is selected by default when you open Report Painter.</td>
</tr>
<tr>
<td><img src="image" alt="Sum" /></td>
<td>Provides a total of all values for the selected numeric field when the report is executed.</td>
</tr>
<tr>
<td><img src="image" alt="By" /></td>
<td>Vertically sorts and groups data in a report by the values in the selected field. You can sort a report by more than one field.</td>
</tr>
<tr>
<td><img src="image" alt="Hierarchy" /></td>
<td>Sorts and formats a hierarchy with appropriate indentations that clearly show the parent and child relationships in a hierarchy. You can have multiple hierarchy sort fields in a report. <strong>Note:</strong> This option is only available when using a multi-dimensional data source. For more information, see Sorting Hierarchical Data in the Creating Reporting Applications With Developer Studio manual.</td>
</tr>
<tr>
<td><img src="image" alt="Across" /></td>
<td>Horizontally sorts and groups data in a report by the values in the selected field. You can sort a report by more than one field.</td>
</tr>
<tr>
<td><img src="image" alt="For" /></td>
<td>Enables you to structure financial reports row-by-row in the Financial Report Painter, based on the selected For field. , see the Creating Financial Reports manual.</td>
</tr>
<tr>
<td>Button</td>
<td>Definition</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td><img src="image" alt="Where/If" /></td>
<td>Allows you to select Where, If, Where Total, and Retrieval Limits. If Where, If, or Where Total is selected, the Expression Builder opens. If Retrieval Limits is selected, the Retrieval Limits dialog box opens.</td>
</tr>
</tbody>
</table>
| ![Forecast](image) | Opens the Forecast dialog box in which you can add a Forecast column to the report. This feature calculates trends in numeric data and predicts values beyond the range of values stored in the data source.  
For details about creating temporary fields in reports, see *Calculating Trends and Predicting Values With Forecast* on page 531. |
| ![Guided Reports](image) | Used with Guided Reports. Generates a parameter group from the selected column or columns. |
| ![Variable Mode](image) | Enables you to select a guided report variable mode.  
- One variable for each selected column. Creates one control for every selected column with all the selected field names as values.  
- One variable for all selected columns. Creates one control for all selected columns with all the selected field names as values. |
| ![Remove Column](image) | Removes a column or columns from the parameter group. The columns selected must be part of a parameter group to use this button. |
**Reference:  Heads and Footings Toolbar**

The Headings and Footings toolbar contains buttons that are used to add headings and footings to the report. You may also add Subtotals and Totals to columns in the report. Depending upon your selection, certain toolbar buttons may be inactive or unavailable.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Report Heading" /></td>
<td>Enables you to enter a report heading for the report. A report heading is text that appears above the page heading at the top of the first page in a report.</td>
</tr>
<tr>
<td><img src="image" alt="Page Heading" /></td>
<td>Enables you to enter a page heading in the report. A page heading is text that appears at the top of every page in a report.</td>
</tr>
<tr>
<td><img src="image" alt="Page Footing" /></td>
<td>Enables you to enter a page footing in the report. A page footing is text that appears at the bottom of every page in a report.</td>
</tr>
<tr>
<td><img src="image" alt="Report Footing" /></td>
<td>Enables you to enter a report footing for the report. A report footing is text that appears below the page footing at the bottom of the last page in a report.</td>
</tr>
<tr>
<td><img src="image" alt="SubHeading" /></td>
<td>Enables you to enter a subheading in the report. The subheading appears each time the selected sort (By) field changes. It is placed before the new value.</td>
</tr>
<tr>
<td><img src="image" alt="SubTotal" /></td>
<td>Displays a subtotal for numeric data whenever the value of the selected sort (By) field changes.</td>
</tr>
<tr>
<td><img src="image" alt="Totals" /></td>
<td>Displays a total to all numeric columns and rows in the Report Painter window. If a column or row total already exists, clicking <em>Total</em> adds the total type that is missing. If both a column and row total already exist, the Totals option is unavailable.</td>
</tr>
<tr>
<td><img src="image" alt="SubFooting" /></td>
<td>Enables you to enter a subfooting in the report. The subfooting appears each time the selected sort (By) field changes. It is placed after the new value.</td>
</tr>
</tbody>
</table>
**Reference: Prefix Toolbar**

The Prefix toolbar provides a drop-down menu of prefix operators that you can apply to a field. Clicking the down arrow enables you to switch prefix operators for the selected field.

**Tip:** The list of available operators adjusts to show those that are appropriate for the type of field you select. For example, the following image shows the prefix operators for a Detail field.

![Prefix Operators for Detail Field]

For more information about prefix operators, see *Operations You Can Perform on Fields* on page 130.

**Reference: Output Format Toolbar**

The Output Format toolbar enables you to select a styled report format directly from the Output Format toolbar. A complete list of styled, unstyled, and database report formats are available from the Report Options dialog box.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML</td>
<td>Enables you to select a styled report format from the Output Format drop-down list.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> For other available report formats, open the Report Options dialog box and select the desired output format. If you are opening a report that was created using the Document Composer tool, the output format cannot be changed.</td>
</tr>
<tr>
<td>Options</td>
<td>Opens the Report Options dialog box, from which you can change the properties of your report, apply formatting, add images, calculate values, apply selection criteria, and so on.</td>
</tr>
</tbody>
</table>
**Reference: Zoom Toolbar**

The Zoom toolbar specifies the size (magnification or scale) of the Report Painter window. The Zoom toolbar is off by default.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="100%" /></td>
<td>Specifies the size (magnification or scale) of the Report Painter window. Options are 100%, 75%, 50%, or 25%. The default value is 100%.</td>
</tr>
</tbody>
</table>

**Reference: General Toolbar**

The General toolbar contains buttons that provide quick access to commonly performed functions. The behavior of the button is determined either by the selected object or the previously performed command or action. Therefore, depending upon your location in Report Painter or previously performed actions, certain toolbar buttons may be inactive.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Save" /></td>
<td>Saves the entire report procedure to disk.</td>
</tr>
<tr>
<td><img src="image" alt="Execute" /></td>
<td>Executes the report.</td>
</tr>
<tr>
<td><img src="image" alt="Remove" /></td>
<td>Removes the selected item and places it on the clipboard.</td>
</tr>
<tr>
<td><img src="image" alt="Copy" /></td>
<td>Copies the selected item to the clipboard.</td>
</tr>
<tr>
<td><img src="image" alt="Paste" /></td>
<td>Inserts the content of the clipboard at the insertion point or replaces a selected item.</td>
</tr>
<tr>
<td><img src="image" alt="Delete" /></td>
<td>Deletes the selected item from the report.</td>
</tr>
<tr>
<td><img src="image" alt="Undo" /></td>
<td>Undoes the last command or action. This restores the report to the properties that existed prior to the last command or action.</td>
</tr>
<tr>
<td><img src="image" alt="Redo" /></td>
<td>If the last command or action was undone (using the Undo button), this performs the last command or action again.</td>
</tr>
<tr>
<td><strong>Button</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td><img src="image1.png" alt="Button" /></td>
<td>Toggles between displaying or hiding invisible fields in the body of the report.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Button" /></td>
<td>Toggles between displaying or hiding the Object Inspector.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Button" /></td>
<td>Converts the report to a Precision report. For more information, see <em>Creating Precision Reports</em> on page 296.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Button" /></td>
<td>Promotes the report to a Compound Document. The original report remains unchanged while a copy of that report is placed on the Document canvas, in the Document Composer. For more information see the <em>Creating Compound Reports With Document Composer</em> manual.</td>
</tr>
</tbody>
</table>

**Reference:** **Font Toolbar**

The Font toolbar contains buttons that are primarily used to apply styling to a selected item.

<table>
<thead>
<tr>
<th><strong>Button</strong></th>
<th><strong>Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Button" /></td>
<td>Applies styling only to the title component of the column.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Button" /></td>
<td>Applies styling only to the data component of the column.</td>
</tr>
<tr>
<td><img src="image7.png" alt="Button" /></td>
<td>Applies styling to the entire column, both title and data.</td>
</tr>
<tr>
<td><img src="image8.png" alt="Button" /></td>
<td>Changes the font type of the selected item.</td>
</tr>
<tr>
<td><img src="image9.png" alt="Button" /></td>
<td>Changes the font size of the selected item.</td>
</tr>
<tr>
<td><img src="image10.png" alt="Button" /></td>
<td>Increases the font size of the column object by one point.</td>
</tr>
<tr>
<td><img src="image11.png" alt="Button" /></td>
<td>Decreases the font size of the column object by one point.</td>
</tr>
<tr>
<td><strong>Button</strong></td>
<td><strong>Definition</strong></td>
</tr>
<tr>
<td>------------</td>
<td>---------------</td>
</tr>
<tr>
<td><img src="image" alt="Bold" /></td>
<td>Applies the bold style to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Italic" /></td>
<td>Applies the italic style to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Underline" /></td>
<td>Applies the underline style to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="WebFOCUS Underline" /></td>
<td>Applies the WebFOCUS language underline command to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Left Justification" /></td>
<td>Applies left justification to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Center Justification" /></td>
<td>Applies center justification to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Right Justification" /></td>
<td>Applies right justification to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Default Justification" /></td>
<td>Returns the default justification to the selected object.</td>
</tr>
<tr>
<td><img src="image" alt="Font Color" /></td>
<td>Enables you to change font color.</td>
</tr>
<tr>
<td><img src="image" alt="Match All Styles" /></td>
<td>The Match All Styles button has a drop-down list with options that are primarily used to copy format characteristics from one column and apply the characteristics to another column. To activate the button, you must multi-select two or more columns. When you click one of the options from the drop-down list, Report Painter copies the style from the first column selected and applies the style to all other selected columns. Depending upon your selection, certain toolbar buttons may be inactive or unavailable. The styling options are: Match All Styles, Match Font, Match Grid/Border, Match Background Color, Match Conditional Styling, Match Justification, Match Width Attributes.</td>
</tr>
</tbody>
</table>
**Button** | **Definition**
--- | ---
| | Opens the StyleSheet Selection dialog box, which enables you to reference or embed an external StyleSheet, use the default WebFOCUS StyleSheet, or apply no styling to your report. For more information, see *Using the StyleSheet File Selector* on page 421.

**Reference:** Setup Toolbar

The Setup toolbar contains buttons that are used to launch other graphical tools whose functionality may be needed before the report is complete, such as Define, Join, and Set.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
</table>
| | Launches the Define tool. The Define tool enables you to create a virtual field as a component in a reporting procedure. A virtual field is evaluated on each retrieved record that passes any selection criteria on the real fields. Define the virtual field by assigning a format and typing an expression or composing it using the calculator and the fields and functions listed in the tabbed panes in the Define tool window. The result of the expression is treated as though it were a real field stored in the data source.

For details about creating temporary fields in reports, see *Creating Temporary Fields* in the *Creating Reporting Applications With Developer Studio* manual. |
<p>| | Opens the Report Options dialog box at the Computes tab, enabling you to create a calculated value. For more information, see <em>Creating Temporary Fields With Report Painter</em> on page 473. |</p>
<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Join Tool" /></td>
<td>Launches the Join tool. If a report requires data from two or more related data sources, you can temporarily join the files and report from them as if they were one. Joined files remain physically separate, but are treated as one data source structure. The Join tool provides a graphical method for creating and manipulating all types of Joins. You must specify a host file, then a cross-referenced file to create a join. <strong>Note:</strong> Joins are not supported for cube data sources and therefore, the Join icon is unavailable. For instructions on creating joins, see <em>Joining and Merging Data Sources</em> in the <em>Creating Reporting Applications With Developer Studio</em> manual.</td>
</tr>
<tr>
<td><img src="image" alt="Universal Concatenation" /></td>
<td>Opens the Universal Concatenation dialog box, enabling you to retrieve data from unlike data sources in a single request. For more information, see <em>Universal Concatenation in Report Painter</em> on page 182.</td>
</tr>
<tr>
<td><img src="image" alt="Dimension Builder" /></td>
<td>Launches the Dimension Builder tool. The Dimension Builder tool allows you to create a temporary OLAP hierarchy and dimensions. Unlike the Synonym Editor, this tool does not modify the Master File. For instructions on creating dimensions, see <em>Analyzing Data in an OLAP Report</em> in the <em>Online Analytical Processing (OLAP)</em> manual.</td>
</tr>
<tr>
<td><img src="image" alt="Set Tool" /></td>
<td>Launches the Set tool. The Set tool enables you to customize procedure development. It controls the way that reports and graphs appear on the screen or printer, the content of reports and graphs, data retrieval characteristics that affect performance, and system responses to user requests. It also helps you set up your metadata and manipulate information, such as dates. For a list of SET commands, see <em>Customizing Your Environment</em> in the <em>Developing Reporting Applications</em> manual.</td>
</tr>
</tbody>
</table>
Tip: You can also launch these tools by selecting the Setup tab in the Object Inspector and double-clicking a component. If you right-click a component in the Object Inspector, you also have options to edit, insert, delete, or add a component.

Using the Object Inspector

The Object Inspector enables you to add fields to a report, create sort groups, view column, report, and image properties, and view the report components for the procedure.

Report Painter opens by default with the Object Inspector positioned in the left window pane of the Report Painter window. The Object Inspector can be closed or floated on top of the Report Painter window. Any changes made in the Object Inspector are reflected in the Report Painter window and vice versa.

The Object Inspector has tabs that you can toggle between: Where/If, Properties, Fields, Sort Groups, Setup, Pivot, and Images.

Note: The Pivot tab is available only when using the Excel® 2000 PivotTable (EXL2K PIVOT) report output format. For more information about Excel PivotTables, see the Creating Reporting Applications With Developer Studio manual.

Among other things, the Object Inspector enables you to:

- View and modify the properties of a column.
- View the thumbnail and properties of an image.
- View properties of a selected report object (column, heading, footing, or entire report).
- Add fields to your report.
- Show the fields for the Master File in a Field Tree or Field List, with options to show extended information, such as title, description, alias, and so on.
- Create variable fields.
- View and modify the sort status of a field.

Note: The Object Inspector is only available in the Report Painter view.
**Procedure:** How to Float the Object Inspector

Double-click the gray double lines above the Object Inspector title bar until you see a solid blue line.

The Object Inspector becomes a movable window that you can float on top of the Report Painter window.

**Tip:** To dock the Object Inspector, double-click the blue line above the Object Inspector title bar.

**Procedure:** How to Show or Hide the Object Inspector

After you have populated a report with information, you may wish to close the Object Inspector so that the report is more fully visible on the screen.

From the File menu, uncheck *Show Object Inspector*.

**Tip:** You can reopen the Object Inspector at any time by rechecking the *Show Object Inspector* option on the File menu.
Adding a Column to Your Report

The Fields tab in the Object Inspector lists all field names available for use in your report. This includes fields in the open file and any joined files, temporary fields. You can select a field to view its field name, qualified field name, alias, title, description, and format in the lower pane. You can double-click or drag fields from this pane to the Report Painter window, where they become report columns. For details, see How to Add Columns to Your Report on page 125. The Object Inspector is shown in the following image.
Viewing the Fields List

You can view the fields list in the Object Inspector as a:

- Tree separated by segments (Field Tree).
- List of fields (Field List).
- Tree separated by Dimensions (Dimension Tree).

**Note:** When creating a report with a multi-dimensional data source, additional folders in the Object Inspector, and all other fields lists, are available. For more information about viewing the fields list with a multi-dimensional data source, see Viewing the Fields List in the Creating Reporting Applications With Developer Studio manual.

The following image shows the right-click context menu that is available from the Fields tab of the Object Inspector when you right-click on white space. The right-click menu changes to show only valid options depending on the object you select.

You can double-click or drag segments or fields from the Object Inspector to the Report Painter window, where they become report columns.
You can customize how you view the fields list and save your settings. You can also search for fields in the fields list. These options appear anywhere in Report Painter where a fields list is available. For example, Object Inspector, Define tool, Variable Editor, and so on.

The System Variables folder contains variables that are automatically populated with system values. These values include the current date, current time, operating system, number of lines read, and number of answer set lines in the last request. These values can be used to control processing. For example, if no records are read for a report request because no records fit the selection criteria, processing may halt or the selection criteria may be changed. To view a description of each variable, place the mouse over the system variable name.

**Note:**

- Show Dimension Tree will only display when dimensions are available within the procedure.
- The Variable folder for all Object Inspectors is no longer expanded.
- Variable Defines are shown under the Query Variables folder.
- Parent-child Defines are shown under the corresponding parent-child hierarchy.
- Other Defines are shown under the Defines folder.
Using Dimension Tree View

Dimension tree view displays fields in a hierarchical structure of data. When a Master File defines Measures and Dimensions, a report using that Master File will automatically open in Dimension tree view. Fields are divided into two main categories, either Measures or Dimensions. Beneath those two main categories are subcategories. The category and subcategory the fields fall under is determined by how they are defined in the Master File. The following image shows the Dimension tree view with Measures and Dimensions having multiple subcategories beneath them.

- Dimensions can be either BY or Detail column types.
- Measures can be BY, SUM, or Detail column types.
Any field list can be switched to Dimension tree view. However, if Measures and Dimensions are not defined in the Master File, then Measures and Dimensions will not be displayed properly.

**Note:** You must select the correct column type before dragging or double-clicking the field you want to add. For example, if you double-click a Dimension when the SUM column type is selected, the field will not be added to the report. You must change the column type to BY or Detail and then double-click the field.

**Procedure:** How to Save the Fields List Options in Report Painter

1. Right-click anywhere on the fields list and select from the options available in the context menu to customize the view of the fields list.

2. Right-click on the fields list again to save the settings of your view. Select from the following options:
   - **Save Settings As Default for non-hierarchical data.** Saves the current fields list view as the default view for non-hierarchical data. The fields list appears differently for hierarchical data.
   - **Save Settings As Default for hierarchal data.** Saves the current fields list view as the default view for hierarchical data. The fields list appears differently for hierarchical data.
   - **Save Settings As Default for hierarchical and non-hierarchical data.** Saves the current fields list view as the default view for all data sources, non-hierarchical and hierarchical data.

**Procedure:** How to Collapse the Field Tree

Right-click anywhere on the Field Tree and deselect Display Filters in Filters Folder from the context menu.

The selected option is not immediately applied but appears the next time you view a Field Tree.

**Note:** This option is also available from the Reporting tab of the Developer Studio Options dialog box.
**Procedure:** How to Display Filters and Computes in the Field Tree

By default, Master File Filters and Computes are shown in the Report Painter Object Inspector in the Filters folder, or Computes Folder, when using the Field Tree View.

**Note:** If using a Master File Computes field, the Object Inspector automatically displays the field in a Master File Computed Fields folder.

- Right-click anywhere on the Field Tree and deselect *Expand field tree on initialization* from the context menu.
- Right-click anywhere on the Field Tree and deselect *Display Filters in Filters Folder* from the context menu.

The selected option is not immediately applied but appears the next time you view a Field Tree.

**Tip:** These options are also available from the Reporting tab of the Developer Studio Options dialog box.

**Reference:** Applying Mandatory Filters to Fields

If the Access Property NEED_VALUE option is specified for fields in the Master File being used in Report Painter, the Object Inspector indicates the fields that require a mandatory filter in the report.

The following image shows an Alert icon for the City field in the Object Inspector and on the Report Painter status bar.
The items circled in red are the mandatory field indicators, as shown in the following image.

![Object Inspector]

**Note:** The Alert icon is removed from the Object Inspector and status bar after a filter is applied to the NEED_VALUE field.

**Procedure:** How to Find a Field in the Fields List

1. Right-click anywhere on the fields list and click the *Find Item* option. The Find Item dialog box opens.
2. Enter a search field in the *Find what* input field.
3. Click *Find* to search for the field. The item is highlighted in the fields list.
4. Right-click on the fields list again and click *Find Next Item* to find the next occurrence of the item in the fields list. The next item is highlighted in the fields list. If no item is found, a message appears.
Reference: Find Item Dialog Box

Find what

The Find Item search field input area.

Match case

Searches for the field name exactly as entered. The search field is case-sensitive.

Look where

All items

Looks for the search field in the entire fields list.

All current item's direct children

Looks for the search field in all children fields of the parent hierarchy.

All current item's children

Looks for the search field in all children fields of every hierarchy.

Note: For more information about hierarchical data sources, see Hierarchal Reporting in Developer Studio in the Creating Reporting Applications With Developer Studio manual.
Viewing Column Properties

You can view and modify the column properties in the Report Painter window from the Where/If tab in the Object Inspector, which is shown in the following image.

Select a column in the Where/If tab to display the column properties in the bottom pane of the Object Inspector (if showing details). These properties include column name, sort type, format, prefix operator status, drill-down status, and visualize status. There is a descriptive icon to the left of each column indicating the sort status of the column. For details, see Viewing and Manipulating Sort Groups on page 48.

**Note:** Right-click and click Hide Details section to show or hide details anywhere in the Object Inspector.

Right-click a column and click Options from the context menu to open the Field Properties dialog box where you can format and style your column, and apply drill down capabilities. Any changes made to the column properties are reflected in the Report Painter window.
Viewing Image Properties

You can view properties of an image in the Report Painter window from the Images tab in the Object Inspector, as shown in the following image.

Select the thumbnail of the image in the Images tab to display the image properties in the bottom pane of the Object Inspector. These properties include the location of the image, image name, positioning on page, and size.

**Note:** Right-click and click *Hide Details section* to show or hide details anywhere in the Object Inspector.

Double-click the image to edit these properties in the Image Properties dialog box.
Viewing the Object Properties of a Report

When you select the object of a report (column, heading, footing, or entire report) in the Report Painter window, its properties are reflected in the Properties tab in the Object Inspector, as shown in the following image.

![Object Inspector Image]

**Procedure:** How to View the Properties of the Entire Report

Place your cursor in a blank space in the Report Painter window.

The report properties appear in the Properties tab in the Object Inspector.
**Viewing and Manipulating Sort Groups**

You can view and modify the sorting properties of fields in the Report Painter window from the Sort Groups tab in the Object Inspector, as shown in the following image.

The Sort Groups tab displays the sorting method being applied to each column in the Report Painter window. You can change the sorting method (for example, from By to Across or from Detail to Sum) from the Sort Groups pane. The changes are reflected in the Object Inspector Where/If and Sort Groups panes, and in the Report Painter window.

You can also create reports that include both detail and summary information from the Sort Groups pane. For details, see *Sorting in Groups to Create a Combined Detail/Summary Report* on page 151.
**Reference: Sort Type Icons**

The icons in the first column to the left of the field name display the type of sort field. The icons and their meanings are defined in the following table.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>Across field.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td>By field.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td>Sum field.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon" /></td>
<td>Detail field.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Icon" /></td>
<td>For field.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Icon" /></td>
<td>Hierarchy field.</td>
</tr>
</tbody>
</table>

**Note:** This option is only available when using a multi-dimensional data source. For more information, see **Sorting Hierarchical Data** in the *Creating Reporting Applications With Developer Studio* manual.
Opening Report Components

You can open components that precede the report component from the Setup tab on the Object Inspector. Double-click a component in the Setup tab to open the tool that created the component, as shown in the following image. Right-click a component in the Setup tab and select *Hide Details section* to display the syntax for that component in the bottom pane of the Object Inspector.

Viewing Options

Although you will generally work in the Report Painter view as you build your report, you may want to toggle between other views where you can view and edit the code generated by the graphical tools, view the positioning of images, or model complex reports.

Report Painter opens by default in the Report Painter view, but clicking on any view tab in the lower-left hand corner of the Report Painter window adjusts the display of data.
**Procedure: How to Switch Views in Report Painter**

Choose one of the following tabs in the lower-right hand corner of Report Painter to adjust the display of data.

- **Report**
  
  Displays the Report Painter window, where you build and style your report.

- **Source**
  
  Displays the code generated by Report Painter. You can create and edit code in this view and it will be reflected in Report Painter.

- **Images**
  
  Displays images and enables you to position them anywhere in the report.

- **Matrix**
  

**Tip:** You can also switch Report Painter views by selecting one of the following options from the View menu: Show Report Painter, Show Matrix View, Show Source View, or Show Image View.

**Viewing SQL Code in a Report Request**

You can view SQL code that is generated for report requests while using Report Painter with relational data sources. To do this, click View from the Report Painter main menu and click Show Generated SQL.

**Business Intelligence Features**

You can enable or invoke a number of advanced business intelligence tools from Report Painter. These include:


- Trend analysis through data visualization based on bar graphs applied to columns or measures of numeric data. Data visualization is supported from Report Painter and from the OLAP Control Panel.
Procedure: How to Access the Financial Report Painter

In the Report Painter window:

1. Add the fields you want to include in the report.
2. Select the column that you want to use as the For field and click the For button on the Columns toolbar. The selected For field allows the report to be structured on a row-by-row basis in the Financial Report Painter.
3. Click the Matrix tab on the Report Painter window.


Procedure: How to Enable Data Visualization Graphics

1. Open the report in which you wish to insert visualization bar graphs in Report Painter.
2. Right-click a column containing numeric data and click Visualize from the context menu.
   The Data Visualization dialog box opens.
3. Select the Visualize check box. This activates the option and also invokes the bar graph when you subsequently run the report.

For details, see Visualizing Trends in Reports on page 407.

Report Painter Limitations

The following topics describe several features that are available in the WebFOCUS language, but are not supported in Report Painter.

Parsing Limitations

Report Painter cannot currently parse reports (FOCEXECs) with the following WebFOCUS verbs, phrases, or logical relations used for record selection in WHERE and IF expressions.

If you attempt to open or edit a report that contains syntax that Report Painter cannot parse, a message box will appear indicating the error.

Unsupported Verbs

Report Painter cannot parse the following verbs:

- LIST
- ADD
Unsupported Phrases (Parsing)

Report Painter cannot parse the following phrases and syntax:

SUP-PRINT

Report Painter cannot parse the following phrases and syntax that use AND. These phrases are supported if AND is not used.

[AND] ROW-TOTAL
[AND] COLUMN-TOTAL
ON TABLE [PAGE-BREAK AND] SUBHEAD
ON TABLE [PAGE-BREAK AND] SUBFOOT
ON TABLE RECAP

Unsupported Logical Relations in WHERE and IF Expressions

Report Painter cannot parse the following logical relations used for record selection in IF or WHERE expressions:

EXCEEDS
IS-MORE-THAN
IS-LESS-THAN
SIMILAR

Report Painter Syntax Limitations

Report Painter does not currently support the syntax described in the following topic. However, it does recognize these verbs and phrases and parse reports (FOCEXECs) containing them, without displaying a message.

If you attempt to open or edit a report that contains syntax that Report Painter recognizes but does not support, that syntax will be removed from the FOCEXC in Report Painter.
Unsupported Phrases
The following phrases and syntax are not currently supported by Report Painter and will be omitted from the FOCEXEC:

BY ROWS OVER
ACROSS COLUMNS
FOR OVER

Report Painter Features Not Supported by HTML
Since your browser controls the interpretation of HTML commands, a few of the standard report styling features found in Report Painter are not supported in the HTML document output. However, several of these features (noted with asterisks *) are supported if you turn on the Cascading Style Sheets option in the Report Options Features tab.

- Mailing labels
- Justify
- Column Width to control wrapping *
- Page Number
- Positioning object area elements *
- Under Line *
- Skip Line *
- Page Break

For related information on StyleSheets, see the Creating Reports With WebFOCUS Language manual.

Field Properties and Report Options Dialog Boxes
Report Painter provides tabbed dialog boxes that handle a wide range of tasks for columns and reports. Although there are alternative ways to accomplish some of these tasks (from right-click menus, toolbar buttons, and menu bar options), you can:

- Right-click a column and choose Options to open the Field Properties dialog box at the Field Properties Style Tab on page 55. From there, you can click the Drill Down, Sort, and General tabs.
Right-click a column total and click Options to open the Properties for Column Total dialog box at the Style tab. From there, you can click the Drill Down and General tabs. For more information, see the Field Properties Style Tab on page 55.

Click the Options button on the Output Format toolbar to open the Report Options dialog box at the Output tab. From there, you can click the Features, Format, Style, Drill Down, Computes, View, and Images tabs.

You can also access each Report Option tab directly from the Report menu.

**Field and Column Total Properties Dialog Boxes**

Right-click columns or column totals and select Options to make the Field Properties dialog boxes available.

**Reference:** Field Properties Style Tab

Right-click a column in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens at the Style tab.
Column Data is displayed as the default active object. Column Title and Column Title and Data can be selected from the drop-down list.

**active object**

Object areas, such as Column Data, Column Title, and Column Title and Data can be selected from the active object drop-down list. You can apply conditions, colors, grids, or borders to an object area.

**Copy Title Style to Data**

Copies the title styling attributes (conditional or unconditional) of a column to the data component of the column.

**Copy Data Style to Title**

Copies the data conditional styling attributes (conditional or unconditional) of a column to the title component of the column.

**Applying to Condition**

Displays existing conditions created with the Condition List and Edit Condition dialog boxes.

**Condition Rule**

Displays the selected condition rules you created in the Edit Condition dialog box.

**Move Condition Up and Move Condition Down**

Rearranges the order of conditions applied in a column. Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

**Clear Associated Styling**

Clears associated styling for a column. Select a defined condition from the Applying to Condition dialog box in the Style tab and click this button.

**Edit Conditions**

Opens the Condition List dialog box. Click New to launch the Edit Condition dialog box, where you can create a new condition or edit an existing one. You can define conditions that control when to apply particular fonts, point size, text style, grids, color, and drill-down procedures.

**Column Layout**

Click the Width or Limit to option.
Note: To use these features in HTML reports, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

**Width**

Choose one of the following options from the Width drop-down list:

- **<not set>**. No width option is selected.
- **Maximum**. Sets the width according to the length defined in the field format.
- **Minimum**. Sets the width of the column according to the widest value or heading in the field. This is selected by default.
- **Truncate**. Enables you to specify where to truncate the column width based on the specified units (inches or centimeters). To indicate that a field value has been truncated in the browser, WebFOCUS places an exclamation point (!) after every alphanumeric and text field value and an asterisk (*) after every numeric field value.
- **Wrap**. Enables you to specify where to wrap data based on the specified units (inches or centimeters).

For related information, see *Formatting a Column* on page 233.

**Limit to**

Enables you to specify where to truncate or wrap data based on the specified units (inches or centimeters).

Note that the Limit to option is only activated when Truncate or Wrap is selected.

**Justification**

Select a justification option for the selected column: Left, Right, Center, or Default to reinstate the default setting (left for alphanumeric columns, right for numeric columns).

**Present Hidden**

Enables you to select the Present Hidden option, which determines the columns that will be hidden from view in the report output, when using the HTML active report output format. For more information, see *Show/Hide Report Columns* in the Active Technologies User's Guide.

**Preview in Painter**

Enables you to preview a styling attribute in the Report Painter window (in addition to the Sample window in the Style tab).
Select Font

Click the Select Font button to open the Font dialog box, where you can specify the font, font style, size, effects, and color for the selected object.

Select Borders

Opens the Borders dialog box, from which you can apply borders to the selected column.

**Note:** If grids are on, you cannot use the Borders feature.

Select Grid

Opens the Grid dialog box, from which you can apply a grid to the selected column. For PDF and Postscript styled report formats, you can specify a grid type (horizontal and vertical, horizontal, or vertical) and a Line style (none, light, or heavy).

These options are not supported in HTML styled report formats.

The Select Grid button will be unavailable when the report includes one or more style sheet files that have border styling. To enable the button, you need to select a different style sheet.

Background Coloring

You can apply a background color to Column Data, Column Title, or Column Title and Data.

Choose one of the following options:

**Single Color**

Click Single Color, then click Select Colors to open the Color dialog box. You can then select one background color.

**Alternating Colors**

Select Alternating Colors, then click Select Colors to open the Choose Background Colors dialog box. You can then assign alternating background colors to rows within columns.

Select Colors

Click the Select Colors button to open the Choose Background Colors dialog box. You can then assign alternating background colors to rows within columns. This button is available if either Single Color or Alternating Colors is chosen.
**Reference: Field Properties Drill Down Tab**

The Field Properties Drill Down tab is shown in the following image.

Right-click a column in the Report Painter window and choose *Options* from the context menu. The Field Properties dialog box opens. Click the *Drill Down* tab. Use the following options to supply information required to link a report to another report, a URL, JavaScript, Maintain procedure, Maintain Case, or Drill Through. For details, see *Creating a Drill Down Procedure* on page 251.

Multiple Drill Downs must be checked for Drill Menu Items to be displayed.

When No Action or Default is chosen from the Drill Down Type drop-down menu, Procedure Name, Target Frame, and With Parameters will not be displayed.

The Drill Through option is only available for PDF formatted reports.
The following options are available on the Field Properties Drill Down tab:

**active object**
Select one of the following from the drop-down list. The drill-down action is applied to the selected object:
- Column Title and Data
- Column Data
- Column Title

**Copy Title Style to Data**
Copies the title styling attributes (conditional or unconditional) of a column to the data component of the column.

**Copy Data Style to Title**
Copies the data conditional styling attributes (conditional or unconditional) of a column to the title component of the column.

**Applying to Condition**
Displays existing conditions created with the Condition List and Edit Condition dialog boxes. The value Unconditional means that any drill-down reports applied to the column will be applied unconditionally to the column.

**Condition Rule**
Displays the actual condition if a condition is selected in the Applying to Condition dialog box.

**Move Condition Up/Move Condition Down**
Rearranges the order of conditions applied to the drill-down report. Conditions are applied in the order listed. For example, if the first and last conditions are both true, the last condition will override the first.

**Clear Associated Styling**
Removes the current styling from the condition.

**Edit Conditions**
Opens the Condition List dialog box, from which you create a new condition, edit an existing condition, or delete a condition.
Drill Down Definition

**Caution:** Before you select a Drill Down Definition, specify the object to which the action will be applied (that is, Column Title and Data, Column Data only, or Column Title only).

Multiple Drill Downs

This field is only enabled if an HTML styled report format is selected in the Report Options dialog box. The multiple drill-down feature enables you to add detail to a report by creating hyperlinks that have multiple actions. For example, you can create hyperlinks that run a detailed report or Maintain procedure, execute a JavaScript function, and link to a URL. When you click a component in the summary report, a pop-up menu appears, with the possible options to drill down to.

The multiple drill-down feature applies to:

- In the Report Options dialog box, the Select Format option must be HTML Web Document (HTML), HTML Table (HTMTABLE), HTML active report (AHTML), or User styled report format.
- Data fields in the body of the report, not to headings, subheadings, footings, or subfootings.

Drill Menu Items

Displays the default drill-down name, DrillDown1, when the Multiple Drill Downs check box is selected. You can double-click the default name and enter another name for the first drill down. The Drill Menu Items input box also features buttons that allow you to add, delete, or change the order of drill-down names.

Drill Down Type

**Default**

Default is selected automatically. Procedure Name, Target Frame, and With Parameters will not be displayed while this is selected.

**No action**

Click *No action* to specify that no drill-down link will be executed.

**Execute Procedure**

Click *Execute Procedure* and enter the name of a procedure to link to in the Procedure Name field, or click the *Browse* button and choose the detail procedure from the Open dialog box. Click *Open* to open the Procedure window for the detail report.
**Execute Guided Procedure**

Click *Execute Guided Procedure* and click *Edit* to open the Guided DrillDown window. Select the Drilldown procedures you wish to use and any parameters you wish to pass to those procedures. This creates a parameter that allows the user to select the drill-down procedure to use at run time.

**URL**

Click *URL* and enter the address to link to in the URL field. Click *Open* to open the specified URL in a web browser.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, Excel (2000, 2000 Formula, 97) and User styled report formats.

**URL from field**

Click *URL from Field* and choose a field name from the drop-down list to indicate that the URL referenced is the value of that field.

For example, if the data source contains a field, such as E_MAIL whose values are the email addresses of every employee, select E_MAIL from the Field drop-down list as the URL, and supply the proper parameters. This action enables a user to click a last name in the web browser, which opens the email application with the email address of the individual selected.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**JavaScript**

Click *JavaScript* to execute a JavaScript function. Enter the name of the function in the JavaScript field.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**Maintain Procedure**

Provides a link to a Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.

**Maintain Procedure Compiled**

Provides a link to a compiled Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.
Maintain Case

Provides a link to a Maintain Case. Enter the name of the case in the Procedure Name field.

**Note:** A Maintain Case is also known as a Function.

Drill Through

Enables you to define hyperlinks between the individual report components within a single PDF formatted document.

Procedure Name

Enter the required value here, or choose one from the drop-down list.

Target Frame

Specifies that the results of the drill-down link display in a target frame on a webpage. Select from the following standard HTML frame names: _blank, _self, _parent, _top. You can select different frames for multiple drill downs.

**Note:** When specifying a target frame from Report Painter, manually added commands in the style sheet are not recognized. For example, manually entering TARGET=NEW is removed when the procedure is run in Report Painter. Report Painter removes commands that it does not generate itself. For this example, set the target to _BLANK to open a drill-down report in a new window.

With Parameters

Displays the parameters defined for the selected procedure or URL in the Drill Down Definition field.

Add Button

Enables you to create parameters for the selected procedure or URL. Opens the Drill Down Parameter dialog box.

Edit Button

Enables you to edit the selected parameter.

Delete Button

Deletes the selected parameter.
Field Properties and Report Options Dialog Boxes

**Reference:** Field Properties Sort Tab

The Field Properties Sort tab is shown in the following image.

Select a column in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens. Click the Sort tab. This tab appears only when the selected column has been designated as a sort column (either By or Across). For more details, see Sorting Data on page 133.

**Sorting Tab**

**Current Sort Statement**

Reflects the sort conditions that are in effect.

**Sort Order**

You can change the sort order of values in a column from lowest to highest, or vice versa, for alphanumeric (A to Z and Z to A) or numeric (1-10 and 10-1). You can also choose Variable and customize the sort order.

- Click LOWEST to rank in ascending order (lowest to highest).
Click **HIGHEST** to rank in descending order (highest to lowest).

Click **Variable** to make the option a parameter whose value is prompted for at run time. Clicking the ampersand (&) button opens the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Sort Limit**

If entered, this value limits the number of sort values to display. When used with Sort ascending, Limit displays the chosen number of lowest values. With Sort descending, it displays the chosen number of highest values. Limit is only supported for By fields.

**Subtotal others**

Selecting this option will subtotal the items selected.

**Title**

The title of the limit item.

**Total**

These options pertain to the total of an item.

- **On** calculates and displays the total.
- **Off** does not calculate or display the total. This is the default option.

Click **Variable** to make the option a parameter whose value is prompted for at run time. Clicking the ampersand (&) button opens the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Sort Sequence**

The Sort Sequence button opens the Sort Sequence Builder, which allows you to pull in data from a field and customize sorting priorities. For more information, see *Using the Sort Sequence Builder* on page 144.
**Grouping Tab**

The Grouping tab is only available when you sort a report using a numeric sort field, as shown in the following image.

![Grouping Tab Image](image)

**Current Sort Statement**

Reflects the sort conditions that are in effect.

**Grouping**

- **None**
  
  No grouping option will be in effect. This is the default option.

- **IN-GROUPS-OF**
  
  Click this option to group sort field values in specified increments.

- **IN-RANGES-OF**
  
  Click this option to define the range by which sort field values are grouped.
**Variable**

Click *Variable* to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Range or Number of Tiles**

Allows for a range of number tiles to be present with the grouping.

- None is the default option.

- Select *Variable* to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Limit**

If specified, this value limits the number of groups of the specified interval to be retrieved.

- On allows for a limit to be in place.

- Off is the default option and does not allow for a limit to be in place.
☐ Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Highest Value**

In order to use the Highest Value option, Limit must be set to On or Variable. This option enables you set the highest value for the limit.

☐ None is the default option.

☐ Select Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Tiles**

Select this option to group numeric data into any number of tiles (percentiles, deciles, quartiles, and so on). A new column, labeled TILE by default, is added to the report output and displays the tile number assigned to each instance of the tile field.

**Title**

You may type in a unique title name.

You can combine these selections with the list of defined Actions.
**Ranking Tab**

The Ranking tab is only available when you sort a report using a vertical sort field, as shown in the following image.

![Ranking Tab Image](image)

**Current Sort Statement**

Reflects the sort conditions that are in effect.

**Rank**

This option controls whether items are ranked or not.

- When Off is selected, rankings will not be displayed. This is the default option.
When On is displayed, rankings will be displayed. Choosing this option allows you to edit the ranking title.

**Title**

Displays a default column title as RANK with the sort field. You may type in a unique title name for the ranked field. This field becomes active once On is selected in the Rank drop-down list.

**Actions Tab**

The Actions tab is only available when you sort a report using a vertical sort field, as shown in the following image.

**Underline**

Includes a horizontal line across the width of a report after the value of the selected sort field changes. (To apply this action in HTML styled report formats, ensure that Cascading Style Sheets is selected on the Report Options Features tab.)
Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Skip Line**

Skips a line on a report when the value of the selected sort field changes. (To apply this action in HTML styled report formats, ensure that Cascading Style Sheets is selected on the Report Options Features tab.)

Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**No Split**

Breaks sort fields logically and regenerates the field heading on the next page or screen.

Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Fold Line**

Causes columns to be placed on a separate line when the value of the sort field changes. (This feature is not supported for HTML styled report formats.)

Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

**Page Break**

Starts a new report page when the value of a selected sort field changes. (This feature is not supported for HTML styled report formats.)

Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.
Restart Page Numbering

Resets the page number to one at the sort break. The Page-break option must be selected.

Click Variable to make the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

Reference: Field Properties General Tab

The Field Properties General tab is shown in the following image.
Select a column in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens. Click the General tab, which includes the following fields.

**Title**

Displays the default column title. Click the Set Title button to open the Title dialog box, where you can type a new column title.

**Format**

Displays the current format of a column.

Click the Format button to open the Format dialog box, where you can change the format type and other date and time information. For details, see Format Dialog Box on page 475.

**Output**

- The Invisible option enables you to control whether a column appears in the report, or is hidden. If you select On, the column is dimmed in the Report Painter window, but can still be used in calculations. Variable makes the option a parameter whose value is prompted for at run time. Click the ampersand (&) button to open the Guided Variable Definition dialog box, which enables you to change the parameter name suffix, display text, order of values, and display or return values.

- Click Skip Line (SKIP-LINE) to add a blank line after every displayed line (in effect, double-spacing a report). Select Variable to allow you to click the ellipsis (...) button. Click the ellipsis (...) button to open the Guided Variable Definition window.

- Click New Line (OVER) to place field names over one another. This is one way to decrease the width of a report, particularly when you are sorting horizontally (Across).

- Click Compress (FOLD-LINE) to reduce the report width by stacking columns.

- Click the Visualize button to open the Data Visualization dialog box, where you can enable a data visualization bar graph for the data in the selected numeric column. For details, see Data Visualization Dialog Box on page 409.
Table of Contents
Applies a dynamic table of contents to the first By field in an HTML report. This enables you to display every value of the highest-level sort field as a hyperlink, then toggle between a display of the entire report and of a designated section.
- Select the Report check box to position the TOC icon in the upper-left corner of the executed report.
- Select the Heading check box to position the TOC as an object in the page heading.
- Select None to turn the feature off.
For details, see Navigating Sort Groups From a Table of Contents on page 195.

Prefix
Select an operator to perform a calculation or other manipulation directly on the values of a field and display the results in your report. The operator is applied to a single column and affects only that column. The list adjusts to display appropriate operators for the selected field. Note, however, that most operators apply to numeric fields that are being summed. For a list of operators, see Operations You Can Perform on Fields on page 130.

Total
When more than one field is present, this drop-down list becomes available. Choosing Total shows the total of the fields present. Summarize shows a summary of the fields present.

Within
Select a WITHIN phrase, which requires a BY phrase and/or an ACROSS phrase. A maximum of two WITHIN phrases can be used per display command.

Second Within
Select a second WITHIN phrase, if necessary.
Reference: Properties for Column Total Style Tab

The Properties for Column Total Style tab is shown in the following image.

When using a column total field in the Report Painter window, right-click anywhere on the column total and click Options from the context menu. The Properties for Column Total dialog box opens at the Style tab.

Note: You may also style the Column Total from the Style tab of the Report Options dialog box.

active object

The active object area displays the name of the object property.

Applying to Condition

Displays existing conditions created with the Condition List and Edit Condition dialog boxes.
**Condition Rule**
Displays the selected condition rule(s) you created in the Edit Condition dialog box.

**Move Condition Up and Move Condition Down**
Rearranges the order of conditions applied in a column. Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

**Clear Associated Styling**
Clears associated styling for a column. Select a defined condition from the Applying to Condition dialog box in the Style tab and click this button.

**Edit Conditions**
Launches the Condition List dialog box. Click New to launch the Edit Condition dialog box, where you can create a new condition or edit an existing one. You can define conditions that control when to apply particular fonts, point size, text style, grids, color, and drill-down procedures.

**Sample**
Displays a sample of the selected item with the options you chose applied to it.

**Layout**
Enables you to select a justification option.

**Justification**
Select a justification option for the selected column: Left, Right, Center, or Default to reinstate the default setting.

**Preview in Painter**
Enables you to preview a styling attribute in the Report Painter window (in addition to the Sample window in the Style tab).

**Graphical**

**Select Font**
Opens the Font dialog box, where you can specify the font, font style, size, effects, and color for the selected object.

**Select Borders**
Opens the Borders dialog box, from which you can apply borders to the selected column.
**Select Grid**

Opens the grid dialog box, from which you can apply a grid to the selected column.

The Select Grid button will be unavailable when the report includes one or more style sheet files that have border styling. To enable the button, you need to select a different style sheet.

**Background Coloring**

You can apply a background color to the column total field. Choose one of the following options:

- **None**
  
  Removes any background color from the TOTAL field.

- **Single Color**
  
  Click the *Single Color* option button and then the *Select Colors* button to open the Color dialog box. You can then select one background color.

- **Select Colors**
  
  Click the *Select Colors* option button to open the Color selection window. From here, you can choose from any of the available colors.
**Reference: Properties for Column Total Drill Down Tab**

The Properties for Column Total Drill Down tab is shown in the following image.

When using a column total field in the Report Painter window, right-click anywhere on the column total and click *Options* from the context menu. Click the *Drill Down* tab. Use the following options to supply information required to link a report to another report, a URL, JavaScript, Maintain procedure, Maintain Case, or Drill Through.

Multiple Drill Downs must be checked for Drill Menu Items to be displayed.
When No Action or Default is chosen from the Drill Down Type drop-down menu, Procedure Name, Target Frame, and With Parameters will not be displayed.

**active object**

The drill-down action is applied to the column total field.

**Applying to Condition**

Displays existing conditions created with the Condition List and Edit Condition dialog boxes. The value Unconditional means that any drill-down reports applied to the column will be applied unconditionally to the column.

**Condition Rule**

Displays the actual condition if a condition is selected in the Applying to Condition dialog box.

**Move Condition Up and Move Condition Down**

Rearranges the order of conditions applied to the drill-down report. Conditions are applied in the order listed. For example, if the first and last conditions are both true, the last condition will override the first.

**Clear Associated Styling**

Removes the current styling from the condition.

**Edit Conditions**

Opens the Condition List dialog box, from which you create a new condition, edit an existing condition, or delete a condition.

**Multiple Drill Downs**

This field is only enabled if an HTML styled report format is selected in the Report Options dialog box. The multiple drill-down feature enables you to add detail to a report by creating hyperlinks that have multiple actions. For example, you can create hyperlinks that run a detail report or Maintain procedure, execute a JavaScript function, and link to a URL. When you click a component in the summary report, a pop-up menu appears, with the possible options to drill down to.

The multiple drill-down feature applies to:

- In the Report Options dialog box, the Select Format option must be HTML Web Document (HTML), HTML Table (HTMTABLE), HTML active report (AHTML), or User styled report format.
Data fields in the body of the report, not to headings, subheadings, footings, or subfootings.

**Drill Menu Items**

Displays the default drill down name, DrillDown1, when the Multiple Drill Downs check box is selected. You can double-click the default name and enter another name for the first drill down. The Drill Menu Items input box also features buttons that allow you to add, delete, or change the order of drill down names.

**Drill Down Type**

- **Default**
  
  Default is automatically selected for you. No action is taken and no other options are available in the Drill Down Type section when this option is selected.

- **No action**

  Click *No action* to specify that no drill-down link will be executed.

**Execute Procedure**

Click *Execute Procedure* and enter the name of a procedure to link to in the Procedure Name field, or click the *Browse* button and choose the detail procedure from the Open dialog box. Click *Open* to open the Procedure window for the detail report.

**Execute Guided Procedure**

Click *Execute Guided Procedure* and click *Edit* to open the Guided DrillDown window. Here you can select the Drilldown procedures you wish to use and any parameters you wish to pass to those procedures. This creates a parameter that allows the user to select the drill-down procedure at run time.

**URL**

Click URL and enter the address to link to in the *URL* field. Click *Open* to open the specified URL in a web browser.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, Excel (2000, 2000 Formula, 97) and User styled report formats.

**URL from field**

Click *URL from field* and choose a field name from the drop-down list to indicate that the URL referenced is the value of that field.
For example, if the data source contains a field, such as E_MAIL whose values are the email addresses of every employee, select E_MAIL from the Field drop-down list as the URL, and supply the proper parameters. This action enables a user to click a last name in the web browser, which opens the email application with the email address of the individual selected.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**JavaScript**

Click JavaScript to execute a JavaScript function. Enter the name of the function in the JavaScript field.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**Maintain Procedure**

Provides a link to a Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.

**Maintain Procedure Compiled**

Provides a link to a compiled Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.

**Maintain Case**

Provides a link to a Maintain Case. Enter the name of the case in the Procedure Name field.

**Note:** A Maintain Case is also known as a Function.

**Drill Through**

Enables you to define hyperlinks between the individual report components within a single PDF formatted document.

**Procedure Name**

Enter the required value here, or choose one from the drop-down list.
**Target Frame**

Specifies that the results of the drill-down link display in a target frame on a webpage. Select from the following standard HTML frame names: _blank, _self, _parent, _top. You can select different frames for multiple drill downs.

**Note:** When specifying a target frame from Report Painter, manually added commands in the Style Sheet are not recognized. For example, manually entering TARGET=NEW is removed when the procedure is run in Report Painter. Report Painter removes commands that it does not generate itself. For this example, set the target to _BLANK to open a drill-down report in a new window.

**With Parameters**

Displays the parameters defined for the selected procedure or URL in the Drill Down Definition field.

**Add Button**

Enables you to create parameters for the selected procedure or URL. Opens the Drill Down Parameter dialog box.

**Edit Button**

Enables you to edit the selected parameter.

**Delete Button**

Deletes the selected parameter.
Reference: Properties for Column Total General Tab

The Properties for Column Total General tab is shown in the following image.

When using a column total field in the Report Painter window, right-click anywhere on the column total and click Options from the context menu. Click the General tab to apply column totals to selected fields in the report.

Columns

Select the check box next to the numeric value field(s) to be included in the column total.

Note: Apply totals to all columns is selected by default.

Report Options Dialog Boxes

The Report Options dialog boxes are available from the Report Options button on the Output Format toolbar. You can also access each Report Option tab directly from the Report menu.
**Reference: Report Options Output Tab**

The Report Options Output tab is shown in the following image.

![Report Options Output Tab](image)

**Output result**

**Destination**

The format displays the selected output format for the report output.

- **Web browser.** The report output displays in a web browser and adds PCHOLD to the code.

- **Temporary file.** The report output displays in a temporary file and adds HOLD to the code.

- **Save file.** The report output displays as alphanumeric record and adds SAVE to the code.
Name
This field is active when Temporary file or Save file is selected as the Destination.

- **Temporary file.** Enter up to 66 characters as the temporary (HOLD) file name. The default file name is HOLD. HOLD enables you to retrieve and process data, then extract the results for further processing. The output is saved with an associated Master File.

- **Save file.** Saves the file to a location when the report is executed. The report data is saved as text data, storing numeric fields in character format. ALPHA (FTM files) is the default save format. The output file contains data only.

Data

**Display repeated sort values**
Select this option to prevent discontinuous data in a report and display repeated sort values. This is recommended for use with Excel Named Ranges. For more information, see *Using Excel Named Ranges in WebFOCUS Applications* on page 444.

**Sorted Data**
If the data you are accessing is already in the correct sort order, you can prevent WebFOCUS from resorting it. This feature provides a fast method of retrieving data if it is already stored in the order required for display, and no further sorting is required.

**Use Multiple Values**
Enables you to add the same data value to multiple rows in the FML matrix. For example, the same value can exist as a single value in one row, as part of a range in another row, and in a calculation in a third row.

For data that has not been structured as a hierarchy, values continue to be listed in the FOR field values panel after being used in a row. Without this option, values are removed from the list after being used.

In a hierarchy, a used value remains in the FOR field values panel, where it appears in red to indicate that it has already been added to the matrix.

In both instances, you can reuse the value as required.

**Totals**

- **Apply to current columns in report**
  - Click *No totals* to suppress the display of totals.
  - Click *Column totals* to display a total for every column in the report.
Field Properties and Report Options Dialog Boxes

- Click **Summarize** to recalculate values at a sort break.

**Show Row Totals**
- Select the **Show Row Totals** check box to display a total for every row in the report.

**Column placement**
- **Default field placement**
  - Select to prevent the relocation of sort fields.
- **Custom field placement**
  - Select to move sort fields from their default locations.

**Reset**
- Click to restore the default placement.

**Page numbering**
- Click **ON** to number the pages and display the page number on the upper-left hand corner of the page.
- Click **OFF** to suppress page numbering. Click **OFF** without lead space to suppress page numbering and the two leading blank lines normally on each page.
- Click **Use current FOCUS setting** to number the page according to the values assigned to the SET PAGE-NUM command.

**Measurement units**
- Determines the UNITS setting in the WebFOCUS StyleSheet. Available units are Inches, Centimeters, and Points.
Reference: Report Options Features Tab for HTML Reports

The following image shows the options that are available on the Features tab for HTML Web Document (HTML), HTML Table (HTMTABLE), Default, and User (HTML) reports.

HTML options

Cascading Style Sheets

Cascading Style Sheets improve many display options for HTML reports. Enable this option to take advantage of a variety of formatting enhancements.
Field Properties and Report Options Dialog Boxes

**Accordion Report**

Provides a way to control the amount of sorted data that appears on an HTML report page. You can produce reports with expandable views of data for each vertical sort field. When an Accordion Report first appears, only data values of the first (highest-level) vertical sort field are shown. All other data is hidden. You can manually expand your view to expose data values of lower-level sort fields. For more information, see *Controlling the Display of Sorted Data With Accordion Reports* on page 154.

**On Demand Paging**

Displays one page of HTML report output and navigational controls. Use navigational controls to change the report page displayed in your browser.

**Pop-up Field Descriptions**

Displays pop-up field descriptions for column titles. For more information, see *Displaying Pop-up Field Descriptions for Column Titles* on page 239.

**Report Title**

The name that you type for an HTML report in this field will appear in the browser title bar.

**Accessibility**

Accessibility options customize how you view data on your computer. Select from Default, 508, or Off.

**Freeze**

**Headings/Footings**

Enables you to freeze the scrolling area of a report so that Headings/Footings display with the full report in a narrow browser window. Select from Off, On, Top, or Bottom.

*Note:* Freeze is not available when using the HTML Table (HTMTABLE) format.

**Scroll Height**

Enables you to specify the scroll height when freezing Headings/Footings, column titles, and totals.

*Note:* If the scroll height is not set, the default scroll height is 4 inches.

For more information about the freeze option, see *How to Freeze the Scrollable Area for HTML Report Output* on page 249.
Auto Drill and Analysis

Enable OLAP

☑ Disabled. OLAP options are disabled and not shown in the OLAP report. By default, the Enable OLAP option is set to Disabled.

☑ Off. Turns off the OLAP Control Panel and the OLAP Selections pane, but allows OLAP functionality from the report itself. You can access options on right-click menus, drag and drop columns within the report, and use up and down arrows to sort columns from high-to-low or vice versa.

☑ On. Provides access to the OLAP Selections pane from a square button to the left of the column titles. You can open the Control Panel by clicking the OLAP button in the OLAP report.

☑ Top Panel. Opens the OLAP Selections pane above the report. The Measures, Graph, and Dimension controls, the band containing the OLAP, Run, and Reset buttons appear above the report output. You can open the Control Panel by clicking the OLAP button on the Selection pane.

☑ Bottom Panel. Opens the OLAP Selections pane below the report. The Measures, Graph, and Dimension controls, the band containing the OLAP, Run, and Reset buttons appear below the report output. You can open the Control Panel by clicking the OLAP button on the Selection pane.

☑ Hidden Panel. Opens the OLAP report with the OLAP Selections pane hidden. You can perform a variety of analytic tasks from the report itself. Selection Criteria is shown next to the OLAP button.

☑ Show Tabbed. For OLAP reports that have multiple dimensions, this option groups the dimension elements under a tab labeled with the dimension name.

Automatic Drill Down

Automatic Drill Down controls access to automatic drill downs in a report:

☑ None disables automatic drill downs. By default, the Automatic Drill Down option is to None.

☑ Dimensions enables automatic drill downs on dimensions in a report.

☑ Dimensions and Measures enables automatic drill downs on dimensions and measures in a report.
Build Auto Drill Dimensions

The Build Auto Drill Dimensions button invokes the Dimension Builder, which enables you to create logical views based on enterprise data (relational or legacy data sources) for multi-dimensional analysis without manually editing metadata. For more information on Dimension Builder, see the Describing Data With Graphical Tools manual.

Automatic Expansion of Sort Levels

Generates an Accordion Report that expands by row. By default, this value is not set.

- **Only show top level.** Creates an Accordion Report which initially displays only the highest sort field level. To see rows on lower levels, click the plus sign (+) next to one of the displayed sort field values.

- **Off.** Does not create an Accordion Report

- **Expand everything.** Creates an Accordion Report in which all sort field levels are initially expanded. To roll up a sort field level, click the minus sign (-) next to one of the sort field values on that level.

- **Expand n levels.** Creates an Accordion Report in which \( n \) sort field levels are initially expanded. To roll up an expanded sort field level, click the minus sign (-) next to one of the sort field values on that level.

- **levels.** Enables you to set the number of sort field levels. The default value is 1.

Suppress blank lines

- **Off.** The suppression of blank lines will not occur.

- **Only within report body.** The suppression of blank lines will only occur within the body of the report.
**Reference:** Report Options Format Tab for HTML Reports

The following image shows the options that are available on the Format tab for HTML Web Document (HTML), HTML Table (HTMTABLE), Default, and User (HTML) reports.

**Virtual screen size**

Enables customization of the screen size for the report area that displays on the screen.

**Note:** Adjusting the virtual screen size applies to the work area in the Report Painter window. The report output is not affected by these settings.

**Page Margins**

Displays values that indicate the top, left, bottom, and right margins of the report page. Use the Reset and Clear buttons to reset to default values or clear your input.
Cell Padding

The amount of space between the gap values in the Cascading Style Sheet. Cell Padding displays values that indicate the top, left, bottom, and right margins. Values increment by 1/100 of an inch. Use the Reset and Clear buttons to reset to default values or clear your input.

Reference: Report Options Features Tab for PDF Reports

The following image shows the options that are available on the Features tab for Portable Document Format (PDF) reports.
**Note:** For the User format, if you want to use the accessibility option for PDF reports, you need to create and activate a style block for PDF using the Output Format toolbar. For more information on creating and activating style blocks, see *Generating Format-Specific Style Blocks* on page 441.

### Accessibility Options

**Accessibility**

Customizes the viewing of data on your computer. Select the Accessibility options from Default, 508, or Off.

**Report Summary**

Type a summary about the report in the text box. This option is only available when Accessibility is set to 508. The typed summary is read aloud by a screen reader, such as JAWS®.

### Suppress blank lines

**Off.** The suppression of blank lines will not occur.

**Only within report body.** The suppression of blank lines will only occur within the body of the report.

**Only around heading/footing.** The suppression of blank lines will only occur within the report body. This option is only available for the PDF, DHTML, PPT, and PS formats.

**For entire report.** The suppression of blank lines will occur throughout the entire report. This option is only available for the PDF, DHTML, PPT, and PS formats.
Reference:  Report Options Features Tab for DHTML, PostScript, and PowerPoint Reports

The following image shows the options that are available on the Features tab for DHTML Web Document (DHTML) reports, PostScript (PS) reports, and PowerPoint (PPT) reports.

**Suppress blank lines**

**Off.** The suppression of blank lines will not occur.

**Only within report body.** The suppression of blank lines will only occur within the body of the report.

**Only around heading/footing.** The suppression of blank lines will only occur within the report body. This option is only available for the PDF, DHTML, PPT, and PS formats.

**For entire report.** The suppression of blank lines will occur throughout the entire report. This option is only available for the PDF, DHTML, PPT, and PS formats.
Reference: Report Options Features Tab for an Active Technologies Report

The following image shows the options that are available on the Features tab for HTML active reports (AHTML), active report for Adobe® Flash® Player (FLEX), and active report for Adobe Flash Player in PDF (APDF). For more information about HTML active reports, see Creating an Active Technologies Report on page 282. For more information about active reports for Adobe Flash Player, see the WebFOCUS Active Technologies User’s Guide.

![Report Options Features Tab](image.png)
**Reference: Report Options Format Tab for an Active Technologies Report**

The following image shows the options that are available on the Format tab for HTML active reports (AHTML), active report for Adobe Flash Player (FLEX), and active report for Adobe Flash Player in PDF (APDF). For more information about HTML active reports, see *Creating an Active Technologies Report* on page 282. For more information about active reports for Adobe Flash Player, see the *WebFOCUS Active Technologies User’s Guide*. 

![Report Options Format Tab](image)

**Note:** The Application container options are not available on the Format tab for HTML active reports (AHTML).
**Reference:** Report Options Format Tab for PDF, PostScript, or DHTML Reports

The following image shows the options that are available on the Format tab for Portable Document Format (PDF), PostScript (PS), and DHTML Web Document reports.

**Paper Settings**

**Paper type**

Displays a list of paper types or media to choose from.

**Orientation**

- Click *Portrait* to print a report on a page that is taller than it is wide (vertically).
- Click *Landscape* to print on a page that is wider than it is tall (horizontally).
Field Properties and Report Options Dialog Boxes

**Label Options**

Launches the Mailing Label Options dialog box, where you can apply or customize label settings.

**View/Print options**

**Repeat sort fields per panel**

Enables the display of By fields in the left portion of each panel of a multi-panel report.

**Repeat headings/footings per panel**

Repeats headings/footings on each panel page when the columns presented on PDF reports cannot be displayed on a single page. For more information, see *How to Repeat Headings and Footings Per Panel in PDF Report Output* on page 218.

**Note:** This option is available only for PDF report output. If PS or DHTML is selected as the report output format, this option is unavailable.

**Use settings for PostScript printing**

Sends the page settings to a PostScript printer when printing in PS format.

**Display grid for object placement evaluation**

Displays a grid in the report output, which enables you to evaluate the correct placement of data and objects during your report design.

**Tip:** The display grid for object placement evaluation option may also be enabled by using the LAYOUTGRID setting in the Set tool. For more information about the Set tool, see *Customizing Your Environment* in the *Developing Reporting Applications* manual.

**Page Margins**

Displays values that indicate the top, left, bottom, and right margins of the report page. Use the Reset and Clear buttons to reset to default values or clear your input.

**Cell Padding**

The amount of space between the gap values in the Cascading Style Sheet. Cell Padding displays values that indicate the top, left, bottom, and right margins. Values increment by 1/100 of an inch. Use the Reset and Clear buttons to reset to default values or clear your input.
Reference: Mailing Label Options Dialog Box

The following image shows the Mailing labels options.

For more information about the Mailing Label Options dialog box, see Creating Mailing Labels on page 462.
**Reference: Report Options Format Tab for Excel Reports**

The following image shows the options that are available on the Format tab for Excel 2000 (EXL2K), Excel 2007 (EXL07), Excel 2000 Formula (EXL2K FORMULA), Excel 2000 PivotTable (EXL2K PIVOT), and User (Excel) reports.

**Worksheet options**

**Create separate worksheets for each primary sort value**

Adds the highest-level sort field and its values as a TOC in the report. This option deactivates all other options on the Format tab.

**Customize worksheet title**

Sets the worksheet name in the Excel workbook.

**Generate overflow sheets**

This indicates where the overflow rows of data break in the Excel worksheet. The default is 65,000 rows of data before an overflow sheet is generated. For more information, see *Generating Overflow Sheets for an Excel 2000 Report* on page 447.
**Note:** When you change formats from XLSX to EXL2K and ROWLIMIT exceeds 65,000, you will receive a message asking you if you want to proceed. If you decide to continue, ROWLIMIT will be set to 65,000. If you decide not to continue, the format will revert to XSLX, with no change to ROWLIMIT.

**Define a range name for the data**

Assigns a named range to a group of cells in Excel. There is a 256 character limit for named ranges. For more information, see *Using Excel Named Ranges in WebFOCUS Applications* on page 444.

**Excel template**

**Use template**

Select and choose the template file (Workbook Name).

**Note:** In order for your workbook to appear in the template name drop-down list, it must be in your WebFOCUS Reporting Server application directory.

**Worksheet to populate**

The number of the worksheet to populate in the workbook. For example, if you have 5 worksheets in your workbook and you designated the first worksheet for the WebFOCUS report, then you would enter 1.

For more information about Excel templates, see *Using Excel Templates* on page 443.
**Reference:** Report Options Format Tab for PowerPoint Reports

The following image shows the options that are available on the Format tab for PowerPoint® (PPT) reports.

![Report Options Format Tab for PowerPoint Reports](image)

**Paper Settings**

**Paper type**

Displays a list of paper types or media to choose from.

**Orientation**

- Click **Portrait** to print a report on a page that is taller than it is wide (vertically).
- Click **Landscape** to print on a page that is wider than it is tall (horizontally).

**Page Margins**

Shows values that indicate the top, left, bottom, and right margins of the report page. Use the Reset and Clear buttons to reset to default values or clear your input.

**PowerPoint template**

**Use template**

Select and choose the template file (PowerPoint Web Archive .MHT file name).
Note: In order for your .MHT file to appear in the template name drop-down list, it must be in your WebFOCUS Reporting Server application directory.

Tip: All .MHT files are shown in this directory so you may want to differentiate your Excel .MHT files from your PowerPoint .MHT files by using your own naming conventions. For example, Excel_template.MHT and PPT_template.MHT.

Select a slide to populate

The number of the slide to populate in the PowerPoint presentation. For example, if you have five slides in your presentation and you designated the first slide for the WebFOCUS report, then you would enter 1.

For more information about PowerPoint in Developer Studio, see Using PowerPoint Output Format and PowerPoint Templates on page 448.

Cell Padding

The amount of space between the gap values in the Cascading Style Sheet. Cell Padding displays values that indicate the top, left, bottom, and right margins. Values increment by 1/100 of an inch. Use the Reset and Clear buttons to reset to default values or clear your input.
**Reference: Report Options Style Tab**

The Report Options Style tab is show in the following image.

**active object**

Choose one of the following object areas from the active object drop-down list: Report, Title, Data, Table Heading, Table Footing, Heading, Footing, Subhead, Subfoot, Subtotal, Across Column, Across Title, Column Totals, Row Totals (Report), Row Totals (Title), and Row Totals (Data).

You can apply conditions, colors, grids, borders, or conditions to an object area.

**Copy Current Styling**

Copies the current styling attributes from the object area selected in the active object drop-down list.
**Paste to Current**

Paste the copied style to the object area selected in the active object drop-down list.

**Applying to Condition**

Displays existing conditions created with the Condition List and Edit Condition dialog boxes.

**Condition Rule**

Displays any condition rule(s) you created in the Edit Condition dialog box.

**Move Condition Up/Move Condition Down**

Rearranges the order of conditions applied in a column. Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

**Clear Associated Styling**

Clears associated styling for a column. Select a defined condition from the Applying to Condition dialog box in the Style tab and click this button.

**Edit Conditions**

Launches the Condition List dialog box. Click New to launch the Edit Condition dialog box, where you can create a new condition or edit an existing one. You can define conditions that control when to apply particular fonts, point size, text style, grids, color, and drill-down procedures.

**Graphical**

**Select Font**

Click the Select Font button to open the Font dialog box, where you can specify the font, font style, size, effects, and color for the selected object.

**Select Borders**

Opens the Borders dialog box, from which you can apply borders to the selected column.

**Note:** If grids are on, you cannot use the Borders feature.

**Select Grid**

Opens the Grid dialog box, from which you can apply a grid to the selected column. For PDF reports, you can specify a grid type (horizontal and vertical, horizontal, or vertical) and a Line style (none, light or heavy).
These options are not supported in HTML styled report formats.

The Select Grid button will be unavailable when the report includes one or more style sheet files that have border styling. To enable the button, you need to select a different style sheet.

**Visualize**

Click the Visualize button to open the Data Visualization dialog box, where you can insert data visualization bar graphs that correspond to the data in all numeric columns. Note that you cannot turn the data visualization feature on from the Report Options Style tab. It must be done from the Field Properties General tab or the right-click menu for a selected column. However, you can style the bar graphs from the Report Options Style tab. For details, see *Data Visualization Dialog Box* on page 409.

**Background Color**

You can apply a background color to the report or to an object area selected in the active object drop-down list.

Choose one of the following options:

- **None**
  
  No background color will be used.

- **Single Color**
  
  Click the Single Color option button and then the Select Colors button to open the Color dialog box. You can then select one background color.

- **Alternating Colors**
  
  Click the Alternating Colors option button and then the Select Colors button to open the Choose Background Colors dialog box. You can then assign alternating background colors to rows within columns.

- **Set Page Color**
  
  Allows you to select a color to apply to the entire report page.

**Report Layout**

- **Justification**
  
  Select a justification option for the selected column: Left, Right, Center, or Default to reinstate the default setting (left for alphanumeric columns and right for numeric columns).
Width

Choose one of the following options from the Width drop-down list:

<not set>

No width option is selected.

Maximum

Sets the width according to the length defined in the field format.

Minimum

Sets the width of the column according to the widest value or heading in the field. This is selected by default.

Truncate

Enables you to specify where to truncate the column width based on the specified units (inches or centimeters). To indicate that a field value has been truncated in the browser, WebFOCUS places an exclamation point (!) after every alphanumeric and text field value and an asterisk (*) after every numeric field value.

Wrap

Enables you to specify where to wrap data based on the specified units (inches or centimeters).

For related information, see Formatting a Column on page 233.

Limit to

Enables you to specify where to truncate or wrap data based on the specified units (inches or centimeters).

Note that the Limit to option is only activated when Truncate or Wrap is selected.

Preview in Painter

Enables you to preview a styling attribute in the Report Painter window (in addition to the Sample window in the Style tab).

Style File Selection

Opens the StyleSheet Selection dialog box, which enables you to reference or embed an external StyleSheet, use the default WebFOCUS StyleSheet, or apply no styling to your report. You may also save and include multiple StyleSheets. For more details, see StyleSheet Selection Dialog Box on page 108.
**Reference: StyleSheet Selection Dialog Box**

The Stylesheet Section dialog box allows you to customize your report using a stylesheet, as shown in the following image.

![StyleSheet Selection Dialog Box](image)

**Note:** The StyleSheet Selection dialog box opens to the Include StyleSheet File section, since every procedure has existing embedded styling by default. You may click Change Options and choose to embed or reference an external StyleSheet, use the WebFOCUS Default StyleSheet, or turn off all report styling. For more information about the StyleSheet File Selector, see *Using the StyleSheet File Selector* on page 421.

**Include StyleSheet File**

Provides options to include a StyleSheet, or multiple StyleSheets, to the report.

**External Cascading StyleSheet URL**

Enables you to type the name of a Cascading Style Sheet to be used in the report.

The external CSS (Cascading Style Sheet) file should be saved in an alias on the Web server. For more information, see *How to Apply an External Cascading Style Sheet (CSS)* on page 426.
Reference: Report Options Drill Down Tab

The following image shows the options that are available on the Drill Down tab for HTML reports.

**active object**

Choose one of the following object areas from the active object drop-down list: Report, Title, Data, Table Heading, Table Footing, Heading, Footing, Subhead, Subfoot, Subtotal, Across Column, Across Title, Column Totals, Row Totals (Report), Row Totals (Title), or Row Totals (Data).

You can apply conditions, colors, grids, borders, or conditions to an object area.

**Copy Current Styling**

Copies the current styling attributes from the object area selected in the active object drop-down list.

**Paste to Current**

Pastes the copied style to the object area selected in the active object drop-down list.
Applying to Condition

Displays existing conditions created with the Condition List and Edit Condition dialog boxes.

Condition Rule

Displays any condition rule(s) you created in the Edit Condition dialog box.

Move Condition Up/Move Condition Down

Rearranges the order of conditions applied in a column. Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

Clear Associated Styling

Clears associated styling for a column. Select a defined condition from the Applying to Condition dialog box in the Style tab and click this button.

Edit Conditions

Launches the Condition List dialog box. Click New to launch the Edit Condition dialog box, where you can create a new condition or edit an existing one. You can define conditions that control when to apply particular fonts, point size, text style, grids, color, and drill down procedures.

Drill Down Definition

**Caution:** Before you select a Drill Down Definition, specify the object to which the action will be applied (that is, column title and data, column data only, or column title only).

Multiple Drill Downs

This field is only enabled if an HTML styled report format is selected in the Report Options dialog box. The multiple drill down feature enables you to add detail to a report by creating hyperlinks that have multiple actions. For example, you can create hyperlinks that run a detail report or Maintain procedure, execute a JavaScript function, and link to a URL. When you click a component in the summary report, a pop-up menu appears, with the possible options to drill down to.

The multiple drill down feature applies to:

- In the Report Options dialog box, the Select Format option must be HTML Web Document (HTML), HTML Table (HTMTABLE), HTML active report (AHTML), or User styled report format.
Data fields in the body of the report, not to headings, subheadings, footings, or subfootings.

Multiple Drill Downs must be checked for the Drill Menu Items box to be displayed.

**Drill Menu Items**

Displays the default drill down name, DrillDown1, when the Multiple Drill Downs check box is selected. You can double-click the default name and enter another name for the first drill down. The Drill Menu Items input box also features buttons that allow you to add, delete, or change the order of drill down names.

**Drill Down Type**

The Drill Down Type options will not display if Default or No action is selected from the drop-down list.

**Default**

Default is automatically selected for you. No action is taken and no other options are available in the Drill Down Type section when this option is selected.

**No action**

Click No action to specify that no drill-down link will be executed.

**Execute Procedure**

Click Execute Procedure and enter the name of a procedure to link to in the Procedure Name field, or click the Browse button and choose the detail procedure from the Open dialog box. Click Open to open the Procedure window for the detail report.

**Execute Guided Procedure**

Click Execute Guided Procedure and click Edit to open the Guided DrillDown window. Here you can select the DrillDown procedures you wish to use and any parameters you wish to pass to those procedures. This creates a parameter that allows the user to select the drill-down procedure at run time.

**URL**

Click URL and enter the address to link to in the URL field. Click Open to open the specified URL in a web browser.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, Excel (2000, 2000 Formula, 97) and User Styled report formats.
**URL from field**

Click *URL from field* and choose a field name from the drop-down list to indicate that the URL referenced is the value of that field.

For example, if the data source contains a field, such as `E_MAIL` whose values are the email addresses of every employee, select `E_MAIL` from the Field drop-down list as the URL, and supply the proper parameters. This action enables a user to click a last name in the web browser, which opens the email application with the email address of the individual selected.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**JavaScript**

Click *JavaScript* to execute a JavaScript function. Enter the name of the function in the JavaScript field.

This option is only available for HTML Web Document (HTML), HTML active report (AHTML), PDF, and User styled report formats.

**Maintain Procedure**

Provides a link to a Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.

**Maintain Procedure Compiled**

Provides a link to a compiled Maintain procedure. Enter the name of the procedure in the Procedure Name field. For details, see *Drilling Down to a Maintain Procedure* on page 264.

**Maintain Case**

Provides a link to a Maintain Case. Enter the name of the case in the Procedure Name field.

**Note:** A Maintain Case is also known as a Function.

**Drill Through**

Enables you to define hyperlinks between the individual report components within a single PDF formatted document.
**Procedure Name**

Enter the required value here, or choose one from the drop-down list.

**Target Frame**

Specifies that the results of the drill-down link display in a target frame on a webpage. Select from the following standard HTML frame names: _blank, _self, _parent, _top. You can select different frames for multiple drill downs.

**Note:** When specifying a target frame from Report Painter, manually added commands in the StyleSheet are not recognized. For example, manually entering TARGET=NEW is removed when the procedure is run in Report Painter. Report Painter removes commands that it does not generate itself. For this example, set the target to _BLANK to open a drill down report in a new window.

**With Parameters**

Displays the parameters defined for the selected procedure or URL in the Drill Down Definition field.

**Add Button**

Enables you to create parameters for the selected procedure or URL. Opens the Drill Down Parameter dialog box.

**Edit Button**

Enables you to edit the selected parameter.

**Delete Button**

Deletes the selected parameter.

For details, see *Selecting Data* on page 158.
The Report Options Computes Tab is shown in the following image.

The Computes tab includes the following fields and options for creating expressions.

**Field Box**

- Displays the name of the calculated value. Assign a field name to the value you wish to calculate.

When editing a calculated value, click the down arrow on the Field combo box, and select the field you wish to edit. When you select a field, the corresponding information appears in the Format box, and the expression box. You can edit the information, eliminate the field, or run it.
Format Box
Displays the field type, field length, and display options. The field type can be alphanumeric, numeric, or date/time.

Format Button
Opens the Format dialog box, where you can assign format information to the calculated value.

Expression Box
Displays the expression used to evaluate the field.

Type the expression, or use the Fields list, Calculator, and Functions list to help you create the expression.

Calculator
Provides numbers and operators that you can use to create numeric, alphanumeric, and conditional expressions. Click the desired number or operator to add it to the expression box.

☐ To enclose a value in parentheses, click the ( ) key in the calculator. Parentheses affect the order in which the specified operations are performed.

☐ To enclose a value in single quotation marks, click the ‘ ’ key in the calculator. Use single quotation marks to enclose alphanumeric and date literals.

☐ To convert entries in the expression box to uppercase, click the U key in the calculator. Note that field names are case-sensitive.

New Button
Clears the entry box, including the Field combo box and the corresponding expression. It also returns the format to the default value D12.2, and places the cursor in the Field combo box so you can begin to create a new field. The New button becomes available for use once a name for the expression is entered in the Field box. Once a name is entered and you click the New button, the previous expression is saved and can be retrieved by selecting that expression from the Field drop-down list.

Delete Button
Deletes the current expression and clears the tab.
**Functions Button**

Opens the Function Arguments dialog box, which lists all available built-in functions. A list of predefined functions are grouped into categories that include Character, Data Source and Decoding, Date and Time, Format Conversion, Numeric, and System. Each of the available functions is a program that returns a value. There is also a list of all available user defined functions. For more information on user defined functions, see *Using User Defined Functions* on page 323.

Double-click the desired function to add it to the expression box. Then, in the expression box, highlight each argument and substitute the value or field name you wish to use. For details, see the *Using Functions* manual.

**Fields Button**

Opens the Insert Field window. The Field tab lists all fields in the data source. The Column tab lists all fields being used in the report. If there are no fields being used, the Column tab will display all fields in the data source. Click *Insert* while a field is highlighted to insert that field into the expression.

**Options Button**

Opens the Options window, which enables you to establish how to interpret and represent missing values for the virtual field.

**OK Button**

Checks the syntax for your calculated value and displays a warning message. You cannot exit until the errors are fixed. When the syntax is correct and you click *OK*, the Computes tab closes. You can continue building your report.
**Reference: Report Options View Tab**

The Report Options View tab is shown in the following image.

### General

- Click **Boundaries** to show or hide the boundaries for report objects, such as headings and footings.
- Click **Test Data** to display test data in a design mode.
- Click **Show Tool Tips for Fields** to display tool tips.
Click Show Invisible Fields to display hidden fields (that is, fields that are unavailable in the Report Painter window).

**Field List**

Click one or more options to control the display of field information on the Computes tab:

- Sort Field List alphabetizes the field names in the Fields window.
- Show Qualified Fields lists the field names in the Fields window as qualified field names.
- Show Field Name shows/hides the full field name in the Fields window, as provided in the Master File. This option is selected by default.
- Show Field Title shows/hides the field column title in the Fields window, as provided in the Master File.
- Show Field Alias shows/hides the alternate field name in the Fields window, as provided in the Master File.
- Show Field Description shows/hides descriptive information about the field in the Fields window, as provided in the Master File.
- Show Field Format shows/hides in the Fields window the field usage attributes, which include the field length and format.

**Field Length Limits**

This field is enabled when you check Limit Field Lengths. Enter a number that represents the maximum length of a field or maximum number of characters that can appear in the report.

**Ruler**

Click Ruler to show or hide a standard ruler at the top of the Report Painter window.

**Repetitions**

Click 1, 2, or 3 to specify the number of test data instances that appear for a field. The default value is 2.

**Zoom**

Specify the size (magnification scale) of the Report Painter window: 100%, 75%, 50%, or 25%. The default value is 100%.
Reference: Report Options Images Tab

The Report Options Images tab is shown in the following image.

Entry Field

Enter the image file being added to the report, including its path, or select a file or field from the Image Source field. Your selection is reflected in the Entry field.

Pop-up description

Enables you to provide alternative information about the image in the output, when the mouse is hovered over the image. For more information, see How to Create a Pop-Up Description for an Image on page 416.

List Box

Displays a list of the images or fields you have added to the report.
**Add Button**

Adds the graphic image displayed in the entry field to the list box window.

**Delete Button**

Deletes the image from the report or the selected object.

Click the image name or field name in the list box and click the *Delete* button.

**Drill Down Button**

Opens the drill-down dialog box where you can set up drill-down options for the image. This option is only available for the HTML Web Document (HTML) styled report format.

**Image Source**

Identifies the source of the graphic image:

Select *File Name* to enter the path and exact file name of the image in the entry field, or click the *Browse* button to select an image.

Select *Field Value* to enter the report field that points to the images, where the value of each record corresponds to a graphic image file name that you have placed on the path or you have inserted in the field data source.

Select *Graph* to insert a graph. You must have a graph request with the output set to file (HOLD) before creating the report. The report automatically detects the graph request in the procedure and activates the Graph button on the Report Options Images tab.

**Image properties**

**Position**

Specifies the starting position of the image in relation to the report object in which the image is embedded (for example, Subheading). Specify the X and Y coordinates.

**Note:** To use these features in HTML styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

**Size**

Scales the image to a desired width and height. The default behavior is to render the image at its original size.

Select the *Custom* option button and specify the height and width in the X and Y boxes.

**Note:** To use these features in HTML styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.
**Units: Inches**

Displays the unit of measurement (inches or centimeters).

**Location**

Select one of the locations from the Location drop-down list: Page or Background.

If you add a subfooting, subheading, subtotal, report heading, or report footing to your report, these object areas are also listed to enable you to attach an image to these locations.

**Include As Reference**

Includes the image as a reference instead of embedded. This option is only available for the HTML Web Document (HTML), HTML Table (HTMTABLE), PDF, PS, Default, and User styled report formats.

**Show Images In Report View**

Shows or hides the image in the Report Painter window.
Creating Reports With Report Painter

Report Painter provides you with many powerful reporting features, such as:

- Inclusion of calculated values in reports.
- Options for creating section subtotals, subheadings, and subfootings.
- Control of column formatting.
- Support for hyperlinking (or drill-down functionality).
- Integration with other business intelligence tools, such as the Financial Report Painter and data visualization.

For details about the many sophisticated Report Painter styling features, see *Styling Reports With Report Painter* on page 355.

**In this chapter:**

- Adding a Field as a Report Column
- Formatting a Column
- Displaying Data
- Choosing an Output Format
- Sorting Data
- Creating a Drill Down Procedure
- Selecting Data
- Creating a Multiple Drill Down Procedure
- Universal Concatenation in Report Painter
- Creating an Active Technologies Report
- Navigating Sort Groups From a Table of Contents
- Running and Saving a Report
- Including a Total or Subtotal
- Creating Precision Reports
- Adding a Page Heading or Footing
- Using User Defined Functions
Adding a Field as a Report Column

To create a report, you must add fields to it. Ordinarily, when you add a field to a report, the field name appears as the column title and the field values appear within that column. If you choose to organize data horizontally rather than vertically, the field name appears as a row label rather than as a column title. But, from the point of view of adding fields to a report, the principle is the same. For details, see Sorting Data on page 133.

The Fields tab in the Object Inspector lists all field names available for use in your report. This includes fields in the open file, and any joined files, as well as temporary fields and variable fields.
Selecting a field in the Fields tab displays the field properties in the bottom pane of the Object Inspector. You can right-click a field and adjust the amount, type, and order of information that appears in the Fields tab. For example, you can automatically sort the fields and display the format and/or description for each field.

**Note:** Right-click and click *Hide Details section* to show or hide details anywhere in the Object Inspector.

You can also create a variable field as a column to control output. For example, in a cost report, the variable might be &COST, which would allow a user to specify RETAIL_COST or DEALER_COST at run time. For details, see *How to Create a Variable Field in Your Report* on page 165.

**Procedure:** **How to Add Columns to Your Report**

To add columns to your Report Painter window from the Fields tab in the Object Inspector:

- Double-click a field name in the Fields tab.
- Drag a field or fields from the Fields tab to the Report Painter window.

**Note:** You can multi-select fields and drag them from the Fields tab to the Report Painter window. You can multi-select by holding control and left clicking or by holding the Shift key and clicking, using the up arrow, or using the down arrow. You are able to multi-select from anywhere that you are able to drag and drop a field.

**Procedure:** **How to Create a Temporary Field in Your Report**

You can create a temporary field based on existing information in the data source, and then add that field to your report request.

Click the *Options* button from the Output Format toolbar and click the *Computes* tab from the Report Options dialog box, where you can create the temporary field.

**Tip:** You can also select the *Compute* icon, located on the Setup toolbar.

The temporary field that you create will be listed in the Computed Fields (in the Fields tab in the Object Inspector) so that you can add it to the report as you would any other field.
As you create your temporary field, the fields in the data source you are reporting against are listed in a secondary Fields window that shows field names and descriptions by default. Click the Fields button on the Computes tab to open the secondary Fields list window. To adjust the information that you see in the Fields list window (for example, to display field aliases, along with the field names), right-click in the window and click Show Alias from the pop-up menu.

For details about creating temporary fields in reports, see Creating a Calculated Value With Report Painter on page 473.

Moving or Deleting a Column

You can copy, cut, paste, drag and drop, and delete columns in reports.

**Procedure:** How to Cut or Copy and Paste a Column

1. Select the column or columns you want to cut or copy.
2. Select Cut or Copy from the Edit menu.
3. Position the mouse pointer between columns in the column title area.
   
   You will see a hand with a finger pointing down at the target location.
4. Click the left mouse button.
   
   The Insert Mode symbol displays at the target location.
5. Click Paste from the Edit menu.

**Procedure:** How to Drag and Drop a Field

To drag a field from the Fields tab in the Object Inspector to the Report Painter window, select the field and drag it to the desired location.

To move a column from one location to another in the Report Painter window, select and drag the column to the new location.

**Procedure:** How to Delete a Column

To delete a column from a report, right-click the column and click Delete from context menu or press the Delete key.

**Displaying Data**

Reporting, at the simplest level, retrieves field values from a data source and displays those values. There are several ways to do this:
List each field value. For details, see Displaying Individual Values on page 127.

Add all the values and display the sum. For details, see Displaying Summed Values on page 128.

These display options are very flexible. You can report from several fields using a single command and include several different display commands in a single report request.

Tip: The WebFOCUS language provides a few detail and summary variations that the graphical reporting tools do not support. For more information, see the Creating Reports With WebFOCUS Language manual.

Displaying Individual Values

The Detail option lists individual values of the field(s) you specify.

For all Detail requests, the number of records retrieved and the number of lines displayed are the same. Unless you choose to sort the data, the Detail option simply displays all the values of the selected fields in the order in which they are accessed from the data source. For details on sorting, see Sorting Data on page 133.

Procedure:  How to Display Detailed Data in Report Painter

Click the Detail button on the Columns toolbar. Detail is selected by default.

Your selection is applied to any fields you select while that button is highlighted. This enables you to choose different display options within the same report.

Tip: After a field is in the Report Painter window, you can change its display mode by selecting the field and clicking either the Detail or Sum button.

Example:  Creating a Detail Report

Suppose that you want to compare your product line to that of your competition. The following example shows how to create a detail report that lists the products that Gotham Grinds carries along with the wholesalers from which these products are purchased.

1. Open the GGPRODS data source in Report Painter.
   Note that the Detail button on the Report Painter toolbar is selected. This is the default.

2. Double-click or drag VENDOR_NAME from the Fields tab of the Object Inspector.

3. Double-click or drag PRODUCT_DESCRIPTION from the Fields tab of the Object Inspector.
4. Run the report by clicking the Run button on the toolbar.

The report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee Connection</td>
<td>Hazelnut</td>
</tr>
<tr>
<td>European Specialties</td>
<td>French Roast</td>
</tr>
<tr>
<td>Evelina Imports, Ltd</td>
<td>Kona</td>
</tr>
<tr>
<td>Ridgewood Bakeries</td>
<td>Scone</td>
</tr>
<tr>
<td>Delancey Bakeries</td>
<td>Biscotti</td>
</tr>
<tr>
<td>West Side Bakers</td>
<td>Croissant</td>
</tr>
<tr>
<td>NY Ceramic Supply</td>
<td>Mug</td>
</tr>
<tr>
<td>ThermoTech, Inc</td>
<td>Thermos</td>
</tr>
<tr>
<td>Appliance Craft</td>
<td>Coffee Grinder</td>
</tr>
<tr>
<td>Appliance Craft</td>
<td>Coffee Pot</td>
</tr>
</tbody>
</table>

Displaying Summed Values

The Summary option adds the values of numeric fields. When you use the Summary option, multiple records are read from the data source, but only one summary line is produced.

If you use the Summary option with a non-numeric field, such as an alphanumeric, text, or date field, Report Painter will not add the values. Instead, it will display the last value retrieved from the data source. This may not be useful.

Tip: You can also perform calculations on individual fields. For details, see Performing a Calculation on a Numeric Column on page 129.

Procedure: How to Display Summary Data in Report Painter

Click the Sum button on the Columns toolbar. (Detail is selected by default.)

Your selection is applied to any fields you select while that button is highlighted. This enables you to choose different display options within the same report.

Tip: After a field is in the Report Painter window, you can change its display mode by selecting the field and clicking either the Detail or Sum button.
**Example:** Creating a Summary Report

Suppose that you want to see total sales for your various retailers. The following example shows how to create a summary report of total sales for Gotham Grinds stores in each region.

1. Open the GGSALES data source in Report Painter.
2. Identify your sort column. Click the *By* button on the Report Painter toolbar then double-click or drag *REGION* from the Fields tab of the Object Inspector.
3. Identify your summary column. Click the *Sum* button on the Report Painter toolbar then double-click or drag *DOLLARS* from the Fields tab of the Object Inspector.
4. Format the Dollar Sales column. Right-click *Dollar Sales* in the Report Painter window and click *Format*. Click *Decimal* in the Format Types box. Click *Floating dollar – M* from the Edit Options list. Click OK.
5. Run the report by clicking the *Run* button on the toolbar. The report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>Region</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>$11,400,665.00</td>
</tr>
<tr>
<td>Northeast</td>
<td>$11,392,310.00</td>
</tr>
<tr>
<td>Southeast</td>
<td>$11,710,379.00</td>
</tr>
<tr>
<td>West</td>
<td>$11,652,957.00</td>
</tr>
</tbody>
</table>

**Performing a Calculation on a Numeric Column**

You can use built-in operators to perform calculations directly on the values of numeric fields, and display the results of the calculations in your reports. With one exception (percent) these operators only work in Summary mode. For example, you can:

- Calculate the average of field values.
- Determine the minimum or maximum of field values.
- Calculate the percent value of field and count values.
- Determine the square and average of squared values.
- Sum and count numeric values.
- Retrieve the first or last record.

Each prefix operator is applied to a single column and affects only that column.
**Procedure:** How to Perform an Operation on a Column

1. Select the column in the Report Painter window.
2. Select the operation to perform.
   - From the Prefix toolbar, select an operator from the Prefix Operator drop-down list.
   - or
   - Right-click the column and select Options from the context menu to open the Field Properties dialog box. Click the General tab to select an operator from the Prefix drop-down list.

**Tip:** In Report Painter, the list of available operators adjusts to show those that are appropriate for the type of field you select. For details, see *Operations You Can Perform on Fields* on page 130.

**Reference:** Operations You Can Perform on Fields

The available operations may vary, depending on the type of field selected. For details on these prefix operators, see the *Creating Reports With WebFOCUS Language* manual.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASQ.</strong></td>
<td>Computes the average sum of squares for standard deviation in statistical analysis.</td>
</tr>
<tr>
<td><strong>AVE.</strong></td>
<td>Computes the average value of the field.</td>
</tr>
<tr>
<td><strong>CNT.</strong></td>
<td>Counts the number of occurrences of the field.</td>
</tr>
<tr>
<td><strong>CNT.DST.</strong></td>
<td>Counts the number of distinct values within a field.</td>
</tr>
<tr>
<td><strong>CT.</strong></td>
<td>Produces a cumulative total of the specified field. This operator only applies when used in subheadings and subfootings.</td>
</tr>
<tr>
<td><strong>DST.</strong></td>
<td>Determines the total number of distinct values in a single pass of a data source.</td>
</tr>
<tr>
<td><strong>FST.</strong></td>
<td>Generates the first physical instance of the field. Can be used with numeric or text fields.</td>
</tr>
<tr>
<td>Prefix</td>
<td>Function</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>LST.</td>
<td>Generates the last physical instance of the field. Can be used with numeric or text fields.</td>
</tr>
<tr>
<td>MAX.</td>
<td>Generates the maximum value of the field.</td>
</tr>
<tr>
<td>MIN.</td>
<td>Generates the minimum value of the field.</td>
</tr>
<tr>
<td>PCT.</td>
<td>Computes a field percentage based on the total values for the field. The PCT operator can be used with detail, as well as summary fields.</td>
</tr>
<tr>
<td>PCT.CNT.</td>
<td>Computes a field percentage based on the number of instances found. The format of the result is always F6.2 and cannot be reformatted.</td>
</tr>
<tr>
<td>RPCT.</td>
<td>Computes the percentage of a field based on the total values for the field across a row.</td>
</tr>
<tr>
<td>ST.</td>
<td>Produces a subtotal value of the specified field at a sort break in the report. This operator only applies when used in subheadings and subfootings.</td>
</tr>
<tr>
<td>SUM.</td>
<td>Sums the number of occurrences of the field.</td>
</tr>
<tr>
<td>FROLL</td>
<td>For data sources that use the parent/child hierarchy model, you can show either full or partial aggregation in the report output. *Note: This option is only available when using a multi-dimensional data source. For more information about using the FROLL prefix operator with a multi-dimensional data source, see Manipulating Aggregated Data in an Essbase or SAP BW Hierarchy in the Creating Reporting Applications With Developer Studio manual.</td>
</tr>
<tr>
<td>TOT.</td>
<td>Counts the occurrences of the field for use in a heading (includes footings, subheadings, and subfootings).</td>
</tr>
</tbody>
</table>

**Displaying Missing Data**

When reporting against a hierarchical data source, you can display segment instances that lack descendants by applying the All operator to a field.
For example, imagine that you want to create a salary report that highlights salary increases, but lists the names of all employees in the company. When reporting against a hierarchical data source like FOCUS, you can display segment instances that lack descendants, both those that received increases and those that did not. When you apply the All operator to the field that contains employee names, WebFOCUS displays the names but inserts a character indicating that there is no data present for any missing field values in the report. In this case, that means the salary increase information. The default missing data character is a period. For an illustration, see Including a Missing Segment Instance With the All Operator on page 132.

All can be applied to display fields and sort fields. It can be applied to multiple fields in a request and combined with operators that perform calculations on the selected fields. For details, see Operations You Can Perform on Fields on page 130.

**Note:** If your request includes selection criteria that screen fields in segments that are missing instances, the report omits the parent instances even when you use the All operator. For details, see Handling Records With Missing Field Values in the Creating Reports With WebFOCUS Language manual.

**Procedure:** How to Include a Missing Segment Instance in a Report

In the Report Painter window:

1. Select a column that you want to include in the report even if there are missing instances of data for related fields in the report.
2. Click Options from the Properties menu.
   
   or

   Right-click and click Options from the context menu.
3. The Field Properties dialog box opens. Click the General tab.
4. Click the ALL operator from the Prefix drop-down list.

**Example:** Including a Missing Segment Instance With the All Operator

The following request displays the salary history of each employee. The report is sorted by last name (LAST_NAME), first name (FIRST_NAME), and date of increase (DAT_INC), with the ALL operator applied to LAST_NAME. Notice that the names Davis and Gardner appear in the report even though they did not receive salary increases.
The output is:

<table>
<thead>
<tr>
<th>LAST_NAME</th>
<th>FIRST_NAME</th>
<th>DAT INC</th>
<th>SALARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>BANNING</td>
<td>JOHN</td>
<td>82/08/01</td>
<td>$29,700.00</td>
</tr>
<tr>
<td>BLACKWOOD</td>
<td>ROSEMARIE</td>
<td>82/04/01</td>
<td>$21,780.00</td>
</tr>
<tr>
<td>CROSS</td>
<td>BARBARA</td>
<td>81/11/02</td>
<td>$25,775.00</td>
</tr>
<tr>
<td>DAVIS</td>
<td>ELIZABETH</td>
<td>82/04/09</td>
<td>$27,062.00</td>
</tr>
<tr>
<td>GARDNER</td>
<td>DAVID</td>
<td>82/06/11</td>
<td>$21,500.00</td>
</tr>
<tr>
<td>GREENSPAN</td>
<td>MARY</td>
<td>82/01/04</td>
<td>$24,420.00</td>
</tr>
<tr>
<td>IRVING</td>
<td>JOAN</td>
<td>82/05/14</td>
<td>$26,862.00</td>
</tr>
<tr>
<td>JONES</td>
<td>DIANE</td>
<td>82/06/01</td>
<td>$22,480.00</td>
</tr>
<tr>
<td>MCCOY</td>
<td>JOHN</td>
<td>82/02/02</td>
<td>$23,000.00</td>
</tr>
<tr>
<td>MCKNIGHT</td>
<td>ROGER</td>
<td>82/05/14</td>
<td>$28,100.00</td>
</tr>
<tr>
<td>ROMANS</td>
<td>ANTHONY</td>
<td>82/07/01</td>
<td>$21,120.00</td>
</tr>
<tr>
<td>SMITH</td>
<td>MARY</td>
<td>82/01/01</td>
<td>$23,200.00</td>
</tr>
<tr>
<td>STEVENS</td>
<td>RICHARD</td>
<td>82/05/14</td>
<td>$26,500.00</td>
</tr>
<tr>
<td></td>
<td>ALFRED</td>
<td>81/01/01</td>
<td>$27,000.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>82/01/01</td>
<td>$28,100.00</td>
</tr>
</tbody>
</table>

**Sorting Data**

Sorting enables you to group or organize report information vertically and horizontally, in rows and columns, and specify a display sequence.

The sort field organizes the rows and columns and controls the sequence of data items in the report. Any field in the data source can be the sort field. If you wish, you can select several sort fields, nesting one within another. Sort fields appear when their values change.

You sort a report using **By** and **Across** options:

- **By.** Displays the sort field values vertically, creating rows. Report Painter displays vertical sort fields in the left-most columns of the report.

- **Across.** Displays the sort field values horizontally, creating columns. Report Painter displays horizontal sort fields across the top of the report.

- **By and Across.** Used in the same report create rows and columns, producing a grid or matrix.

**Sorting Rows**

You can sort report information vertically using the **By** option. As Report Painter displays sort field values vertically, it creates rows.

You can include up to 32 vertical (By) sort phrases in a request (31 if you combine vertical sorting with the Detail display option).

If you are sorting vertically, you can:
Control the replacement of vertical sort fields. For details, see *How to Control the Placement of a Vertical Sort Field on a Report* on page 135.

Choose the number of sort records to display. For details, see *How to Display a Specific Number of Sort Values* on page 135.

Add underlines, blank lines, and page breaks at sort breaks. For details, see *How to Add an Underline, Blank Line, or Page Break at a Vertical Sort Break* on page 136.

Reset the page number after a sort break. For details, see *How to Add an Underline, Blank Line, or Page Break at a Vertical Sort Break* on page 136.

Group numeric data into ranges. For details, see *How to Group Numeric Data Within a Range* on page 136.

Rank data numerically. For details, see *How to Rank Data Numerically* on page 140.

Sort and aggregate a report column. For details, see *How to Aggregate and Sort Report Columns* on page 141.

Add a dynamic table of contents to an HTML report in order to quickly navigate and analyze multiple levels of sorted data. For details, see *Navigating Sort Groups From a Table of Contents* on page 195.

For related information, see *Additional Sorting Options* on page 147.

**Procedure:** *How to Sort Rows*

1. Click the *By* button on the Columns toolbar to sort vertically (creating rows).
2. From the Fields tab in the Object Inspector, double-click the field you wish to use for sorting, or drag the sort field from the Fields tab to the Report Painter window. The sort field appears in the left column of the Report Painter window.
Example: Sorting Vertically

The following report displays all employee IDs (EMP_ID) sorted vertically by DEPARTMENT.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>EMP_ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>112847612</td>
</tr>
<tr>
<td></td>
<td>117593129</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>219984371</td>
</tr>
<tr>
<td></td>
<td>326179357</td>
</tr>
<tr>
<td></td>
<td>543729165</td>
</tr>
<tr>
<td></td>
<td>818692173</td>
</tr>
<tr>
<td></td>
<td>071382660</td>
</tr>
<tr>
<td></td>
<td>119265415</td>
</tr>
<tr>
<td></td>
<td>119329144</td>
</tr>
<tr>
<td></td>
<td>123764317</td>
</tr>
<tr>
<td></td>
<td>126724188</td>
</tr>
<tr>
<td></td>
<td>451123478</td>
</tr>
</tbody>
</table>

Notice that the sort field DEPARTMENT automatically appears as the left column in the report. The sort field values (MIS and PRODUCTION) appear when the sort field changes.

Procedure: How to Control the Placement of a Vertical Sort Field on a Report

Ordinarily, vertical sort fields appear in the left hand column of a report. To control the placement of sort fields in a report, choose one of the following options from the Report Options Output tab.

Default field placement
Prevents or restricts the relocation of sort fields.

Custom field placement
Enables you to move sort fields.

Reset
Click to restore the default placement of fields.

Procedure: How to Display a Specific Number of Sort Values

You can choose the number of records to display in your report. For example, you can display the top five salaries in a report that sorts by current salary.

1. Right-click a vertical sort (By) field and click Options from the context menu, then select the Sort tab from the Field Properties dialog box.

2. In the Sort Limit field, type the number of sort values to display, select one of the predefined values, or click Variable to be prompted for a value at run time.
**Procedure:** How to Add an Underline, Blank Line, or Page Break at a Vertical Sort Break

You can use formatting options to enhance the readability and usefulness of a report. These options apply only to a vertical sort (By) field. To add underlines, skipped lines, or page-breaks at each sort break:

1. Right-click a sort (By) field and click *Options* from the context menu, then click the *Sort* tab from the Field Properties dialog box.
2. From the Actions tab, choose a formatting options:

   **Underline**
   
   Include a horizontal line across the width of a report after the value of the selected sort field changes. To apply this action in HTML styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

   **Skip Line**
   
   Skip a line on a report when the value of the selected sort field changes. To apply this action in HTML styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

   **No Split**
   
   Break sort fields logically and regenerate the field heading on the next page or screen.

   **Fold Line**
   
   Causes columns to be placed on a separate line when the value of the sort field changes. This feature is not supported for HTML styled report formats.

   **Page Break**
   
   Start a new report page when the value of a selected sort field changes.

   **Restart Page Numbering**
   
   Resets the page number to one at the sort break. The Page-break option must be selected.

---

**Procedure:** How to Group Numeric Data Within a Range

This option only applies to a numeric By field.
You can group sort field values together and define the range of each group.

For example, in a report that lists employees by salary, instead of showing each individual salary, you can group employees by salary increments of $5000. The list of salaries appears as $5000, $10,000, $15,000, and so on.

1. Right-click a numeric sort (By) field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box.

2. From the Grouping subtab, select IN-GROUPS-OF from the Grouping drop-down list.

3. Type the sort field increment in the Range or Number of Tiles drop-down list or click Variable to be prompted for a value at run time.

4. Select On from the Limit drop-down list and enter the grouping limit in the Highest Value drop-down list.

**Note:** Highest Value is an optional number that defines the highest range label to be included in the report. The range is extended to include all data values higher than this value.

5. Click OK.

In the image below, the report lists employees by salary in groups of $5,000 intervals.

<table>
<thead>
<tr>
<th>CURRENT SAL</th>
<th>LAST NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000.00</td>
<td>SMITH, GREENSPAN</td>
</tr>
<tr>
<td>$10,000.00</td>
<td>STEVENS, SMITH</td>
</tr>
<tr>
<td>$15,000.00</td>
<td>JONES, MCCOY, MCKNIGHT</td>
</tr>
<tr>
<td>$20,000.00</td>
<td>ROMANS, BLACKWOOD</td>
</tr>
<tr>
<td>$25,000.00</td>
<td>BANNING, IRVING, CROSS</td>
</tr>
</tbody>
</table>
The image below is the same report showing groups in $5,000 intervals and a group limit of $15,000.

<table>
<thead>
<tr>
<th>CURR_SAL</th>
<th>LAST_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000.00</td>
<td>SMITH</td>
</tr>
<tr>
<td>$10,000.00</td>
<td>GREENSPAN</td>
</tr>
<tr>
<td>$15,000.00</td>
<td>STEVENS</td>
</tr>
<tr>
<td></td>
<td>SMITH</td>
</tr>
<tr>
<td></td>
<td>JONES</td>
</tr>
<tr>
<td></td>
<td>BANNING</td>
</tr>
<tr>
<td></td>
<td>IRVING</td>
</tr>
<tr>
<td></td>
<td>ROMANS</td>
</tr>
<tr>
<td></td>
<td>MCCOY</td>
</tr>
<tr>
<td></td>
<td>BLACKWOOD</td>
</tr>
<tr>
<td></td>
<td>MCKNIGHT</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
</tr>
</tbody>
</table>

**Procedure:** How to Group Numeric Data Into Ranges

This option only applies to a numeric By field.

When you sort a report using a numeric sort field, you can group the sort field values together and define groups of equal range using the In-Ranges-Of option.

For example, in a report that lists employees by salary, instead of showing each individual salary, you can group employees by salary in ranges of $5000. The list of salaries appears as $5000–$9999.99, $10,000–14,999.99, $15,000–$19,999.99, and so on.

1. Right-click a numeric sort (BY) field and click **Options** from the context menu, then click the **Sort** tab from the Field Properties dialog box.

2. From the Grouping subtab, select the **IN-RANGES-OF** from the Grouping drop-down list.

3. Type the sort field increment in the Range or Number of Tiles drop-down list or select **Variable** to be prompted for a value at run time.

4. Click **On** from the Limit drop-down list and enter the grouping limit in the Highest Value drop-down list.

**Note:** Highest Value is an optional number that defines the highest range label to be included in the report. The range is extended to include all data values higher than this value.
5. Click OK.

In the image below, the report lists employees by salary in ranges of $5,000 intervals.

<table>
<thead>
<tr>
<th>CURR SAL</th>
<th>LAST_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000.00 - $9,999.99</td>
<td>SMITH</td>
</tr>
<tr>
<td></td>
<td>GREENSPAN</td>
</tr>
<tr>
<td>$10,000.00 - $14,999.99</td>
<td>STEVENS</td>
</tr>
<tr>
<td></td>
<td>SMITH</td>
</tr>
<tr>
<td>$15,000.00 - $19,999.99</td>
<td>JONES</td>
</tr>
<tr>
<td></td>
<td>MCCOY</td>
</tr>
<tr>
<td></td>
<td>MCKNIGHT</td>
</tr>
<tr>
<td>$20,000.00 - $24,999.99</td>
<td>ROMANS</td>
</tr>
<tr>
<td></td>
<td>BLACKWOOD</td>
</tr>
<tr>
<td>$25,000.00 - $29,999.99</td>
<td>BANNING</td>
</tr>
<tr>
<td></td>
<td>IRVING</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
</tr>
</tbody>
</table>

The image below is the same report showing ranges in $5,000 intervals and a group limit of $15,000.

<table>
<thead>
<tr>
<th>CURR SAL</th>
<th>LAST_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,000.00 - $9,999.99</td>
<td>SMITH</td>
</tr>
<tr>
<td></td>
<td>GREENSPAN</td>
</tr>
<tr>
<td>$10,000.00 - $14,999.99</td>
<td>STEVENS</td>
</tr>
<tr>
<td></td>
<td>SMITH</td>
</tr>
<tr>
<td>$15,000.00 - $19,999.99</td>
<td>JONES</td>
</tr>
<tr>
<td></td>
<td>MCCOY</td>
</tr>
<tr>
<td></td>
<td>MCKNIGHT</td>
</tr>
<tr>
<td>$15,000.00 - $19,999.99</td>
<td>BANNING</td>
</tr>
<tr>
<td></td>
<td>IRVING</td>
</tr>
<tr>
<td></td>
<td>ROMANS</td>
</tr>
<tr>
<td></td>
<td>MCCOY</td>
</tr>
<tr>
<td></td>
<td>BLACKWOOD</td>
</tr>
<tr>
<td></td>
<td>MCKNIGHT</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
</tr>
</tbody>
</table>

**Procedure:** How to Group Numeric Data Into Tiles

This option only applies to a numeric By field.

You can group numeric data into any number of tiles (percentiles, deciles, and so on) in tabular reports. For example, you can group salary into deciles to determine which employees are earning the top salaries in each department.
Grouping is based on the values in the selected vertical (BY) field, and data is apportioned as equally as possible into the number of tile groups you specify.

1. Right-click a numeric sort (By) field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box.

2. From the Grouping subtab, select the IN-GROUPS-OF from the Grouping drop-down list.

3. Enter the range (or number of tiles) in the Range or Number of Tiles drop-down list or select Variable to be prompted for a value at run time.

   **Note:** Range or Number of Tiles is the number of tiles that is used to group the report.

4. Click On from the Tiles drop-down list and enter a title for the Tile in the Title box.

   If you do not enter a Title, a new column labeled TILE by default, is added to the report and shows the tile number assigned to each instance of the tile field.

5. Click OK.

The following image is an example of a report showing salaries grouped into five tiles. Note that the tiles are assigned within the higher-level sort field DEPARTMENT. The MIS category not have any data assigned to tile 3. The PRODUCTION category has all five tiles. For more information about how tiles are grouped, see Grouping Numeric Data Into Tiles in the Sorting Tabular Reports chapter of the Creating Reports With WebFOCUS Language manual.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>CURR_SAL</th>
<th>TILE</th>
<th>LAST_NAME</th>
<th>FIRST_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>$9,000.00</td>
<td>1</td>
<td>GREENSPAN</td>
<td>MARY</td>
</tr>
<tr>
<td></td>
<td>$13,200.00</td>
<td>1</td>
<td>SMTH</td>
<td>MARY</td>
</tr>
<tr>
<td></td>
<td>$18,480.00</td>
<td>2</td>
<td>JONES</td>
<td>DIANE</td>
</tr>
<tr>
<td></td>
<td>$21,780.00</td>
<td>4</td>
<td>BLACKWOOD</td>
<td>ROSEMARIE</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>$9,500.00</td>
<td>1</td>
<td>SMTH</td>
<td>RICHARD</td>
</tr>
<tr>
<td></td>
<td>$11,000.00</td>
<td>1</td>
<td>STEVENS</td>
<td>ALFRED</td>
</tr>
<tr>
<td></td>
<td>$16,100.00</td>
<td>2</td>
<td>MCKNIGHT</td>
<td>ROGER</td>
</tr>
<tr>
<td></td>
<td>$21,120.00</td>
<td>3</td>
<td>ROMANS</td>
<td>ANTHONY</td>
</tr>
<tr>
<td></td>
<td>$26,862.00</td>
<td>4</td>
<td>IRVING</td>
<td>JOAN</td>
</tr>
<tr>
<td></td>
<td>$29,700.00</td>
<td>5</td>
<td>BANNING</td>
<td>JOHN</td>
</tr>
</tbody>
</table>

**Procedure:** How to Rank Data Numerically

When you sort reports vertically, you can indicate the numeric rank of each row.

1. Right-click a By field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box.
2. From the Sorting subtab, in the Sort Order drop-down list, click LOWEST (for ascending order), HIGHEST (for descending order), or Variable to be prompted for a value at run time.

3. To limit the number of ranked fields, in the Sort Limit field, type the number of sort values to display, select one of the predefined values, or click Variable to be prompted for a value at run time.

4. From the Ranking subtab, click On from the Rank drop-down list.

5. Click OK.

A numerical ranking appears on each line of the report with the default column heading, RANK.

Procedure: How to Aggregate and Sort Report Columns

You can apply aggregation and sorting simultaneously to numeric columns in your report in one pass of the data. You can also sort based on calculated values.

You apply column-based sorting to a report one column at a time by adding the BY TOTAL phrase. For BY TOTAL to work correctly, you must have an aggregating display command, such as SUM. The records can be sorted in either ascending or descending sequence. For more information about adding BY TOTAL to report columns, see Sorting and Aggregating Report Columns in the Sorting Tabular Reports chapter of the Creating Reports With WebFOCUS Language manual.

1. Right-click on a numeric column and click Options from the context menu, then click the Sort tab from the Field Properties dialog box.

2. From the Sorting subtab, select the sort order as either LOWEST or HIGHEST.

   Note: You can click Variable to be prompted for a value at run time.

3. Click On from the Total drop-down list to add the BY TOTAL phrase to the numeric column.

4. Optionally, you may also limit the number of results shown in the report output by entering a value in the Sort Limit field box.

5. Click the General tab of the Field Properties dialog box and select an aggregating display command from the Prefix drop-down list. For example, SUM or AVE.

   Note: For BY TOTAL to work correctly, you must have an aggregating display command. A non-aggregating display command, such as PRINT, simply retrieves the data without aggregating it.

6. Click OK.
The following image is an example of a report showing the total highest salary by department and names.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>SALARY</th>
<th>LAST_NAME</th>
<th>FIRST_NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>$52,837.00</td>
<td>CROSS</td>
<td>BARBARA</td>
</tr>
<tr>
<td></td>
<td>$36,230.00</td>
<td>JONES</td>
<td>DIANE</td>
</tr>
<tr>
<td></td>
<td>$21,780.00</td>
<td>BLACKWOOD</td>
<td>ROSEMARIE</td>
</tr>
<tr>
<td></td>
<td>$19,840.00</td>
<td>MCCOY</td>
<td>JOHN</td>
</tr>
<tr>
<td></td>
<td>$17,650.00</td>
<td>GREENSPAN</td>
<td>MARY</td>
</tr>
<tr>
<td></td>
<td>$13,200.00</td>
<td>SMITH</td>
<td>MARY</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>$51,202.00</td>
<td>IRVING</td>
<td>JOAN</td>
</tr>
<tr>
<td></td>
<td>$31,100.00</td>
<td>MCKNIGHT</td>
<td>ROGER</td>
</tr>
<tr>
<td></td>
<td>$29,700.00</td>
<td>BANNING</td>
<td>JOHN</td>
</tr>
<tr>
<td></td>
<td>$21,120.00</td>
<td>ROMANS</td>
<td>ANTHONY</td>
</tr>
<tr>
<td></td>
<td>$21,000.00</td>
<td>STEVENS</td>
<td>ALFRED</td>
</tr>
<tr>
<td></td>
<td>$18,550.00</td>
<td>SMITH</td>
<td>RICHARD</td>
</tr>
</tbody>
</table>

**Example:** Ranking Data Numerically by a Total Field

Suppose that you want to see total sales for different regions within your enterprise. The following example shows how to create a report that ranks regions, by highest dollar sales, for all Gotham Grinds stores:

1. Open the GGSALES data source in Report Painter.
2. Double-click or drag DOLLARS, REGION, and DOLLARS again from the Fields tab of the Object Inspector.
3. Select the first instance of Dollar Sales and Region and click the By button on the Report Painter toolbar.

   The first instance of Dollar Sales and Region become By sort fields.
4. Select the second instance of Dollar Sales and click the Sum button on the Report Painter toolbar.

   The second instance of Dollar Sales becomes a Sum field.

**Tip:** To show dollar signs for the Dollar Sales Sum field:

1. Right-click the Dollar Sales Sum column.
2. Click Format.
3. Select Floating dollar -- M from the Edit Options list.
4. Click OK.
5. To sort the report BY TOTAL Dollars, right-click on the *Dollar Sales* By field and select *Options*.
   The Field Properties dialog box opens at the Style tab.

6. Click the *Sort* tab and select *On* from the Total drop-down list.
   This adds BY TOTAL to the syntax.

7. Select *HIGHEST* from the Sort Order drop-down list.

8. Click the *Ranking* subtab and select the *On* from the Rank drop-down list.

9. Click *OK* to close the Field Properties dialog box.
   The Dollar Sales By field appears by Rank.

10. Right-click the *Dollar Sales* By field again and select *Invisible* and then *On* from the context menu.

11. Run the report. The Dollar Sales value for the Regions field is ranked by Total, as shown in the following image.

<table>
<thead>
<tr>
<th>RANK</th>
<th>Region</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Southeast</td>
<td>$11,710,379</td>
</tr>
<tr>
<td>2</td>
<td>West</td>
<td>$11,652,946</td>
</tr>
<tr>
<td>3</td>
<td>Midwest</td>
<td>$11,400,665</td>
</tr>
<tr>
<td>4</td>
<td>Northeast</td>
<td>$11,392,300</td>
</tr>
</tbody>
</table>

**Sorting Columns**

You can sort report information horizontally using the Across option. As Report Painter displays sort field values horizontally, it creates columns.

You can have up to five horizontal sort fields per report request. Each one can retrieve up to 95 sort field values. Your report can include up to 256 columns. The total number of Across columns in a report is equal to the total number of across sort field values multiplied by the total number of display fields.

**Procedure: How to Sort Columns**

1. Click the *Across* button on the Columns toolbar to sort horizontally (creating columns).

2. From the Fields tab in the Object Inspector, double-click the field you wish to use for sorting, or drag the sort field from the Fields tab to the Report Painter window.
**Example: Sorting Horizontally**

This report totals the salary outlay (CURR_SAL) of the department and sorts horizontally by DEPARTMENT.

```
DEPARTMENT
MIS $108,002.00      PRODUCTION $114,282.00
```

Note that the sort field DEPARTMENT appears as a label at the top of the report and the sort field values appear as column titles.

**Using the Sort Sequence Builder**

The Sort Sequence Builder allows you to customize the sorting order of data within a field.

To access the Sort Sequence Builder, right-click on a BY or ACROSS field and click the Sort Sequence button. Alternatively, you can click the Sort Sequence button found in Sorting section of the Field Properties Sorting tab.

The Sort Sequence Builder is shown in the following image.

![Sort Sequence Builder](image)

You can enter your own values, on the left side, in the Sort Sequence list using the New button. Titles are optional.

You can also get values using the Get Data button. The Get Data button will retrieve data values for the selected field and display them in the right side. These field values can be dragged or double-clicked to add a new value to the Sort Sequence list on the left side.
The toolbar above the Sort Sequence list can be used to manipulate the values. The toolbar buttons are: Undo, Redo, New, Delete, Move Up, and Move Down.

**Note:** If you have applied a sort sequence and then try to change the type of another field to FOR, you will receive the following message.

*Each report request may contain only one FOR or BY ROWS OVER phrase. If you wish to continue, all sort sequence values will be removed from: <field name>*

*Continue?*

If you continue, the sort sequence values are removed from the field to which they are applied. The field you originally selected is changed to a FOR field.

Alternatively, if you try to apply a sort sequence to a field while there is already a FOR field present, you will receive the following message.

*Each report request may contain only one FOR or BY ROWS OVER phrase. If you wish to continue, the current FOR field <field name> will be converted to a SUM field, and all FML attributes will be lost.*

*Continue?*

If you continue, the FOR field will be changed to a Sum field and the Sort Sequence Builder dialog box will open. You can then create a sort sequence for the selected field.

**Sorting Using Multiple Fields**

You can organize information in a report using more than one sort field. When several sort fields are used, the sequence of the sort fields determines the sorting order: the first By or Across field sets the major sort break, the second By or Across field sets the second sort break, and so on. Each successive sort is nested within the previous one.

**Procedure:** **How to Sort Using Multiple Fields**

1. Click the *By* or *Across* button on the Columns toolbar to sort vertically or horizontally.
2. From the Fields tab in the Object Inspector, double-click the field you wish to use for sorting, or drag the sort field from the Fields tab to the Report Painter window.
3. Repeat steps 1 and 2. The field you select will be used as a sort field, along with any previous (higher level) sort fields.
4. Repeat as many time as necessary. (See *Sorting Rows* on page 133 and *How to Navigate Sorted Data From a Multi-Level Report TOC* on page 200 for limitations.)
**Example:** *Sorting With Multiple Fields*

To sort with multiple By fields, you can select several vertical sort fields, nesting one within another, as with DEPARTMENT and LAST_NAME in this example. The output is:

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>LAST_NAME</th>
<th>CURR_SAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>BLACKWOOD</td>
<td>$21,780.00</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
<td>$27,062.00</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>BANNING</td>
<td>$29,700.00</td>
</tr>
<tr>
<td></td>
<td>IRVING</td>
<td>$26,862.00</td>
</tr>
</tbody>
</table>

To sort using multiple Across fields, the following report sorts the sum of current salary (CURR_SAL) horizontally, first by department (DEPARTMENT), then by job code (CURR_JOBCODE).

<table>
<thead>
<tr>
<th>MIS</th>
<th>CURR_JOBCODE</th>
<th>DEPARTMENT</th>
<th>PRODUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A17</td>
<td>A04</td>
<td>A15</td>
<td>A17</td>
</tr>
<tr>
<td>$27,062.00</td>
<td>$21,780.00</td>
<td>$26,862.00</td>
<td>$29,700.00</td>
</tr>
</tbody>
</table>

**Sorting Rows and Columns to Create a Matrix**

You can create a simple matrix report by sorting both rows and columns. When you include both vertical (By) and horizontal (Across) sort fields in a report request, information is sorted down the report and across the report, turning it into a matrix of information that you read like a grid. A matrix report can have several By and Across sort fields.

**Procedure:** *How to Create a Matrix*

1. Click the *By* button on the Columns toolbar and select one or more vertical sort fields.
2. Click the *Across* button on the Columns toolbar and select one or more horizontal sort fields.
3. Click the *Detail* or *Sum* button on the Columns toolbar and select one or more fields to add to the report.

**Tip:** You can also create a matrix using the Sort Groups tab in the Object Inspector. See *Sorting in Groups to Create a Combined Detail/Summary Report* on page 151 for more information.
**Example:** Creating a Simple Matrix

The following report displays total salary outlay sorted across departments and by job codes.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRODUCTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURR_JOBCODE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A15</td>
<td></td>
<td>$26,862.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$24,420.00</td>
</tr>
<tr>
<td>A17</td>
<td></td>
<td>$29,700.00</td>
</tr>
<tr>
<td></td>
<td>$27,062.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$25,775.00</td>
<td></td>
</tr>
<tr>
<td>B04</td>
<td></td>
<td>$21,120.00</td>
</tr>
<tr>
<td></td>
<td>$21,780.00</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Sorting Options**

The following options give you additional control over the organization of data in your reports. You can:

- Sort in ascending or descending order.
- Group sort fields logically on a page.
- Rank sort fields by highest or lowest values.
- Limit the number of ranked values.
- Add subheading and subfootings at sort breaks.
- Add subtotals at sort breaks.
- Set conditions for the display of sort-based subheading, subfootings, and page breaks.
- Prevent unnecessary resorting of data.
- Wrap a horizontal Across column in a PDF report.
**Procedure: How to Arrange Field Values in Ascending/Descending Sort Order**

You can change the sort order from ascending to descending, or vice versa, for alphanumeric (A to Z; Z to A) and numeric (1-10; 10-1) fields.

- Right-click the field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box. Select HIGHEST from the Sort Order drop-down list to sort values from highest to lowest (descending order).
- Right-click the field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box. Click LOWEST from the Sort Order drop-down list to sort values from lowest to highest (ascending order).

**Procedure: How to Keep Logically Grouped Sort Fields Together After a Page Break**

You can break sort fields logically and regenerate the field heading on the next page or screen.

1. Right-click the field and click Options from the context menu, then click the Sort tab from the Field Properties dialog box.
2. From the Actions tab, click On from the No Split drop-down list.

**Note:** Only one No Split option is allowed per report.

**Procedure: How to Add a Subheading or Subfooting at a Sort Break**

1. Select the sort field from the Report Painter window.
2. Do one of the following:
   - Click the SubHeading (or SubFootering) button on the Headings and Footings toolbar.
   - Choose Subheading (or Subfooting) from the Insert menu.
   A Subheading (or Subfooting) object area is added to the Report Painter window.
3. Place the cursor in the object area to add text.

**Tip:** To view the boundaries for all object areas, click the Options button on the Output Format toolbar. Select the View tab and click the Boundaries check box.

4. Optionally, you can right-click and click Options to style, drill down, add images, and so on.
You can click the General tab, as shown in the following image, to create a new page (NEWPAGE) for each subfoot. WITHIN will create a subfoot within a specified sort break. WITHIN is only available for subfoot.

![Image of General tab properties](image.png)

For related information, see *How to Display a Conditional Subheading, Subfooting, or Page Break* on page 149.

**Procedure:** How to Display a Conditional Subheading, Subfooting, or Page Break

You can control when subheadings, subfootings, and page-breaks appear based on conditions you supply. The condition must be satisfied in order for the subheading, subfooting, or page break to be displayed. You accomplish this using the When option.

1. Place the cursor in the object area (that is, subheading, subfooting, or page break) in the Report Painter window.
2. Click When from the Properties menu or the context menu for the selected object. The When dialog box opens.

3. You can use this dialog box to create an expression that determines when the subheading, subfooting or page-break should be displayed. You can also click the Assist button to open the Expression Builder, which is designed to help you create an expression.

For details on the Expression Builder, see Using the Basic Expression Builder on page 529.

**Example:** Embedding a Value in a Subheading or Subfooting

To specify the department name in a subheading field:

1. Open the EMPLOYEE data source in Report Painter.
2. Use the Fields list to create a Subheading sort field.
3. Type the following in the Subheading object area:
   
   ```
   DEPARTMENT IS
   ```

4. Place the cursor where you want the field value to be inserted.

5. Double-click the field DEPARTMENT from the Fields window. The subheading field then shows the following:
   
   ```
   DEPARTMENT IS <EMPLOYEE.EMPINFO.DEPARTMENT
   ```

When the report appears, the department name for each department appears in the subheading as follows:

```
DEPARTMENT IS MIS
DEPARTMENT IS PRODUCTION
```

**Procedure:** How to Prevent Report Painter From Sorting Data

If the data you are accessing for your report is already in the correct sort order, you can prevent Report Painter from resorting it by clicking the Options button on the Output Format toolbar. The Report Options dialog box opens. From the Output tab, click Sorted Data in the Data area.

This feature provides a very fast method of retrieving data if it is already stored in the order required for display, and no further sorting is required.

**Procedure:** How to Wrap an Across Column in a PDF Report

Selecting the wrap option for an Across column automatically wraps the data to fit the width of the value underneath it in the PDF report.

1. In Report Painter, create a PDF report with several sort fields. Select the field to be sorted horizontally and click Across from the Columns toolbar.
The field is sorted horizontally, creating columns.

2. With the Across field still selected, right-click and click **Options** from the context menu. The Field Properties dialog box opens at the Style tab.

3. Click **Column Data** from the active object drop-down list.

4. Click **Wrap** from the Column Layout Width drop-down list.

   **Note:** The Limit to option is grayed out, as the specified measurement units for Across data is not applicable. Selecting Wrap automatically wraps the data to fit the width of the value underneath it.

5. Click **Apply** and then **OK** to close the Field Properties dialog box.

6. Run the report.

Wrap is enabled for the horizontal Across column in the PDF report.

**Sorting in Groups to Create a Combined Detail/Summary Report**

You can produce complex reports that sort information in groups to display both summary and detailed information in the same report. These reports (sometimes called multi-verb requests) contain more than one display option (Sum, Detail). They also group fields within the request in order to be able to manipulate the fields in each group separately. For example, you can produce one report that lists the total salary for all departments in a company, the total salary for each department, and the last names and individual salaries of the employees within each department.

You can implement group sorting in the Object Inspector Sort Groups tab. All actions you perform in the Sort Groups tab immediately affect the fields in the Report Painter window.

In creating a request that produces a combined detail/summary report, a meaningful relationship must exist among the separate sort condition sets. Report Painter automatically enforces the following rules:

- Up to sixteen Sum and Detail columns and their associated sort conditions can be used in a request.
- The first Sort Group in a report can contain a Sum column alone or a By column preceding a Sum column. For other Sort Groups, a By column must precede a Sum column.
- Detail data in the report may appear only in the last column.
- WHERE and IF criteria apply to the records selected for the report as a whole.
**Procedure: How to Create and Manipulate Sort Groups**

1. Drag the fields you want to include in your report from the Fields tab in the Object Inspector to the Report Painter window. Include multiple instances of fields you want to sum at various levels.

2. The fields are added as Detail columns by default. Click the Sort Groups tab and notice that all the fields are in Sort Group 1.

3. Select each column you want to sort by and click the *By* button. Then click each column you want to sum and click the *Sum* button.

   Alternatively, you can right-click each field in the Sort Group panel and click *Change to By* or *Change to Sum*. These changes are immediately reflected in the Report Painter window.

4. You are now ready to break out your sort groups.

   **Note:** The first Sort Group can contain a Sum column alone or a By column followed by a Sum column. All other Sort Groups must have one or more By columns followed by a Sum column.

   To form your first sort group:

   Drag a Sum column and drop it directly onto the Sort Group 1 folder. The dragged column becomes the first column in the group and in the Report Painter window.

   or

   Drag a Sum column and drop it onto a By column.

   The Sort Groups tab is refreshed to display the first Sort Group as you specified. Other fields are now listed in Sort Group 2.

   To form another sort group, drag a Sum column onto a By column.

   Once again, the Sort Group pane is refreshed. The Sum column follows the associated By column in the Report Painter window and the remaining fields are collected in the next Sort Group.

   Repeat this process for each group you wish to create.

5. If your report contains a Detail field, it will be moved to the last column in the report, and designated as its own sort group.
**Example: Creating a Detail/Summary Report**

Suppose that you want to see total sales at different levels within your enterprise. The following example shows how to create a report of total sales for all Gotham Grinds stores by state, total sales for each Gotham Grinds store, and sales for each product category.

1. Open the GGSALES data source in Report Painter.

2. Double-click or drag `ST`, `STCD`, `CATEGORY`, `DOLLARS`, `DOLLARS`, and `DOLLARS` from the Fields tab of the Object Inspector. The first instance of `DOLLARS` will show total sales for each state. The second instance will show total sales for each store. The third instance will show detailed sales for each product category.

3. Select the first instance of the Dollar Sales column in the Report Painter window and click the `Sum` button in the toolbar. The other two instances of Dollar Sales automatically become summary columns.

4. Select the `State` column in the Report Painter window and click the `By` button in the toolbar. Repeat this step for the `Store ID` and `Category` columns.

5. Click the `Sort Groups` tab in the Object Inspector. All the report columns are in Sort Group 1.

6. To form your first sort group, drag the first instance of `DOLLARS` and drop onto `ST`. The Sort Group pane is refreshed. The remaining fields are now listed in Sort Group 2.

7. To form your second sort group, drag the second instance of `DOLLARS` and drop onto `STCD`. The Sort Group pane is refreshed. The remaining fields are now listed in Sort Group 3.

8. Select the third Dollar Sales column in the Report Painter window and click the `Detail` button.

   **Tip:** To show dollar signs for the Dollar Sales fields:
   1. Right-click the `Dollar Sales` column.
   2. Click `Format`.
   3. Select `Floating dollar – M` from the Edit Options list.
   4. Click `OK` (repeat for all Dollar Sales columns).

9. Create a Where clause to narrow down the report output results. Click the `Where` button from the Where/If drop-down menu.

   a. Double-click `DOLLARS` to move the field to the Column to filter field.
   b. Click `is greater than or equal to` from the Logical Relation drop-down list.
   c. Click `Value` from the Compare Type drop-down list.
d. Double-click in the Compare Value field to *Edit a Single Value*, and enter 25,000 for this example. Click OK. For more details about using the Expression Builder, see *Using the Basic Expression Builder* on page 529.

10. Run the report by clicking the *Run* button on the toolbar.

The report appears in the browser.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Store ID</th>
<th>Dollar Sales</th>
<th>Category</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$231,223</td>
<td>R1040</td>
<td>$128,913</td>
<td>Coffee</td>
<td>$25,005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food</td>
<td>$25,116</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1244</td>
<td>$104,310</td>
<td>Coffee</td>
<td>$26,790</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food</td>
<td>$26,055</td>
</tr>
<tr>
<td>CT</td>
<td>$97,084</td>
<td>R1100</td>
<td>$97,084</td>
<td>Coffee</td>
<td>$25,144</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food</td>
<td>$26,715</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$45,225</td>
</tr>
<tr>
<td>FL</td>
<td>$208,575</td>
<td>R1200</td>
<td>$208,575</td>
<td>Coffee</td>
<td>$27,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Food</td>
<td>$26,760</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$26,475</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$25,125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$26,595</td>
</tr>
<tr>
<td>GA</td>
<td>$103,413</td>
<td>R1041</td>
<td>$103,413</td>
<td>Coffee</td>
<td>$25,158</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Controlling the Display of Sorted Data With Accordion Reports**

Accordion Reports provide a way to control the amount of sorted data that appears on an HTML report page. You can produce reports with expandable views of data for each vertical sort field. When an Accordion Report first appears, only data values of the first (highest-level) vertical sort field are shown. All other data is hidden. You can manually expand your view to expose data values of lower-level sort fields.
When you create an Accordion Report, a plus sign (+) appears to the left of each data value in the column under the highest-level sort heading. For data associated with lower-level sort fields, a plus sign (+) is placed to the left of each data value, but the data does not appear unless manually expanded. Data values of the lowest-level sort field are not expandable.

To expand your view of data for any expandable sort field, click a plus sign (+) and all data associated with the next lower-level sort field appears. When you expand a data value under the next to lowest sort heading, all of the remaining associated data values in the report appear.

Two vertical (BY) sort fields are required. If your report does not contain two vertical sort fields, then the Accordion Reports option is ignored and a standard HTML report is created.

The use of horizontal (ACROSS) sort fields is supported with Accordion Reports. The horizontal sort headings that appear above vertical sort headings in a standard HTML report are not displayed in an Accordion Report until at least one sorted data value has been manually expanded in each expandable sort column.

PDF and Excel formats are not supported with Accordion Reports.

Reference: Requirements for Accordion Reports

The following requirements must be taken into consideration when creating Accordion Reports:

- Adding a drill-down link to an Accordion Report requires that the TARGET parameter must be set to a value that specifies a new HTML frame.

- Once an Accordion Report is created and delivered to the user, there are no subsequent calls to the WebFOCUS Reporting Server required when the user is interacting with the report. However, the collapsible folder controls on the sort fields require JavaScript and images that reside on the WebFOCUS Client. The user must be connected to the WebFOCUS Web tier components in order to use this feature. For online connected users of WebFOCUS, no change is required to the report.

However, for distribution of reports using ReportCaster, see the following Reference topic to ensure that the report is delivered correctly as an email attachment or as an archived report in the Report Library.
Distributing Accordion Reports With ReportCaster

Distributing Accordion Reports with ReportCaster requires the use of JavaScript components and images located on the WebFOCUS Client. To access the JavaScript components and images from a report distributed by ReportCaster, the scheduled procedure must contain the SET FOCHTLURL command, which must be set to an absolute URL instead of the default value. For example,

```plaintext
SET FOCHTLURL = http://hostname:port/ibi_html
```

where:

- `hostname:port`
  - Is the host name and optional port number (specified only if you are not using the default port number) where the WebFOCUS web application is deployed.

- `ibi_html`
  - Is the site-customized web server alias pointing to the WebFOCUS/ibi_html directory (where `ibi_html` is the default value).

For more information about coding reports for use with ReportCaster, see the Tips and Techniques for Coding a ReportCaster Report section in your ReportCaster manual.

Support for Accordion Reports

The following commands are not supported when using Accordion Reports:

- `BORDER, COLUMN, FOR, IN, OVER, PAGE-NUM, ROW-TOTAL, TOTAL`

Data Visualization, OLAP, On Demand Paging, and the ReportCaster burst feature are also not supported with Accordion Reports.

How to Create an Accordion Report

2. In the Report Painter main window, add the following fields:
   - `UNITS, ST, DOLLARS, CITY, REGION, CATEGORY`
3. Highlight the UNITS and DOLLARS fields and click Sum.
4. Highlight the ST, CITY, and CATEGORY fields and click By.

Note: Accordion Reports are available for HTML Web Document (HTML), HTML Table (HTMTABLE), Default, and User styled report formats.
6. In the HTML options area, select Accordion Report.

7. Click OK.

8. Click Run. The accordion report appears.

The following image shows an Accordion Report which displays all data associated with the first level sort field, Region, by default. The expanded data values you see are the result of a report user clicking plus signs to the left of specific first, second, and third level sort fields after the report is generated.

<table>
<thead>
<tr>
<th>Region</th>
<th>State</th>
<th>City</th>
<th>Category</th>
<th>Unit Sales</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>CT</td>
<td>New Haven</td>
<td>Coffee</td>
<td>109491</td>
<td>1364420</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Food</td>
<td>114439</td>
<td>1424718</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gifts</td>
<td>78510</td>
<td>992911</td>
</tr>
<tr>
<td>Southeast</td>
<td>NY</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FL</td>
<td>GA</td>
<td>Coffee</td>
<td>127176</td>
<td>1576915</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Atlanta</td>
<td>Food</td>
<td>120284</td>
<td>1490457</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gifts</td>
<td>82823</td>
<td>1032735</td>
</tr>
<tr>
<td>West</td>
<td>CA</td>
<td>WA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sort Objects**

A Sort object can be inserted into the Report Painter as a BY column. However the following options are unavailable when a Sort object BY column is selected.

- Increase Size
- Decrease Size
- Bold
- Italic
- Underline
- Disable Underline
- Left Justify
Selecting Data

You can produce a report based on selected data, or a subset of the records in a data source. You do this by specifying certain selection criteria. Report Painter includes only the records that meet those conditions in the report.

For example, you might want a report that lists only those employees hired since the beginning of 2001. If your data source contains the field START_DATE, you would specify record selection criteria in which the START_DATE is greater than 12/31/00.

There are four types of record selections you can create: WHERE, IF, WHERE TOTAL, and Retrieval Limits.

- **WHERE** enables you to display only those field values that meet your needs.
- **IF** enables you to perform Boolean tests (TRUE/FALSE), as well as the same tests you can perform with WHERE.
- **WHERE TOTAL** enables you to select records based on the aggregate value of a field. For example, on the sum of field values, or on the average of field values.
- **Retrieval Limits** enables you to set the Record Limit and Read Limit values. This enables you to set how much data is displayed or previewed.

You can also:

- Embed variables in your selection criteria. Report Painter prompts for a value when your application is run.
- Create a list of acceptable values for a field. This list is used to populate drop-down menus in the HTML Composer to facilitate the creation and running of parameterized reports. For related information on the HTML Composer, see the *Designing a User Interface for a Web Application With the HTML Composer* manual.
Procedure: How to Add Record Selection Criteria

To add record selection criteria:

1. Depending on the type of field you want to select records from (Detail, Sum), do one of the following:
   - If you want data evaluated before it is retrieved, click Where from the Where/If drop-down menu to open the Expression Builder.
   - If you want data evaluated based on a Boolean expression, click If from the Where/If drop-down menu to open the Expression Builder.
   - If you want data selected after all the data has been retrieved and processed, click Where Total from the Where/If drop-down menu to open the Expression Builder.

   The Expression Builder opens. The Expression Builder assists you in constructing selection criteria. For details about the Expression Builder, see Using the Basic Expression Builder on page 529.

   **Note:** If you are typing an expression with multiple criteria directly into the Advanced section of the Expression Builder, you must explicitly include parentheses to control the order of evaluation.

2. Click OK to confirm your expression. Report Painter checks your syntax before exiting. If you have made any errors, you will be unable to exit until you fix them.
Creating Record Selection Criteria

Example: Suppose that you want to see total sales for specific products. The following example shows how to create a report of the Gotham Grinds Latte and Espresso sales for each store within each region.

1. Open the GGSALES data source in Report Painter.
2. Identify and format your report columns.
   a. Identify your sort columns. Click By on the Report Painter toolbar and double-click or drag REGION, STCD, and PRODUCT from the Fields tab of the Object Inspector.
   b. Identify your summary column. Click Sum on the Report Painter toolbar and double-click or drag DOLLARS from the Fields tab of the Object Inspector.
   c. Format the Dollar Sales column. Right-click Dollar Sales in the Report Painter window and click Format. Click Decimal in the Format Types box. Click Floating dollar – M from the Edit Options list. Click OK.
3. Apply selection criteria:
   a. Click Where from the Where/If drop-down menu on the Columns toolbar to open the Expression Builder.
   b. Click PRODUCT from the Fields list.
   c. Click equals from the Logical Relations list.
   d. Click Value from the Compare Type list to retrieve a list of data available for the PRODUCT field.
   e. Double-click the Compare Value section to bring up the Multiple Value Builder dialog box. In the Data Source section click Select Field and click Latte and Espresso. Click OK to close the Multiple Value Builder dialog box.
   f. Click OK to return to the Report Painter window.
4. Run the report by clicking the Run button on the toolbar.
The report appears in the browser.

<table>
<thead>
<tr>
<th>Region</th>
<th>Store ID</th>
<th>Product</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>R1019</td>
<td>Espresso</td>
<td>$455,365</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$938,245</td>
</tr>
<tr>
<td></td>
<td>R1020</td>
<td>Espresso</td>
<td>$420,439</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$978,340</td>
</tr>
<tr>
<td></td>
<td>R1250</td>
<td>Espresso</td>
<td>$419,143</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$966,981</td>
</tr>
<tr>
<td>Northeast</td>
<td>R1044</td>
<td>Espresso</td>
<td>$248,356</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$917,737</td>
</tr>
<tr>
<td></td>
<td>R1100</td>
<td>Espresso</td>
<td>$279,373</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$926,052</td>
</tr>
<tr>
<td></td>
<td>R1109</td>
<td>Espresso</td>
<td>$322,378</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$928,026</td>
</tr>
<tr>
<td>Southeast</td>
<td>R1041</td>
<td>Espresso</td>
<td>$317,389</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$907,365</td>
</tr>
<tr>
<td></td>
<td>R1088</td>
<td>Espresso</td>
<td>$279,644</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$820,584</td>
</tr>
<tr>
<td></td>
<td>R1200</td>
<td>Espresso</td>
<td>$256,539</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$889,887</td>
</tr>
<tr>
<td>West</td>
<td>R1040</td>
<td>Espresso</td>
<td>$267,809</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latte</td>
<td>$809,647</td>
</tr>
</tbody>
</table>

Retrieving a Certain Number of Records

You can retrieve a specified number of records on a report. It is useful to limit record retrieval when:

- You are designing a new report and need only a few records from the data source to test the design.
- You already know the number of records that meet the test criteria and want to stop the search after that number has been retrieved. This reduces the total retrieval time.
Procedure: How to Retrieve a Certain Number of Records

1. Click Retrieval Limit from the Where/If drop-down menu on the Columns toolbar to open the Retrieval Limits dialog box.
2. Enter the number of records to retrieve in the Record Limit box.
3. Click OK.

When you run the report, only that number of records appears. You can also restrict record retrieval. For more information, see Reading a Certain Number of Records on page 162.

Reading a Certain Number of Records

You can specify the maximum number of physical records read. Retrieval stops at that point.

Procedure: How to Read a Certain Number of Records

To specify the maximum number of records to read:

1. Click Retrieval Limit from the Where/If drop-down menu on the Columns toolbar to open the Retrieval Limits dialog box.
2. Enter the number of records to retrieve in the Read Limit box.
3. Click OK.

Note: This feature is only available for non-FOCUS data sources.

Creating a List of Acceptable Values

You can create a list of acceptable values for one or more selection criteria (Where statements) and use each set of values to run a parameterized report. The user is prompted for a value when the report is run.

To ensure that a supplied value is valid and being used properly in a procedure, you can test it for presence, type, and length by screening a value. You screen a value by adding suffixes to the variable value.

If you call Report Painter from the HTML Composer and create a procedure that defines acceptable values for one or more fields, the values populate drop-down lists from which a user can choose. For information about the HTML Composer, see the Designing a User Interface for a Web Application With the HTML Composer manual.

Note: To avoid conflicts, do not name variables beginning with Date, IBI, or WF, as variables beginning with these values are reserved for Information Builder use.
**Procedure:** How to Create a List of Acceptable Values for a Parameter

1. Click Where from the Where/If drop-down menu on the Columns toolbar to open the Retrieval Limits dialog box.

2. Double-click a field name from the list on the left side of the window to add it to the Column to filter column.

   If you want to change the field name in the Column to filter column, click the down arrow and select a different field name from the list.

3. Click the down arrow in the Logical Relations column to select a relation from the drop-down list.

4. Click the down arrow in the Compare Type column and click Parameter from the drop-down list.

5. Double-click the Compare Value column. The Variable Editor opens.

6. In the Name input box, type a name for the variable. This name will appear as the Column title if the field is added to the report.

7. Optionally, enter text in the Prompt input box to prompt a user to supply a value for the variable.

   If no Prompt text is entered, the Name entered in the preceding step is used.

8. From the Variable Type drop-down list, click Multiselect OR to add values for fields you want to include in your list of valid values.

9. In the Data source area, click Values for field.

10. Click the Select a field ellipsis button to get values for a field. The Value Retrieval dialog box opens.

    The Value Retrieval list provides a list of available fields in your data source. Double-click a field, click Get Data, or click OK to close the Value Retrieval field list and return to the Variable Editor. The available values are listed.

11. Double-click values to add them to the Accept List.

12. Click OK to close the Variable Editor.

13. Click OK to close the Expression Builder.
Procedure: **How to Edit Multiple Values**

1. Click *Where* from the Where/If drop-down menu on the Columns toolbar to open the Retrieval Limits dialog box.

2. Double-click a field name from the list on the left side of the window to add it to the Column to filter column.

3. Click the down arrow in the Logical Relations column to select a relation from the drop-down list.

4. Click the down arrow in the Compare Type column and click *Value* from the drop-down list.

5. Double-click the *Compare Value* column.

   The Multiple Value Builder dialog box opens.

6. Click the *Select a field* ellipsis button in the Data source area to select a field from the Value Retrieval list.

7. The Value Retrieval list provides a list of available fields in your data source. Double-click a field, click *Get Data*, or click *OK* to close the Value Retrieval field list and return to the Multiple Value Builder dialog box. The available values are listed.

8. Double-click values to add them to the Values List.

   **Tip:** Repeat this process to add other values to the list.

9. Click *OK* to close the Multiple Value Builder dialog box and return to the Expression Builder.

10. Click *OK* to close the Expression Builder.

**Procedure: How to Specify a Range of Values for Variables in Your Report**

1. Click inside the Fields tab on the Object Inspector.

2. Right-click the Variables folder and click *New Report Variable Field* from the menu that opens.

   The Variable Editor opens.

3. In the Name input box, type a name for the variable.

   This name will appear as the Column title if the field is added to the report.

4. Optionally, enter text in the Prompt input box to prompt a user to supply a value for the variable.

   If no Prompt text is entered, the name entered in the preceding step is used.

5. From the Variable Type drop-down list, click *Range*. 
6. A list box appears, providing a list of available fields in your data source. Select a field to populate the From and To selection lists.

7. Click a value from the From selection list to add it as the From range value.

8. Click a value from the To selection list to add it as the To range value.

9. Click OK to close the Variable Editor. The variable appears in Report Painter as a Report Variable field.

**Procedure:** How to Compare the Selected Field to Another Field

1. Click Where from the Where/If drop-down menu on the Columns toolbar to open the Retrieval Limits dialog box.

2. Double-click a field name from the list on the left side of the window to add it to the Column to filter column.

   If you want to change the field name in the Column to filter column, click the down arrow and select a different field name from the list.

3. Click the down arrow in the Logical Relations column to select a relation from the drop-down list.

4. Click the down arrow in the Compare Type column and click Field from the drop-down list.

5. Double-click in the Compare Value column to open the Single Value Builder dialog box.

6. Double-click a field from the data source to add it to the Values List. The field selected is compared to the selected field in the report.

7. Click OK to close the Single Value Builder dialog box and return to the Expression Builder.

8. Click OK to close the Expression Builder.

**Procedure:** How to Create a Variable Field in Your Report

1. Click inside the Fields tab on the Object Inspector.

2. Right-click the Variables folder and click New Report Variable Field from the menu that opens.

   The Variable Editor opens.

3. In the Name input box, type a name for the variable.

   This name appears as the Column title when the field is added to a report.

4. Optionally, provide text for the message that prompts a user to supply a value for the variable in the Prompt input box.

5. From the Variable Type drop-down list, ensure that Single Select is selected. This is the default option.
6. In the Data Context area, click *Values for field*.

7. Click the *Select a field ellipsis* button to get values for a field. The Value Retrieval dialog box opens.

   The Value Retrieval dialog box provides a list of available fields in your data source. Double-click a field, or select a field and click *Get Data* to close the Value Retrieval dialog box and return to the Variable Editor. The available values for the field are listed.

8. Double-click values to add them to the Accept List.

9. Click *OK* to close the Variable Editor. The variable appears in the fields list as a Report Variable field.

**Procedure:** **How to Add Multiple Values With the Variable Editor**

1. Click inside the Fields tab on the Object Inspector.

2. Right-click the Variables folder and click *New Report Variable Field* from the menu that opens.

   The Variable Editor opens.

3. In the Name input box, type a name for the variable.

   This name will appear as the Column title if the field is added to the report.

4. Optionally, enter text in the Prompt input box to prompt a user to supply a value for the variable.

   If no Prompt text is entered, the Name entered in the Name field is used.

5. From the Variable Type drop-down list, click *Multiselect OR*.

6. In the Data Context area, select one of the following:

   - *Fields from database*. Click this to retrieve fields from a database.
   - *Values for field*. Click the *Select a field ellipsis* button to get values for a field. The Value Retrieval dialog box opens.

   The Value Retrieval dialog box provides a list of available fields in your data source. Double-click a field, or select a field and click *Get Data* to close the Value Retrieval dialog box and return to the Variable Editor. The available values for the field are listed.

   The Data Context list displays available values.

7. In the Data Context list, double-click values to add to the Accept List table.

   To customize the display of values, double-click a value in the Return Value column and type the name as you want it to appear in the output.
8. Click OK. The field appears in the Report Variables folder of the Object Inspector.

**Procedure:**  How to Screen a Simple Variable With Prefix Operators

1. In Report Painter, right-click inside the Object Inspector and click *New Report Variable Field* from the context menu.

   The Variable Editor opens.

2. Click *Simple* from the Variable Type drop-down list.

3. Type a name for the variable in the Name input field.

   This name appears as the Column title if the field is added to the report.

4. Use the Operator drop-down list to select a suffix to add to the variable value. *None* is the default option.

5. Click OK to close the Variable Editor.

   The variable appears in the fields list as a Report Variable field.

For more information about screening a variable value, see the *Developing Reporting Applications* manual.

**Procedure:**  How to Set the Display Value for Dynamic Lists With the Variable Editor

When using a Dynamic Accept list, you may select a value to be displayed as a parameter. A dynamic list retrieves values from a specified data source when the request is run. The display value can be different from the return value by using the Values for Displayed Field option in the Variable Editor.

**Note:** Setting the display value for dynamic lists is only applicable if you are using a Data source that contains both a code and description field.

1. In Report Painter, right-click inside the Object Inspector and click *New Report Variable Field* from the context menu.

   The Variable Editor opens.

2. Type a name for the variable in the Name input field.

   This name appears as the Column title if the field is added to the report.

3. Optionally, enter text in the Prompt input box to prompt a user to supply a value for the variable.

   If no Prompt text is entered, the name entered in the Name field is used.
4. Click **Single Select** or **Multiselect OR** from the Variable Type drop-down list, depending on whether you are supplying single or multiple values for your parameter.

5. Select **Dynamic list** from the Accept List section of the Variable Editor.

6. From the Source File list, double-click the data source to be used for the report.

   **Note:** You may also click the **Populate field list** ellipsis button to populate the field list for that data source.

7. In the Values for Return Fields list, select a return field from the selected data source.

8. In the Values for Displayed Fields list, select a value field to be displayed as the return field.

   The following image is an example of the Variable Editor populated with the field values and selection criteria required to create a dynamic list parameter with a display value.

9. Click **OK** to close the Variable Editor.

   The variable appears in the fields list as a Report Variable field.

10. Save and run the report.

    The display value appears as the return field parameter.
**Procedure: How to Add No Selection to a Static List of Parameter Values**

No Selection sends _FOC_NULL to the list of available parameters at run time and is only available when using a Static Accept list. When selected, _FOC_NULL removes the parameter from the procedure and the report will run without the Where clause.

1. In Report Painter, right-click inside the Object Inspector and click New Report Variable Field from the context menu.
   
   The Variable Editor opens.

2. Type a name for the variable in the Name input field.
   
   This name appears as the Column title if the field is added to the report.

3. Optionally, enter text in the Prompt input box to prompt a user to supply a value for the variable.
   
   If no Prompt text is entered, the name entered in the Name field is used.

4. Click Single Select or Multiselect OR from the Variable Type drop-down list, depending on whether you are supplying single or multiple values for your parameter.

5. Select Static list from the Accept List section of the Variable Editor.

6. From the Data Context area, add the Fields from database or Values for fields, and select the values to be used for the report.

7. Select the Add No Selection option from the Add New Item drop-down list, as shown in the following image.

   ![Variable Editor Screenshot](image)

   No Selection is added as the Display Value with _FOC_NULL as the Return Value, as shown in the image below.

   ![Variable List Screenshot](image)
8. Optionally, to customize the default Display Value, double-click *No Selection* in the Display Value column and type the name as you want it to appear in the output.

9. Click *OK* to close the Variable Editor.

When you run the report, *No Selection* appears in the parameter list, as shown in the image below.

![Parameter List](image)

**Procedure:** How to Edit Variables With the Variable Editor

1. Open the *Variables* folder in the Object Inspector.
2. Open the *Report Variables* folder.
3. Right-click the variable and click *Edit Report Variable Field*.

**Example:** Adding Multiple Values With the Variable Editor

The following is an example of adding multiple values with the Variable Editor.

1. Create a new procedure, using CENTORD as the data source.
2. In the Report Painter main window, add the following fields to your report:
   - ORDER_DATE
   - PROD_NUM
3. Select the ORDER_DATE field, and click By.
4. Click the Where button from the Where/If drop-down menu.
   The Expression Builder opens.
5. Double-click PROD_NUM in the list on the left side of the window to add it to the Column to filter column.
6. Click the down arrow in the Logical Relations column, and click equals from the drop-down list.
7. Click the down arrow in the Compare Type column and click Parameter from the drop-down list.
8. Double-click the Compare Value column.
   The Variable Editor opens.
9. In the Name input box, enter Product Number.
   This name will appear as the Column title if the field is added to the report.
10. Enter Product Number in the Prompt input box.
11. From the Variable Type drop-down list, click Multiselect OR to add values for fields you want to include in your list of valid values.
12. In the Data Context area, click Values for field.
13. Click the Select a field ellipsis button to get values for the PROD_NUM field. The Value Retrieval dialog box opens.
   The Value Retrieval dialog box provides a list of available fields in your data source. Double-click the PROD_NUM field to close the Value Retrieval dialog box and return to the Variable Editor. The available values for the PROD_NUM field are listed.
14. Double-click 1020 in the list box to add it to the Accept List table. Do the same for the values 1022 and 1024.
15. Click OK to close the Variable Editor.
16. Click OK to close the Expression Builder.
17. The field appears in the Report Variables folder of the Object Inspector.
**Reference: Variable Editor Dialog Box**

The Variable Editor dialog box is shown in the following image.

The Variable Editor dialog box is used to:

- Create a variable field as a column in order to be able to control report output. For example, you can define a variable as &COST, and allow a user to select RETAIL_COST or DEALER_COST at run time.

- Define lists of acceptable values that can be used to populate a drop-down list from which a user can make a selection at run time.

The dialog box includes the following fields:

**Name**

If you are defining a list of acceptable values, this field displays the name of the variable that you specify in the Expression Builder. For more information, see *How to Create a List of Acceptable Values for a Parameter* on page 163.

If you are creating a Variable field, enter its name in this box. See *How to Create a Variable Field in Your Report* on page 165.
Prompt
An optional text field that is used to prompt a user to supply a value for the variable or to select a value from those you identify as acceptable. If no text is entered in this Prompt field, then the value from the Name field is used by default.

Variable Type
Choose the type of selection the user will have. The options are:

- **Single Select.** Select one value from a list of accepted values.
- **Multiselect OR.** Choose multiple OR values from a list of accepted values.
- **Multiselect AND.** Choose multiple AND values from a list of accepted values.

**Note:** Multiselect AND is not applicable for selecting data values, and should only be used when selecting field name values for a variable. Multiselect AND variable type with field name values is useful for application development using the HTML Composer. For more information, see *Creating Parameter Values* in the *Designing a User Interface for a Web Application With the HTML Composer* manual.

- **Multiselect BY.** Choose multiple values from a list of vertical sort values.
- **Multiselect ACROSS.** Choose multiple values from a list of horizontal sort values.
- **Simple.** Screen a value by adding suffixes to the variable value.
- **Range.** Specify a range of values rather than a list of acceptable values.

Validate Input
When checked, at run time, the Reporting Server validates that the parameter value is consistent with the definition of a parameter. This includes validating that each of the parameter values, of the request, are specified in the parameter definition, a static list specified in the parameter definition, or a dynamic list of values obtained from the selected data source. The request is terminated if the parameter does not meet the validation criteria.

Accept List
Displays the values of the selected field.

Populate the variable with:

- **Static list.** Consists of a list of values you supply. These values do not change unless you change them.
- **Dynamic list.** Retrieves values from a specified data source when the request is run.
Accept list from file. Retrieves values from an Accept list defined in the Master File for the selected field.

Data Context

These options are only available when you select the Static list option in the Accept List area. You can choose from the following options:

Fields from database displays a selection menu that enables you to select the field names you want to include in an Accept list for the variable field.

Values for field enables you to use the Value Retrieval dialog box to select the values for the selected field that you want to include in an Accept list for the variable field.

Display Value/Return Value shows the selected fields that were added to the Static Accept list from the Data Context area. You may Redo or Undo the last field added, move items up or down the list, and delete selected items. In addition:

- To customize the name of the values in the Static Accept list, double-click a Display Value or Return Value and type the name as you want it to appear in the output.
- To manually enter a Display Value or Return Value, click the Add New Item button (or press Ctrl + Enter) to add a new Display and Return Value.
- To add No Selection as a Display Value, click Add No Selection from the Add New Item drop-down list. For more information, see How to Add No Selection to a Static List of Parameter Values on page 169.

Source File

This section is only available when you select the Dynamic list or Accept list from file options in the Accept List area. This enables you to select a Master File from a list.

Values for Return Fields

This section is only available when you select the Dynamic list or the Accept list from file options in the Accept List area. This enables you to select a return field from the selected Master File.

Values for Displayed Fields

This section is only available when you select Dynamic or Accept list. This enables you to set the display value as something different from the return value. For more information, see How to Set the Display Value for Dynamic Lists With the Variable Editor on page 167.
Creating Variable Parameters With Accept Values in the Variable Editor

When you create a variable parameter that references an Accept clause in a procedure, only the list of values defined in the Master File are valid. All other values, including values that exist in the database, are rejected.

You can use the Variable Editor to create a variable parameter in a procedure, utilizing an Accept clause defined in a Master File, by performing the following:

- Create an Accept clause with the Synonym Editor.
- Create a variable parameter in a procedure with the Variable Editor.

Procedure: How to Create an Accept Clause With the Synonym Editor

1. From the Projects area in Developer Studio, double-click a synonym from the Master Files folder, or right-click the synonym and click Edit in Synonym Editor.

   The Synonym Editor opens.

2. Select the field name in the left pane and use the Accept value drop-down list in the right pane to select OR as the validation criteria. OR enables you to specify an acceptable value.

   OR is the default Accept value, as shown in the following image.

   ![Accept Clause Image]

   The only Accept Type supported in the Variable Editor is Accept list from file.
3. In the Value field, type a valid accept field value.

You may type multiple OR value fields, as shown in this example:

<table>
<thead>
<tr>
<th>ACCEPT</th>
<th>OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>'JAPAN' OR 'ENGLAND' OR 'FRANCE' OR 'ITALY'</td>
</tr>
<tr>
<td>WITHIN</td>
<td></td>
</tr>
</tbody>
</table>

Value
The list of acceptable values.

Or

Click the Value ellipsis button to open the Accept Value(s) dialog box where you may add and delete values, as shown in the image below.

4. Click Save from the File menu to save the accept value in the synonym.
5. Click Close from the File menu to close the Synonym Editor and return to the Projects area of Developer Studio.
6. To view the resulting Accept clause syntax, right-click the Master File and click Edit in Text Editor.
The following image shows the Accept clause syntax as defined in the Master File.

```
FILE=car, SUFFIX=FOC
SEGNAME=ORIGIN, SECTYPE=S1, $
   FIELD=COUNTRY, ALIAS=COUNTRY, FORMAT=A10, FIELDDTYPE=I,
   ACCEPT= 'JAPAN' OR 'ENGLAND' OR 'FRANCE' OR 'ITALY', $
SEGNAME=COMP, SECTYPE=S1, PARENT=ORIGIN, $
    FIELD=CAR, ALIAS=CARS, FORMAT=A16, $
SEGNAME=CARREC, SECTYPE=S1, PARENT=COMP, $
    FIELD=MODEL, ALIAS=MODEL, FORMAT=A24, $
SEGNAME=WARANT, SECTYPE=S1, PARENT=COMP, $
    FIELD=WARRANTY, ALIAS=WARR, FORMAT=A40, $
SEGNAME=EQUIP, SECTYPE=S1, PARENT=COMP, $
    FIELD=STANDARD, ALIAS=EQUIP, FORMAT=A40, $
SEGNAME=BODY, SECTYPE=S1, PARENT=CARREC, $
```

**Procedure:** How to Create a Variable Parameter in a Procedure With the Variable Editor

Open a procedure with Report Painter and add several fields, including the field you used to create the Accept clause in the previous steps. Then, add a Where clause to the procedure and add a variable parameter with the variable editor by performing the following steps:

1. In Report Painter, click *Where* from the Where/If drop-down menu.
   
   The Expression Builder opens.
The following image shows the Expression Builder populated with all selection criteria (except the Compare Value field).

2. Double-click the field name (used to create the Accept clause) in the file directory list in the left pane to add it to the Column to filter column.

   a. Click the down arrow in the Logical Relation column and select a relational operator from the drop-down list.

   b. Click the down arrow in the Compare Type column and click **Parameter** from the drop-down list.

   c. Double-click the Compare Value column.

      The Variable Editor opens.

3. In the Variable Editor, click the **Accept list from file** option and perform the following steps to create a variable parameter.
The following image shows the Variable Editor populated with the field values and selection criteria required to create a variable parameter.

![Variable Editor diagram]

**a.** In the Variable Type drop-down list, click *Single Select*.

**b.** In the Name input box, the field name (used to create the Accept clause) appears as the name for the variable.

**c.** In the (optional) Prompt input box, type the text you want used to prompt a user to select a value.

If no Prompt text is entered, the Name in the preceding step is used.

**d.** From the Source File list, the Master File (used to create the Accept clause) for the report is selected.

**e.** In the Values for Return Fields list, the field name in red (used to create the Accept clause) is selected.

**f.** Click OK to save the variable parameter, close the Variable Editor, and return to the Expression Builder window.

4. Click OK to close the Expression Builder.
The following image shows the Report Options dialog box populated with the Where clause created in the Expression Builder.
5. To verify that the source code is correct and the resulting procedure will be executed successfully, perform the following:

   a. Click the Source tab below the Object Inspector.

      The following image shows the resulting source code added to the procedure in the Where clause.

      ```
      TABLE FILE CAR
      PRINT
      CAR.CONG.CAR
      CAR.CARRC.MODEL
      CAR.BODY.BODYTYPE
      CAR.BODY.DEALER.COST
      CAR.BODY.RETAIL.COST
      BY LOWEST CAR.ORIGIN.COUNTRY
      WHERE CAR.ORIGIN.COUNTRY EQ 'COUNTRY, (ACCEPT COUNTRY FROM car).Select a Country,';
      ON TABLE SET PAGE-NUM NOLOAD
      ON TABLE NOTOTAL
      ON TABLE NOHOLE FORMAT HTML
      ON TABLE SET HTMLCSS ON
      ON TABLE SET STYLE *
      ENDSTYLE
      END.
      ```

   b. Click the Run icon.

      The following image shows the new window that opens prompting you to select a value from the list of valid Accept values for the variable you created.

      ![WebFOCUS Auto Prompting Facility](image)

      1. Specify values for all parameters.
      2. Select the run button to submit the request.

   c. Select a value from the drop-down list and run the WebFOCUS query.
The report output appears, as shown in the following image.

Universal Concatenation in Report Painter

With universal concatenation, you can retrieve data from unlike data sources in a single request. All data, regardless of source, appears to come from a single file. The Universal Concatenation dialog box, available from Report Painter, applies the MORE command to your procedure. You can concatenate all types of data sources, provided they share corresponding fields with the same format. You can use WHERE and IF selection tests in conjunction with MORE.

To use universal concatenation, you must divide your request into:

- One main request that retrieves the first data source and defines the data fields, sorting criteria, and output format for all data.
- Subrequests that define the data sources and fields to be concatenated to the data of the main request. The fields printed and sorted by the main request must exist in each concatenated data source. If they do not, you must create them as virtual fields.

During retrieval, data is gathered from each data source in turn, then all data is sorted and the output formatted as specified in the main request.

Procedure: How to Concatenate Data Sources

Universal concatenation specifies how to combine data from sources with dissimilar Master Files.

1. Create the main request.
This contains all the formatting for the resulting report and names the first file to be concatenated. It also contains all printing and sorting information. The fields printed and the sort fields must exist as real or DEFINE fields in each file.


   or

   Click the Universal Concatenation button, located on the Setup toolbar, as shown in the following image.

   The Universal Concatenation dialog box opens, as shown in the following image.

3. Click the Add Source button to add additional data sources.

   The Open dialog box appears.

4. Select a Master File and click Open.
If there are temporary HOLD files associated with the procedure, HOLD files are available from the Open dialog box, as shown in the following image.

The selected data source is added, showing the Report Field Resolutions and Filters. Additionally, the Define tool is activated.

**Note:** If the field names for the selected data source are not the same names and formats as the fields being printed and sorted in the main request, the Universal Concatenation dialog box indicates that you need to define these fields with status icons.

5. Create or modify a field for the universal concatenation with the Define tool.
   - Click the Define button from the Universal Concatenation toolbar.
   - or
   - Double-click the field name from the Additional Data Sources window.

The Define tool opens.
Note: The Define tool opens automatically if the Create all needed fields for a data source when launching the Define tool option is selected. This creates the missing defines for the data source. A message appears before the Define tool opens, stating which DEFINEs will be created and require expressions, followed by a list of the created DEFINE fields. This option is off by default.

- Create the DEFINE expression using the selected universally concatenated Master File, generating the required DEFINEs for the data source to have the same field names and formats as the fields used in the main request.

- Click OK to close the Define tool.

  The DEFINE expression is written in the procedure ahead of the TABLE request.

6. Create selection criteria for the universal concatenation with a Filter.

   You may create a filter through a WHERE clause.

   - Click the Where button from the Where/If drop-down menu.

     The Expression Builder opens.

   - Create selection criteria and click OK to close the Report Options dialog box.

   - To modify or view the filter, double-click the filter expression from the Additional Data Source window to open the Report Options dialog box.

7. Click OK to close the Universal Concatenation dialog box and add the MORE command to the procedure.
Field Name and Format Matching

All fields referenced in the main request must either exist with the same names and formats in all the concatenated files, or be remapped to those names and formats using virtual fields. Referenced fields include those used in COMPUTE commands, headings, aggregation phrases, sort phrases, and the PRINT, LIST, SUM, COUNT, WRITE, or ADD commands.

A successful format match means that:

<table>
<thead>
<tr>
<th>Usage Format Type</th>
<th>Correspondence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Format type and length must be equal.</td>
</tr>
<tr>
<td>I, F, D</td>
<td>Format type must be the same.</td>
</tr>
<tr>
<td>P</td>
<td>Format type and scale must be equal.</td>
</tr>
<tr>
<td>DATE (new)</td>
<td>Format information (type, length, components, and order) must always correspond.</td>
</tr>
<tr>
<td>DATE (old)</td>
<td>Edit options must be the same.</td>
</tr>
<tr>
<td>DATE -TIME</td>
<td>Format information (type, length, components, and order) must always correspond.</td>
</tr>
</tbody>
</table>

Text (TX) fields and CLOB fields (if supported) cannot be concatenated.
Reference: Universal Concatenation Dialog Box

The following image shows the Universal Concatenation dialog box.

Universal Concatenation Toolbar

The following tools are available from the Universal Concatenation toolbar.

<table>
<thead>
<tr>
<th>Button</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Add Source" /></td>
<td>Add Source enables you to add an additional data source. Select a Master File and click Open.</td>
</tr>
<tr>
<td><img src="image" alt="Launch Define" /></td>
<td>Launches the Define tool. The Define tool enables you to create a virtual field as a component in a reporting procedure. The objective is to define or modify fields to match the report fields from the main request. Define the virtual field by assigning a format and typing an expression or composing it using the calculator and the fields and functions listed in the tabbed panes in the Define tool window. The DEFINE expression is written in the procedure ahead of the TABLE request.</td>
</tr>
<tr>
<td><img src="image" alt="Expression Builder" /></td>
<td>Opens the Expression Builder. You can create a Where, If, or Where Total expression from there.</td>
</tr>
</tbody>
</table>
### Button | Action
--- | ---
![Delete Icon] | Deletes the selected data source, or selected expressions, from the list.
![Move Up/Down Icon] | Moves the selected data source up or down the list.

### Additional Data Sources Window

Shows a field tree of data sources, filters, and unresolved concatenations.

**Note:** The data source and report field items are preceded by status icons to indicate if the additional data source fields are configured correctly, as shown in the following example. Double-click the field name or filter expression to open the associated tool.

### Create all needed fields for a data source when launching the Define tool

Select this option to create the missing defines for the data source. A message appears before the Define tool opens, stating which DEFINEs will be created and require expressions, followed by a list of the created DEFINE fields.

**Note:** This option is off by default. The Universal Concatenation dialog box stores this setting when the Universal Concatenation dialog box is reinitialized.
The following image is an example of the message that appears when selecting this option. Click OK to open the Define tool to create the required expression.

![Warning icon](image)

**Warning icon**

Shows warnings and miscellaneous information about the concatenation that you are creating.

**Note:** If the Warning icon is activated, this means there is unresolved information for the data source. Click the Warning icon for details, as shown in the following example.

![Warnings and miscellaneous information](image)

**OK**

Closes the Universal Concatenation dialog box and applies the MORE command to the procedure.

**Cancel**

Closes the Universal Concatenation dialog box without saving any changes.
Universal Concatenation in Report Painter

**Help**

Opens the documentation topic related to Universal Concatenation in Report Painter.

**Example: Matching Field Names and Formats**

The following example concatenates data from the EMPDATA and SALHIST data sources.

**Tip:** EMPDATA contains sample data about company employees. SALHIST contains information about employee salary history. These data sources (empdata.mas and salhist.mas) are available from the ibisamp folder of your Developer Studio application (apps) directory. You may copy these source files to the project directory of your choice.

1. Create a new procedure in Developer Studio:
   - With the Procedures folder highlighted, click New from the File menu.
   - or
   - Right-click the Procedures folder and click New from the context menu, then click Procedure.
   The Add Procedure dialog box opens.
2. Type MORE_rp in the File name field and click Open.
   The Procedure Viewer opens.
3. Define NEWID in the EMPDATA data source with the same name and format as the sort field that will be referenced in the main request.
   - Click the yellow diamond and select Define from the Component Connector toolbox.
   - Select empdata.mas as the data source and click Open.
   The Define tool opens.
   - Type NEWID as the Field name.
   - Type A11 as the Format.
   - Enter the following expression in the Define expression window:
     ```
     EDIT (PIN, '999-99-9999')
     ```
   - Click OK to close the Define tool.
   The EMPDATA Define object is added to the Procedure Viewer.
4. Create the main request for the universal concatenation.
This contains all the formatting for the resulting report and names the first file to be concatenated. It also contains all printing and sorting information. The fields printed and the sort fields must exist as real or DEFINE fields in each file.

- Click the yellow diamond and click Report from the Component Connector toolbox.
  - The Open dialog box appears.
- Select empdata.mas as the data source and click Open.
  - Report Painter opens.

5. Type Employee Salaries in the Page Heading object.

6. Identify your sort column for the main request. Click the By button on the Report Painter toolbar, then double-click or drag NEWID from the Fields tab of the Object Inspector.

7. Identify your print column for the main request. Click the Detail button on the Report Painter toolbar, then double-click or drag SALARY from the Fields tab of the Object Inspector.

8. Create the WHERE clause for the main request.
   - Click the Where button from the Where/If drop-down menu.
     - The Expression Builder opens.
   - Enter the following expression in the Advanced section of the Expression Builder:
     \[ \text{SALARY GT 65000} \]
   - Click OK to close the Expression Builder.

   **Note:** The WHERE criterion in the main request applies only to the EMPDATA data source.

9. Create the universal concatenation with the MORE command. This concatenates the SALHIST data source to the EMPDATA data source.
   - Click the Universal Concatenation icon, located on the Setup toolbar.
     - The Universal Concatenation dialog box opens.
   - Click the Add Source icon from the Universal Concatenation toolbar.
   - Select salhist.mas as the data source and click Open.
The SALHIST data source appears in the Universal Concatenation dialog box, indicating status icons for the field names, as shown in the following image.

10. Define the NEWID and SALARY fields in the SALHIST data source, to create the required expression with the same name and format as the sort field referenced in the main request.

- Click the Define icon from the Universal Concatenation toolbar.
  
  The Define tool opens.
  
- Type NEWID as the Field name.
  
- Type A11 as the Format.
  
- Enter the following expression in the Define expression window:

  \[
  \text{EDIT (PIN, '999-99-9999')}
  \]

- Click New to create an additional Define field.

- Type SALARY as the Field name.
  
- Type D12.2M as the Format.
  
- Type the following expression in the Define expression window:

  \[
  \text{OLDSALARY}
  \]
Click **OK** to close the Define tool.

The Universal Concatenation dialog box shows the report field resolutions, as shown in the following image. The status icons indicate that the required expressions are defined.

![Universal Concatenation dialog box](image)

11. Create a filter for the SALHIST data source.
   - Click the *Where/If* icon from the Universal Concatenation toolbar.

   The Expression Builder opens.
   - Enter the following expression in the Advanced section:
     
     \[
     \text{OLDSALARY} \gt 65000
     \]
     
   - Click **OK** to close the Expression Builder.
The Universal Concatenation dialog box shows the filter expression, as shown in the following image. Note that this WHERE criterion applies only to the SALHIST data source. Notice that it references a field that is not defined in the EMPDATA data source.

![Universal Concatenation dialog box](image)

**Note:** To view or modify any of the fields from the Additional Data Sources window, double-click the field name or filter expression to open the associated tool.

- Click OK to close the Universal Concatenation dialog box.

  The MORE command is added to the procedure.

12. Save and run the report.
The output is shown in the following image.

When you concatenate data, record sets are simply appended, not grouped or aggregated across files. Therefore, if duplicate sort fields exist, they show up twice in the report output.

**Navigating Sort Groups From a Table of Contents**

You can enhance navigation within a large HTML report by adding a dynamic HTML-based Table of Contents (TOC). To take advantage of this feature, the report must contain at least one vertical sort (BY) field. If you include more than one sort field in a report, the hierarchy is determined by the order in which the sort fields are specified in the request.

*Note:* The Table of Contents option is available for the HTML, HTML active report, active report with Adobe Flash Player (FLEX), Excel, Default, and User output formats.
The TOC also enhances the display of groups of data. You can view one section (or page) of a report at a time, or you can view all sections at once. You can control this feature with a page break. For more information, see *Customizing Report Sections for Display* on page 205.

The TOC displays all values of the first (highest level) vertical sort field, as well as the values of any lower level By fields designated for inclusion. These values appear as an expandable series of links or as a series of list controls. Unless otherwise specified in the request, a new section begins when the highest level sort field changes.

The display of data for a lower level sort field is controlled by your selection of a higher level sort field value. For example, in a report sorted first by country and then by car model, if you choose Italy from the TOC for country, you will only see a listing of Italian car models in the TOC for cars. Cars produced in other countries are not displayed.

Using the TOC, you can:

- View any section of a report by clicking the associated link.
- Toggle between a single section and the entire report content.
- Remove the TOC. This feature is useful when printing the report from the browser. Double-click anywhere in the report to restore it and continue navigation.

The TOC itself is an object that initially appears in the upper-left corner of the report, or as one or more drop-down lists in a page heading or footing or a report heading or footing.

- **Heading Option.** To add the TOC to a heading or footing, you can use a StyleSheet. See the *Creating Reports With WebFOCUS Language* manual.

- **Report Option.** To add a TOC object to the upper-left hand corner of a report, you can use a SET command or a PCHOLD command. For more information, see the *Creating Reports With WebFOCUS Language* manual.

For more information, see:

- *Adding a Single-Level TOC to a Report or Page Heading* on page 197.
- *How to Navigate Sorted Data From a Multi-Level Report TOC* on page 200.
- *How to Navigate Sorted Data From a Multi-Level Page Heading TOC* on page 203.
Procedure: How to Add a TOC or Disable the TOC Feature

1. From Report Painter, right-click a By column in the report and click Table of Contents. A cascading menu appears.

2. Choose one of the following options:
   - Report to embed the TOC in the executed report as an expandable tree control.
   - Heading to add the By columns as the last objects in the page heading. The TOC appears in a drop-down list in the heading when the report is executed.
   - None to turn the TOC feature off.

Tip: Click the Properties tab in the Object Inspector to verify that the Table of Contents is turned on.

or

1. Right-click the first By column in the Report Painter window and select Options. The Field Properties dialog box opens.

2. Click the General tab.

3. Click Report or Heading in the Table of Contents section of the tab.

4. To turn the TOC feature off, click None in this section of the tab.

Example: Adding a Single-Level TOC to a Report or Page Heading

You may add a single-level TOC to a Report or to a Page Heading.

1. After selecting the Centord data source to report against, open Report Painter.

   Tip: To verify that the output format is set to HTML, click the Options button and ensure that HTML appears in the Select Format drop-down list.

2. Add the following fields from the Object Inspector: PLANT, PRODCAT, and LINEPRICE.

3. Select the LINEPRICE column in the Report Painter window and click the Sum button.

4. Select the PLANT and PRODCAT columns and click the By button.

5. Right-click the first By column (PLANT) and click Table of Contents, then choose Report (for a Report) or Heading (for a Page Heading) from the cascading menu.

   Note: If heading is selected, the PLANT field is inserted into the page heading.

6. Enter SALES REPORT as the page heading, change the font size to 10, and center the heading.
7. Run the report.

For a Report, the TOC object appears in the upper-left corner, as shown in the following image.

For a Page Heading, the TOC appears in the page heading drop-down list. Expand the drop-down list to display the sort values for PLANT and the viewing options.
8. Double-click the TOC icon (for a Report) to display a list of the sort values for PLANT, with two viewing options.

![Table of Contents](image)

You can move the TOC anywhere on the screen by clicking the blue area above the Table of Contents and then dragging the TOC. You can also move it by double-clicking a location in the report at which to position the TOC.

9. On the TOC, click each plant (city) to see the related information. The selected plant flashes to highlight it in the window. You can display any portion of the report by clicking that value in the TOC.

You have the following options:

- Click **View Entire Report** to display all data values in the report.
- Click **Remove Table of Contents** to remove the TOC.
- Double-click anywhere in the report area to redisplay the TOC.
- For a TOC in a Report, click **Table of Contents** to collapse the TOC list. Click **Table of Contents** again to expand it.

**Tip:** You can customize the look and feel of the TOC object by editing a .css file. Go to `\ibi\DevStudioxx\ibi_html\javaassist\intl\En\toc.css`. Do not forget to make a backup copy.

**Note:** To display all columns of data so that they have the same width, use one of the following options:
Navigation Behavior in a Multi-Level TOC

If you select a value in a multi-level TOC, that value flashes (it is highlighted in gray) to draw attention to it. It also moves to the top of the window for viewing.

If the selected value is already viewable in the window, and the remaining report will fit in the window, the value flashes, but the report does not scroll.

**Procedure: How to Navigate Sorted Data From a Multi-Level Report TOC**

In this example, you will add a dynamic HTML TOC as an object in the upper-left corner of a report and display a hierarchy consisting of multiple levels of sort fields, beginning with the highest level.

1. After selecting the Short data source to report against, open Report Painter.

   **Tip:** To verify that the output format is set to HTML, click the Options button, and ensure that HTML appears in the Select Format drop-down list.

2. Add the following fields from the Object Inspector: PROJECTED_RETURN, CONTINENT, REGION, COUNTRY, HOLDER, and TYPE.

3. Select the CONTINENT, REGION, COUNTRY, HOLDER, and TYPE columns and click the By button.

4. Select the PROJECTED ANNUALIZED RETURN column and click the Sum button.

5. Right-click the fifth By column (TYPE) and choose Table of Contents, then choose Report from the cascading menu.

6. Run the report.
The TOC appears in the upper-left corner, as shown in the following image.

```
<table>
<thead>
<tr>
<th>Continent</th>
<th>Region</th>
<th>Country</th>
<th>Instrument Holder</th>
<th>Type of Instrument</th>
<th>Projected Annualized Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMERICAS</td>
<td>CENTRAL AMERICA</td>
<td>GUATEMALA</td>
<td>COMM</td>
<td>OVERNIGHT</td>
<td>1.050</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>910</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GOVT</td>
<td>CASH</td>
<td>1.190</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OVERNIGHT</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HONDURAS</td>
<td>COMM</td>
<td>1.050</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>910</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GOVT</td>
<td>CASH</td>
<td>1.190</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OVERNIGHT</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NORTHERN AMERICA</td>
<td>CANADA</td>
<td>1.330</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>COMM</td>
<td>OVERNIGHT</td>
<td>790</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GOVT</td>
<td>CASH</td>
<td>290</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OVERNIGHT</td>
<td>910</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>770</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEXICO</td>
<td>COMM</td>
<td>1.470</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ST. NOTES</td>
<td>1.190</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GOVT</td>
<td>CASH</td>
<td>490</td>
</tr>
</tbody>
</table>
```

7. Double-click the TOC. Select *View Entire Report* and scroll down to see the data for the three continents.

Scroll back to the top of the report. Select *AMERICAS*. Your selection flashes to highlight it in the window. If you scroll down now, you will see that the report contains values only for the Americas.
8. Click the plus sign (+) next to AMERICAS in the TOC, and then click the plus sign (+) next to SOUTH AMERICA, as shown in the following image.

```
Table of Contents
AMERICAS
  CENTRAL AMERICA
  NORTH AMERICA
  SOUTH AMERICA
    ARGENTINA
    BRAZIL
ASIA
EUROPE
View Entire Report (On/Off)
Remove Table of Contents
```

The field values ARGENTINA and BRAZIL are listed in the TOC. These are values of COUNTRY. To see the field name of a value in the TOC, place the cursor over that value.

9. Select BRAZIL. BRAZIL flashes, and the associated data moves into the window, as shown in the following image.

```
<table>
<thead>
<tr>
<th></th>
<th>BRAZIL</th>
<th>COMM</th>
<th>OVERNIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ST NOTES</td>
<td>.980</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GOVT</td>
<td>.770</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OVERNIGHT</td>
<td>.630</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST NOTES</td>
<td>.560</td>
</tr>
</tbody>
</table>
```

10. Continue to drill down to the detail you want to view by choosing values at any sort level in the TOC:

- Clicking a plus sign (+) expands the field to display its values in the TOC.
- Clicking an actual value (link) in the TOC momentarily highlights that value in the report and, if necessary, adjusts the report display to move the value into view.
- If you click Table of Contents, the TOC collapses, but you can continue to scroll through the data, expand the TOC again, and make additional selections.
**Procedure:** How to Navigate Sorted Data From a Multi-Level Page Heading TOC

To generate a lengthy report for the purpose of illustration, this example prints the field PROJECTED_RETURN (that is, it uses the Detail function for the field).

1. After selecting the Short data source to report against, open Report Painter.

   **Tip:** To verify that the output format is set to HTML, click the Options button, and ensure that HTML appears in the Select Format drop-down list.

2. Add the following fields from the Object Inspector: PROJECTED_RETURN, CONTINENT, REGION, COUNTRY, HOLDER, and TYPE.

3. Select the CONTINENT, REGION, COUNTRY, HOLDER, and TYPE columns and click the By button.

4. Right-click the first three By columns (CONTINENT, REGION, and COUNTRY) one at a time and choose Table of Contents, then choose Heading from the cascading menu.

   These fields are inserted in the page heading.

   **Note:** When adding TOC to a heading, add additional page breaks to lower-level sort fields to group the hierarchical data correctly.

5. Enter the following text in the page heading so that the heading looks like this:

   ```
   PROJECTED RETURN
   For: <SHORT.SHORT.CONTINENT For: <SHORT.SHORT.REGION For:
   <SHORT.SHORT.COUNTRY
   
   Change the font size of the second line to 10.
   ```
6. Run the report. It contains three HTML TOCs in the drop-down lists in the second line of the page heading, one for each sort field specified in the request, as shown in the following image.

![PROJECTED RETURN](image)

<table>
<thead>
<tr>
<th>Continent</th>
<th>Region</th>
<th>Country</th>
<th>Instrument</th>
<th>Type of Instrument</th>
<th>Projected Annualized Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMERICAS</td>
<td>CENTRAL AMERICA</td>
<td>GUATEMALA</td>
<td>COMM</td>
<td>OVERNIGHT</td>
<td>.150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.150</td>
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<td></td>
<td></td>
<td></td>
<td>.150</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.150</td>
</tr>
</tbody>
</table>

7. Click the arrow in the second TOC drop-down list and select NORTH AMERICA. Keep in mind that the values in this drop-down list are related to those in the higher and lower level drop-down lists. Said another way, they are all part of the same higher level sort group, and, therefore, within the same page break.
The selected value, NORTH AMERICA, flashes and moves to the top of the window. From there you can scroll to see the related data, as shown in the following image.

If you select information already in your field of view, the value will flash to draw your attention to that location, but the display will not change.

8. Choose ASIA from the first TOC list. This selection changes your highest level sort group, and affects all of the lists below it. ASIA flashes and moves to the top of the window, where you see information for the first city (HONG KONG) in the FAR EAST region.

9. Continue to experiment with other selections.

**Customizing Report Sections for Display**

Data in a report with a TOC is grouped into sections based on the sort fields.

You can customize each section with a page break. By default, a page break is included in the first (highest level) sort field. You can add page breaks to create additional sections and group the data based on a lower level sort field.
Customizing Report Sections

Example:  To generate a lengthy report for the purpose of illustration, this example prints the field PROJECTED_RETURN (that is, it uses the Detail function for the field).

1. After selecting the Short data source to report against, open Report Painter.

   Tip: To verify that the output format is set to HTML, click the Options button and ensure that HTML appears in the Select Format drop-down list.

2. Add the following fields from the Object Inspector: PROJECTED_RETURN, CONTINENT, REGION, COUNTRY, HOLDER, and TYPE.

3. Select the CONTINENT, REGION, COUNTRY, HOLDER, and TYPE columns and click the By button.

4. Right-click the column Instrument Holder and click Options from the menu. On the Field Properties dialog box, click the Sort tab. From the Actions tab, click On from the Page Break drop-down list. Click OK to close the dialog box.

   This step generates a page break on the report each time the value of HOLDER changes.

5. Right-click the fifth By column (Type of Instrument) and choose Table of Contents, then choose Report from the cascading menu.

6. Run the report. The TOC appears in the upper-left corner, and only one section of the report (the data for the instrument holder COMM) appears.
Double-click the TOC to expand it, and move it outside the report data, as shown in the following image.

![Image of Table of Contents]

**Table of Contents Limits**

The TOC feature:

- Applies to HTML, HTML active report, active report with Adobe Flash Player (FLEX), Excel, Default, and User output formats.

- Is supported with Internet Explorer® Version 5.5 and later.

- Does not support the Dialogue Manager command -HTMLFORM.

- Designates a TOC for a By field without also specifying a TOC for its parent (By) fields. The reason for this is that the TOC controls are interdependent and require the physical presence of each parent control to operate correctly. For example, if the request contains BY COUNTRY BY CAR BY MODEL, a report cannot include a TOC control for CAR without also including one for COUNTRY.
Including a Total or Subtotal

To help you and others interpret the detailed information presented in a report, Report Painter enables you to summarize numeric information using column and row totals, grand totals, and subtotals. These summary lines may be used to clarify or highlight information in numeric or matrix reports.

Calculating a Row or Column Total

You can add totals for rows or columns of numbers:

- Column totaling produces a final row on the report, which contains the totals for each column of numbers, or a selected column field.

  Note: Column totals are only available for columns containing numeric values.

- Row totaling produces a new column containing the sum of all numbers in each row.

Procedure: How to Show/Hide Totals for All Columns

1. Click the Options button on the Output Format toolbar. The Report Options dialog box opens at the Output tab.

2. In the Totals box, click Column totals from the drop-down list to display a total for every column on the report.

   or

   Click No totals to hide the display of column totals.
Procedure: How to Apply Column Totals to Selected Fields

1. From Report Painter, select the field in the report that you are applying the total to.
2. Click Output from the Report menu.
   The Report Options dialog box opens at the Output tab.
3. Click Column totals from the Apply to current columns in report drop-down list.
4. Click OK to close the Report Options dialog box.
   The column total appears in Report Painter, indicated by the word TOTAL, as shown in the following image.
Including a Total or Subtotal

5. Right-click anywhere on the column total and click Options, as shown in the following image.

![Column Total Options](image)

**Note:** You may change the title for the column total by selecting Title.

The Properties for Column Total dialog box opens at the Styling tab.

6. Click the General tab of the Properties for Column Total dialog box.

7. Select the check box next to the numeric value field(s) to be included in the column total, as shown in the following image.

![Column Totals](image)

**Note:** Apply totals to all columns is selected by default.

8. Click OK to close the Properties for Column Totals dialog box.

The column total appears for the selected field(s).

**Procedure:** How to Show/Hide Row Totals

1. Click the Options button on the Output Format toolbar. The Report Options dialog box opens at the Output tab.

2. In the Totals box, click Show Row Totals to display a total for every row on the report.

   or

   Deselect Show Row Totals to hide the display of row totals.

**Procedure:** How to Style Column Totals and Row Totals

You may style column totals and row totals from the Report Options dialog box.
1. After adding the column/row totals to your report, select **Styling** from the Report menu. The Report Options dialog box opens at the Style tab.

2. Select the column/row total from the active object drop-down list.

**Note:** The column/row totals appear as Column Totals, Row Totals (Report), Row Totals (Title), and Row Totals (Data), in the active object drop-down list, as shown in the following image.

![Report Options dialog box](image)

**Tip:** Column Totals may also be styled through the Column Total Properties dialog box. For more information, see *Properties for Column Total Style Tab* on page 75.

3. Apply any styling to the selected column or row total active object and click **Apply**.

4. Click **OK** to close the Report Options dialog box.
Adding a Section Total or Grand Total to a Report

Frequently, reports contain detailed information that is broken down into subsections for which simple column and row totals do not provide adequate summaries. In these instances, it is more useful to look at subtotals for particular sections and a grand total at the end of the report.

In general, subtotals produce totals every time a specified sort field value changes. Report Painter provides several options for creating section subtotals and grand totals:

- **Subtotal.** Use Subtotal to add up individual values, such as columns of numbers, each time the named sort field changes value. Subtotal shows column totals each time the named sort field changes value.

- **Summarize and Recompute.** Summarize and Recompute should be used instead of Subtotal to recalculate calculated values. Summarize recalculates values at every sort break. In contrast, Recompute recalculates only at the specified sort break, like Subtotal.

- **Recap.** Recap enables you to use subtotal values in a calculation. The subtotal values are not displayed. Only the result of the calculation is shown on the report. For related information, see Creating Reports With Financial Report Painter in the Creating Financial Reports manual.

To further control when subtotals are produced, you can use the When option with any subtotaling command. Subtotal commands are independent of record selection phrases.

**Procedure: How to Add a Subtotal**

1. Select the By sort field in the Report Painter window.
2. Click the Subtotal button on the Columns toolbar.
   - A Subtotal field appears in the Report Painter window indicated by the word *TOTAL.
3. You can add to or type over *TOTAL.
Subtotal displays a total for columns containing numeric values only when a specified sort field changes values.

**Example: Showing a Subtotal and a Total**

The following report on employee salaries shows the total salary expense of each department, as well as a grand total for all departments.

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>LAST NAME</th>
<th>CURR SAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>BLACKWOOD</td>
<td>$21,780.00</td>
</tr>
<tr>
<td></td>
<td>CROSS</td>
<td>$27,062.00</td>
</tr>
<tr>
<td><strong>TOTAL MIS</strong></td>
<td></td>
<td>$48,842.00</td>
</tr>
<tr>
<td>PRODUCTION</td>
<td>BANNING</td>
<td>$29,700.00</td>
</tr>
<tr>
<td></td>
<td>IRVING</td>
<td>$26,862.00</td>
</tr>
<tr>
<td></td>
<td>ROMANS</td>
<td>$21,120.00</td>
</tr>
<tr>
<td><strong>TOTAL PRODUCTION</strong></td>
<td></td>
<td>$77,682.00</td>
</tr>
</tbody>
</table>

**Procedure: How to Add a Subtotal on Several Sort Levels**

1. Select the lowest level By sort field in the Report Painter window for which you want a total.
2. Click *Subtotal on all outer sort fields* from the Insert menu.
   
   A Subtotal field appears in the Report Painter window indicated by the word *TOTAL*.
3. You can add to or type over *TOTAL*.

Subtotal displays a total for columns containing numeric values when a specified sort field, and any preceding (higher level) sort field(s) change values.
**Procedure: How to Suppress a Subtotal for One Item in a Sort Group**

1. Select the By subtotal object area in the Subtotal field window.
2. Click Suppress for single lines from the Properties menu.
   
   or
   
   Right-click and select Suppress for single lines from the context menu.

Suppress for single lines displays subtotal lines only when the specified sort field contains more than one record.

**Procedure: How to Add a Subtotal for a Computed Field**

1. Select the By sort field in the Report Painter window.
2. Click Recompute from the Insert menu.
   
   A recomputed field appears in the Report Painter window of the report indicated by the word *TOTAL.

3. You can add to or type over *TOTAL.

Recompute displays totals for columns containing numeric values, and recalculates temporary fields containing information, such as ratios using subtotals each time a specified sort field changes values.

For details about creating temporary fields in reports, see *How to Create a Calculated Value* on page 473.

**Procedure: How to Add a Subtotal for a Computed Field on Several Sort Levels**

To calculate a subtotal on a computed field when a specific sort field or a higher-level sort field changes:

1. Select the lowest level By sort field in the Report Painter window for which you want a total.
2. Click Recompute on all outer sort fields from the Insert menu.
3. You can add to or type over this text.

Recomputes display totals for columns containing numeric values and recalculates temporary fields each time a specified sort field or preceding sort fields (higher levels) change values.
**Procedure: How to Return a Default Title for the Object Area**

1. Select the subtotal field.
2. Click *Use Default Text* from the Properties menu for the selected object area.
   
   or
   
   Right-click and select *Use Default Text* from the context menu.

   The default title is returned to the object area.

**Procedure: How to Suppress a Subtotal for a Field**

1. Right-click a column to which subtotaling has been applied and click *Options* from the context menu. The Field Properties dialog box opens.
2. Click the *General* tab.
3. In the Columns Subtotals box, deselect the *Apply totals to all columns* check box.

**Procedure: How to Create a Subtotal Calculation**

To use subtotal values in a calculation and display the result of the calculation (not the subtotal value) on the report:

1. Select a By field in the Report Painter window.
2. Click *Recap* from the Insert menu. The RECAP dialog box opens.
3. Type a field name in the Field combo box.
4. Type the format directly in the Format box or click the *Format* button to display the Format dialog box. For details, see *Format Dialog Box* on page 475.
5. Enter a calculation in the window.

   **Note:** You can create multiple calculations and display their subtotal values in the report. To enter another calculation in the window, click the *New* button.

6. Click *OK*.

Recap computes subtotals based on user-supplied calculations. New values appear each time the specified sort field value changes.
Adding a Page Heading or Footing

You can add a page heading and/or a page footing to a report. A page heading is text that appears at the top of every page of a report. A page footing is text that appears at the bottom of every page.

You can specify whether the page heading and/or page footing is left justified, right justified, or centered. Individual lines in the page heading or footing can be assigned a different justification. For example, you can have a two-line page heading in which the first line is right justified and the second line is centered.

The heading or footing can display the current page count and total page count.

Note: The Page Heading and Page Footing are turned on by default. If you previously specified a subheading, subfooting, or subtotal, those fields also appear in Report Painter.

If you are sorting the data in a report, you can add subheading and subfootings at sort breaks. For details, see How to Add a Subheading or Subfooting at a Sort Break on page 148.

Procedure: How to Add a Page Heading or Footing

To add a heading or a footing to a report:

1. Select Page Heading or Page Footing from the Insert menu.
   
   The Page Heading and Page Footing objects appear.

   Note: If you previously specified a subheading, subfooting, or subtotal, those fields also appear in Report Painter.

   If your Page Heading or Footing is not shown in Report Painter, ensure that Boundaries is selected on the Report Options View tab.

2. To position the cursor in the page heading or footing, click in the heading or footing area.

3. Type the heading or footing text.

4. To embed field values in a page heading or footing:
   a. Place the cursor in the page heading/footing where you want to embed the value.
   b. Double-click a field from the Fields tab in the Object Inspector.

5. To justify a line in the page heading/footing:
   a. Highlight the line you want to justify.
b. Right-click the highlighted line and select *Justify* from the context menu. Select the justification option from the cascading menu.

6. To place the footing at the bottom of the page, right-click and click *Footing Bottom* from the context menu.

You can also perform a calculation or other operation on a field value in a page heading or footing.

**Note:** Report Painter shows one page vertically. If you have a large Page Heading, you may increase the virtual screen size of Report Painter to see the full report. For more information, see *How to Customize the Virtual Screen Size for the Report* on page 235.

**Example:**  **Embedding a Field Value in a Page Heading or Page Footing**

Suppose that you want to see total sales at different levels within your enterprise. The following example shows how to create a report of total sales for Gotham Grinds within each region and city, and embeds the total sales quota in the page heading.

1. Open the GGSALES data source in Report Painter.

2. Identify and format your report columns.

   a. Identify your sort columns. Click *By* on the Report Painter toolbar and double-click or drag *REGION* and *CITY* from the Fields tab of the Object Inspector.

   b. Identify your summary column. Click *Sum* on the Report Painter toolbar and double-click or drag *DOLLARS* from the Fields tab of the Object Inspector.

   c. Format the Dollar Sales column. Right-click *Dollar Sales* in the Report Painter window and click *Format*. Click *Decimal* in the Format Types box. Click *Floating dollar – M* from the Edit Options list. Click *OK*.

3. Add a page heading:

   a. Position the cursor in the page heading by clicking your left mouse button in the heading area. Type the following in the heading area, adding two spaces after the equal sign:

   
   Total Budget Dollars =
   
   Embed the total sales quota in the heading.

   b. Place the cursor after the two spaces then double-click or drag *BUDDOLLARS* from the Fields tab in the Object Inspector.

   c. Highlight <*BUDDOLLARS*. Right-click and choose *Prefix Operators* then *TOT* from the context menu. The field appears as <*TOT.BUDDOLLARS*, indicating that it will be totaled when the report is run.

   d. Press the Enter key twice to leave two lines between the heading and your report content.
Adding a Page Heading or Footing

**Note:** If your Page Heading is not shown in Report Painter, ensure that Boundaries is selected on the Report Options View tab.

4. Run the report by clicking the Run button on the toolbar. The report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>Region</th>
<th>City</th>
<th>Dollar Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>Chicago</td>
<td>$3,924,401.00</td>
</tr>
<tr>
<td></td>
<td>Houston</td>
<td>$3,714,978.00</td>
</tr>
<tr>
<td></td>
<td>St. Louis</td>
<td>$3,761,286.00</td>
</tr>
<tr>
<td>Northeast</td>
<td>Boston</td>
<td>$3,707,986.00</td>
</tr>
<tr>
<td></td>
<td>New Haven</td>
<td>$3,782,049.00</td>
</tr>
<tr>
<td></td>
<td>New York</td>
<td>$3,902,275.00</td>
</tr>
<tr>
<td>Southeast</td>
<td>Atlanta</td>
<td>$4,100,107.00</td>
</tr>
<tr>
<td></td>
<td>Memphis</td>
<td>$3,687,057.00</td>
</tr>
<tr>
<td></td>
<td>Orlando</td>
<td>$3,923,215.00</td>
</tr>
<tr>
<td>West</td>
<td>Los Angeles</td>
<td>$3,772,014.00</td>
</tr>
<tr>
<td></td>
<td>San Francisco</td>
<td>$3,870,258.00</td>
</tr>
<tr>
<td></td>
<td>Seattle</td>
<td>$4,010,685.00</td>
</tr>
</tbody>
</table>

**Procedure:** How to Repeat Headings and Footings Per Panel in PDF Report Output

When the columns presented on PDF reports cannot be displayed on a single page, the pages automatically panel. Paneling places subsequent columns for the same page on additional pages until the entire width of the report is presented, after which a new page number is generated with a new set of panels.

In order to make panels following the initial panel more readable, you can repeat headings and footings on each panel page and turn on page numbering. The panel designation is shown in Report Painter and in the report output.
1. In Report Painter, create a report using the PDF output format.
3. Click Repeat headings/footings per panel, located under the View/Print options.
4. Click the Output tab and click ON from the Page numbering drop-down list.

   **Note:** This step is recommended, as it is easier to identify paneled pages with page numbering on.

5. Click Apply and then OK to close the Report Options dialog box.
6. Run the report.

The following example shows a PDF report when all of the columns cannot be displayed on a single page. Note the page numbers.

Page 1.1 displays the By field, Unit Sales, and the page heading, as shown in the following image.
Adding a Page Heading or Footing

Page 1.2 displays the last column of the report, Budget Dollars, on a paneled page so that the entire width of the report is shown, as shown in the following image.

The following image shows the same report with Repeat headings/footings per panel enabled. Page 1.1 is the same. Note that Page 1.2 displays the paneled page showing the last column of the report (Budget Dollars), and the repeated page heading, as shown in the following image.
Procedure: How to Use the Align Column Titles (Section 508) Option for PDF

To use the Align column titles (Section 508) option for PDF, you must:

2. Change the report type to PDF.
3. Add the fields you want displayed to the report.
4. Click the Page Heading button.

A page heading is inserted into your report, as shown in the following image.

5. Select the page heading.
6. Right-click and click Alignment Grid, as shown in the following image.

The Insert Alignment Grid dialog box opens.
7. Select the *Align with Data* check box, as shown in the following image.

8. Click *OK*.

9. Right-click the page heading and click *Grid Options*, as shown in the following image.

The Properties for Page Header dialog box opens to the Style tab.
10. In the Layout section, select the *Align column titles (Section 508)* check box, as shown in the following image.

![Properties for Page Header](image)

**Adding a Report Heading or Footing**

You can add a report heading and/or report footing to a report. A report heading is text that appears above the page heading at the top of the first page of the report. A report footing is text that appears below the page footing at the bottom of the last page.

The report heading and footing options are especially useful if you only want certain text to appear at the top of the first page or at the bottom of the last page. For instance, if you are creating a sales report, you can type *Sales report for [your company]* in the report heading and *Report created by [your name]* in the report footing.

You can specify whether the report heading and/or report footing is left-justified, right-justified, or centered. Individual lines in the report heading and/or footing can be assigned a different justification. For example, you can have two lines in a report heading where the first line is right-justified and the second line is center-justified.
Procedure: How to Add a Report Heading or Footing

1. Click Report Heading or Report Footing from the Insert menu.

2. In the Report Heading object box, type the desired heading or footing, or double-click a field from the Fields tab in the Object Inspector to add it to the heading or footing.

3. To justify a line in the report heading/footing:
   a. Highlight the line you want to justify.
   b. Click the appropriate justification button on the Font toolbar.

Procedure: How to Insert the Current Date

1. Place the cursor in the object area (that is, subheading, subfooting, or page-break) in the Report Painter window.

2. Right-click and click Insert Date from the context menu.
   or
   Click Insert Date from the Properties menu.

3. Select the date format from the cascading menu.

You can change the display of the date format. For more information, see Assigning Date/Time Formats on page 478.

Adding the Current Page Number and Total Page Count

You can insert the current page number and the total page count in the page heading or footing of a report.

Procedure: How to Add the Current Page Number

1. Right-click in the page heading or page footing.

2. Click Insert Page Markers, and click Current Page Number from the cascading menu.

A field marker indicates placement of the current page number.
Procedure: How to Add the Total Page Count

1. Right-click in the page heading or page footing.
2. Click Insert Page Markers, and click Page Count from the cascading menu.
   A field marker indicates placement of the current page count.

Embedding an Adobe Flash File in a Page Heading for a PDF Report

When creating a report with the Portable Document Format (PDF) output format, you can embed a .SWF file that is Adobe Flash Player compatible in the page heading.

.SWF files that are Adobe Flash Player compatible combine vector graphics with animation effects that are scalable and provide a perfectly smooth transition of lines and images, creating the highest quality outward-facing PDF documents with engaging functionality and better visualization of data. Adobe Flash Player must be installed to view .SWF files that are Adobe Flash Player compatible.

You may embed the Adobe Flash File (.SWF files that are Adobe Flash Player compatible) as a File, URL, or Hold File, and set the page heading properties for the source .SWF files. These options are available from the embedded Flash file tab of the Properties for Page Header dialog box in Report Painter.

Note: The embedded Flash file tab appears only if the report output is set to PDF.
Reference: Properties for Page Header Dialog Box: Embedded Flash File Tab

The following image shows the options that are available on the embedded Flash file tab for a page header when using the PDF output format.

Right-click inside the Page Heading object in the Report Painter window and choose Options from the context menu. The Properties for Page Header dialog box opens at the Style tab. Click the embedded Flash file tab to view the embedded Flash file options.

The embedded Flash file tab appears only if the report output is set to PDF.

None

Indicates that no embedded Flash file is selected for the page heading. This is the default option.
**File**

Indicates the .SWF file that is Adobe Flash Player compatible is embedded in the page heading. Click **Browse** to select from a list of Shockwave® Flash Objects (.SWF files that are Adobe Flash Player compatible) in your project directory.

**URL**

Indicates the URL source that is embedded in the page heading. Type the location of the .SWF file that is Adobe Flash Player compatible in the URL and click **Open** to verify the URL source in your web browser.

**Note:** The Open button is not activated until the location of a .SWF file that is Adobe Flash Player compatible is included in the URL source.

**Hold File**

Indicates the .SWF file that is Adobe Flash Player compatible hold file that is embedded in the page heading. Use the drop-down list to select from the list of temporary hold files.

**Properties**

Enables you to set the properties for the source of the .SWF file that is Adobe Flash Player compatible in the page heading, if you are using a File, URL, or Hold File.

**Top-left corner x-coordinate**

The top-left corner x-coordinate position of the embedded Flash file in inches.

**Top-left corner y-coordinate**

The top-left corner y-coordinate position of the embedded Flash file in inches.

**Width**

The width, in inches, for the embedded Flash file in the page heading. The default width is 1 inch.

**Height**

The height, in inches, for the embedded Flash file in the page heading. The default height is 1 inch.

**Procedure:**  How to Embed an Adobe Flash File in a Page Heading for a PDF Report

This process describes how to embed an Adobe Flash file in a page heading.

1. In Report Painter, open or create a report using Portable Document Format (PDF) as the output format.
2. Position the cursor in the page heading by clicking your left mouse button in the Page Heading object.

3. Type the heading and apply any styling.

4. To embed an Adobe Flash File in the page heading, right-click anywhere inside the Page Heading object and click Options, as shown in the following image.

![Options dialog box](image)

The Properties for Page Header dialog box opens at the Style tab.

5. Click the embedded Flash file tab.

**Note:** The embedded Flash file tab appears only if the report output is set to PDF.

6. You may embed a file, URL, or hold file as the Adobe Flash File (.SWF files that are Adobe Flash Player compatible) source.

**To embed a file:**

- Click *File* as the source.

  The Properties section of the embedded Flash file tab is activated. You may position the properties for the source of the .SWF file that is Adobe Flash Player compatible in the page heading, or use the default settings.

- Click *Browse* to select from a list of Shockwave Flash Objects (.SWF files that are Adobe Flash Player compatible) in your project directory.
Tip: A preview of the Adobe Flash File animation appears in the Open dialog box, as shown in the following image. If you are having trouble viewing the .SWF file that is Adobe Flash Player compatible, ensure that Adobe Flash Player is installed.

- Click Open to close the Open dialog box.
The selected Adobe Flash File (.SWF files that are Adobe Flash Player compatible) appears as the File source, as shown in the following image.

To embed a URL:

- Click URL as the source.
  
  The Properties section of the embedded Flash file tab is activated. You may position the properties for the source of the .SWF file that is Adobe Flash Player compatible in the page heading, or use the default settings.

- Type the Adobe Flash File (.SWF files that are Adobe Flash Player compatible) location in the URL and click Open to verify the URL source in your web browser.
**Note:** The Open button is not activated until the location of a .SWF file that is Adobe Flash Player compatible is included in the URL source, as shown in the following example.

To embed a hold file:

- Click *Hold File* as the source.

The Properties section of the embedded Flash file tab is activated. You may position the properties for the source of the .SWF file that is Adobe Flash Player compatible in the page heading, or use the default settings.
Select an Adobe Flash File (.SWF files that are Adobe Flash Player compatible) temporary hold file from the drop-down list, as shown in the following image.

7. Click Apply and OK to close the Properties for Page Header dialog box.

The Adobe logo appears where the embedded Flash file source is positioned in the page heading.

8. Save and run the report.

The PDF shows the Adobe Flash File in the output with its animation effects.
Formatting a Column

Report Painter provides a variety of options that enable you to customize the display of columns in your reports.

Procedure: How to Change a Column Title

By default, the column title is the field name or Title attribute in the Master File, if specified. To change the column title on the report:

1. Right-click a column in the Report Painter window and click Column Title from the context menu.
   The Title dialog box opens.
2. At the cursor location, type the new column title.
3. Click OK.
   The new title appears over the field in the report.

   Note: Click the Default button in the Title dialog box if you want to reinstate the default title of a field.

Reference: Title Dialog Box

Title Window

Title Window displays the default column title of the selected field. Highlight the text and type the new column title.

Default

Reinstates the default title of a field.

Procedure: How to Change the Format and Edit Options of a Column

1. Select the column in the Report Painter window.
2. Click Format from the Properties menu.
   or
   Right-click and select Format from the context menu.
   The Format dialog box opens. For details, see Format Dialog Box on page 475.
3. Change the format by selecting the appropriate option button in the Format Types box.
4. Scroll the list of edit options and select the ones you wish to change.
5. Click OK.

**Note:**
- Click the Default button if you want to reinstate the default format or edit options.
- This feature does not apply to sort fields.

**Procedure:** How to Assign a Background Color to a Column
1. Right-click the column and click Options from the context menu.
   The Field Properties dialog box opens at the Style tab.
2. Select one of the following from the active object area drop-down list:
   - Column Data
   - Column Title
   - Column Title and Data
3. In the Background Coloring area, click Single Color to activate the Select Colors button. The Color dialog box opens.
4. Select a color and Click OK.

**Procedure:** How to Assign Alternating Background Colors to Rows Within Columns
1. Right-click the column and click Options from the context menu.
   The Field Properties dialog box opens at the Style tab.
2. Select Column Data from the active object area drop-down list. (The Alternating Colors button is only activated for this object area.)
3. In the Background Coloring area, click Alternating Colors to activate the Select Colors button. The Choose Background Colors dialog box opens.
4. Click a check box to activate the drop-down list next to it.
5. Click the down arrow to open the drop-down list.
6. Select a color.
   Repeat this process for other rows you want to assign colors to.
7. Click OK.
**Procedure: How to Remove a Background Color From a Column**

1. Right-click the column and click *Options* from the context menu.
   
   The Field Properties dialog box opens at the Style tab.

2. Select one of the following from the active object area drop-down list:
   - *Column Data*
   - *Column Title*
   - *Column Title and Data*

3. In the Background Coloring area, click *None*.

4. Click *OK*.

**Procedure: How to Copy the Background Color From One Column to Another**

You can copy the background color characteristics from one column to another.

1. Select the columns that you want to apply styling to by pressing the Shift key while clicking.

2. Select the column that contains the styling you want to apply and keep the Shift key pressed as you click it.

3. Click *Match Background Color* from the Match All Styles drop-down list on the Font toolbar.

To copy all formatting characteristics (including font, grid, background color, and conditional styling) from one column to another, click the *Match All Styles* option on the Font toolbar.

**Procedure: How to Set the Page Color for the Report**

1. Click *Styling* from the Report menu. The Report Options dialog box opens at the Style tab.

2. In the Graphical area, click the *Set Page Color* button.

3. Choose a color and click *OK*.

**Procedure: How to Customize the Virtual Screen Size for the Report**

You may customize the virtual screen size for the report.

**Note:** Adjusting the virtual screen size applies to the work area in the Report Painter window. The report output is not affected by these settings.

2. Change the virtual screen size height and width. (The minimum value is 612 x 792).

   **Note:** The Virtual Screen Size option appears for HTML Web Document (HTML), HTML Table (HTMTABLE), Default, and User Styled report outputs.

3. Click **OK**.

**Procedure:** How to Justify a Report Column

You can align alphanumeric and numeric report columns with either the left or right column margin, or in the center by performing the following steps:

1. Select the column in the Report Painter window.
2. Click the **Left Justify**, **Center Justify**, **Right Justify**, or **Default Justify** button on the Font toolbar.
3. Click **Default Justify** if you want to reinstate the default column alignment. By default, alphanumeric fields are left-aligned and numeric fields are right-aligned.

**Procedure:** How to Increase Column Width

1. Left-click the column to select it.
2. Position the cursor on the right column border. The cursor will resemble a small horizontal arrow.
3. Left-click and drag the border to the desired column width.

   **Tip:** To restore the default column width, click **Fixed Column Width** from the Properties menu.

**Procedure:** How to Wrap Data Automatically by Changing the Width of a Column

1. Right-click the column in the Report Painter window and click **Options** from the context menu. The Field Properties dialog box opens at the Style tab.
2. Click **Wrap** from the Column Layout Width drop-down list.
3. Enter a column width in the measurement unit specified.
4. Click **OK**.

   **Note:** For HTML-styled report formats, ensure that the Cascading Style Sheets options is selected on the Report Options Features tab.
**Procedure: How to Truncate Report Column Values**

1. Right-click the column in the Report Painter window and click *Options* from the context menu. The Field Properties dialog box opens at the Style tab.
2. Click *Truncate* from the Column Layout Width drop-down list.
3. Enter a column width in the measurement unit specified.
4. Click *OK*.

To indicate that a field value has been truncated in the report browser, Report Painter places an exclamation point (!) after every alphanumeric and text field value and an asterisk (*) after every numeric field value.

**Note:** For HTML-styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

**Procedure: How to Compress a Column**

1. Right-click the column in the Report Painter window and click *Options* from the context menu. The Field Properties dialog box opens at the Style tab.
2. Click *Minimum* from the Column Layout Width drop-down list.
3. Click *OK*.

This is selected by default. Minimum width sets the width of the column according to the widest value or heading in the field.

**Note:** For HTML-styled report formats, ensure that the Cascading Style Sheets option is selected on the Report Options Features tab.

**Procedure: How to Set the Maximum Column Width**

1. Right-click the field in the Report Painter window and select *Options* from the context menu. The Field Properties dialog box opens at the Style tab.
2. Click *Maximum* from the Column Layout Width drop-down list.
3. Click *OK*.

Maximum width sets the width according to the length defined in the field format.
**Procedure: How to Set the Minimum Column Width**

To remove extra blank space between report columns, select Styling from the Report menu. Then select Minimum from the Report Layout Width drop-down list. This is the default setting.

Since this may change the width of the report at run time, the report may look different in the Report Painter window.

**Note:** For HTML-styled report formats, ensure that the Cascading Style Sheets option is selected on Report Options Features tab.

**Procedure: How to Stack Column Titles and Data Vertically to Decrease Report Width**

You can stack columns over one another by performing the following steps:

1. Right-click the column in the Report Painter window and choose Options from the context menu.

   The Field Properties dialog box opens.

2. From the General tab, select New Line (OVER) in the Output box.

   **Note:** OVER is not available for sort fields.

**Procedure: How to Make a Column Invisible/Visible**

To make a column invisible, right-click the column in the Report Painter window and click On from the Invisible context menu. The field is grayed out in the Report Painter window and will not be visible in the report output, but may still be used in the report (for instance, as part of a calculation).

To make a column visible, right-click the field in the Report Painter window and choose Off from the Invisible context menu. The grayed background is removed and the field is visible in the report output.

**Procedure: How to Show/Hide an Invisible Column**

Click the Show/Hide invisible fields button on the General toolbar.
Displaying Pop-up Field Descriptions for Column Titles

You can have pop-up field descriptions display in an HTML report when the mouse pointer is positioned over column titles. Field description text displays in a pop-up box near the column title using the default font for the report. Pop-up text appears for report column titles including titles created with ACROSS phrases and stacked column titles created with OVER phrases.

The pop-up text displayed for a column title is defined by the Description attribute in the Master File for the corresponding field. If a column title has no Description entry in the Master File, then no pop-up box is generated when your mouse is positioned over the title.

Procedure: How to Display Pop-up Field Descriptions in an HTML Report

1. Open a procedure in Report Painter.
2. From the Report menu, click Features.
   The Report Options dialog box opens.
3. In the HTML options area, select the Pop-up Field Descriptions check box.

   **Note:** Pop-up Field Descriptions are available for HTML Web Document (HTML), HTML Table (HTMTABLE), Default, and User styled report formats.

The following image shows part of the Report Options dialog box with the Pop-up Field Descriptions option enabled for this report.

4. Click OK to close the Report Options dialog box and return to Report Painter.
Reference: Distributing Reports With Pop-up Field Descriptions Using ReportCaster

Distributing an HTML report containing pop-up field descriptions with ReportCaster requires the use of JavaScript components located on the WebFOCUS Client. To access these components from a report distributed by ReportCaster, the scheduled procedure must contain the SET FOCHTMLURL command, which must be set to an absolute URL instead of the default value. For example,

```
SET FOCHTMLURL = http://hostname:port/ibi_html
```

where:

* hostname:port
  - Is the host name and optional port number (specified only if you are not using the default port number) where the WebFOCUS web application is deployed.

* ibi_html
  - Is the site-customized web server alias pointing to the WebFOCUS/ibi_html directory (where ibi_html is the default value)

For more information about coding reports for use with ReportCaster, see the Tips and Techniques for Coding a ReportCaster Report section in the ReportCaster manual.

Choosing an Output Format

Before running a report from Report Painter, you can quickly switch the output format in which it will appear. The Report Options dialog box is driven by the selected output format. This enables you to easily distinguish between various options specific to each output format. Formats are grouped into the following categories: Styled report formats, Unstyled formats, and Database formats.

If you are opening a report that was created using the Document Composer tool, the output format cannot be changed.
The Styled report formats are shown in the following image.
The Unstyled formats are shown in the following image.
The Database formats are shown in the following image.

The Report Options Output tab, Features tab, and Format tab are available to set different styling attributes. The Style, Drill Down, Computes, View, and Images tabs are also available.

Depending on the output format you select, different tabs appear as follows:

- The Output, Computes, and View tabs are available for all formats.
- The Features tab is available for HTML, PDF, Default, and User report formats.
- The Format tab is available for all Styled report formats, except Excel 97.
- The Style tab is available for all Styled report formats.
Choosing an Output Format

- The Drill Down tab is available for all Styled report formats, except PostScript and Excel 2000 PivotTable.
- The Images tab is available for the HTML, PostScript, and PDF styled report formats.

**Note:**
- The Features, Format, Style, Drill Down, and Images tabs are not available for formats in the Unstyled and Database categories.
- The unstyled format, DFIX, requires a delimiter. Attempting to continue without one will cause the following message to open:

  A Delimiter is needed for the DFIX format.

The format you choose in Report Painter applies only to the current execution of the report. If you wish to change the default display format for all subsequent reports created in Report Painter, click Options from the Windows menu, and specify a report format from the Reporting tab.

**Procedure:** How to Select the Report Output Format

2. From the Select Format drop-down list, choose the output format for the report.
   
   The top level of the Report Options dialog box shows the selected format and determines what tabs and options appear in the lower part of the dialog box.

**Procedure:** How to Select the Report Output Format From the Output Format Toolbar

1. Click the drop-down list on the Output Format toolbar.
2. Choose an output format for the report.

**Tip:** If you wish to change the default display format beyond a single report execution, select Options from the Windows menu in the Explorer, and choose a different report format from the Reporting tab.
Procedure: How to Edit the User Format From the Report Options Dialog Box


2. From the Select Format drop-down list, click User as the selected output format for the report. The Edit User Format button appears.

   **Note:** You may also select multiple style sheet blocks when User is selected as the output format. The active style block (HTML, EXCEL, PDF, AHTML, FLEX, APDF, PPT) present a subtab on the Report Options dialog box with corresponding report options available for that style block. For more information about selecting style blocks, see Generating Format-Specific Style Blocks on page 441.

3. Click the Edit User Format button. The Variable Editor opens, which enables you to assign a variable as the display value and select the output format of a report, as shown in the following image.

   ![Variable Editor](image)

   - The Accept List shows a list of available report output formats to choose from. You can add or delete display values.
   - When you run the report, the WebFOCUS Auto Prompting Facility screen opens instructing you to select a parameter. Select a display output and run the report.
Formatting Your Report With the Report Options Dialog Box

You may set different styling formats for your report by using the Features tab on the Report Options dialog box. The Features tab contains different options depending on the selected output format.

For example, if you choose HTML Web Document (HTML) or HTML Table (HTMTABLE) format, you can also:

- Enable On Demand paging, a feature that speeds the delivery of HTML output to your browser. For details, see How to Request On Demand Paging for an HTML Report on page 246.

- Control the positioning of the redesigned OLAP Control Panel or request the original version of the OCP. For more information, see How to Control the Display of the OLAP Control Panel and OLAP Selection Panel on page 248. For details, see Analyzing Data in an OLAP Report in the Online Analytical Processing (OLAP) manual.

- Enable Automatic Drill Down in OLAP-enabled reports. Auto Drill Down enables you to automatically link to the next lower level in a defined Dimension hierarchy or Measures list by clicking a related data value in the body of the OLAP-enabled report while the OLAP Control Panel is closed. For more information, see How to Enable Auto Drill Down on page 248. For details, see Analyzing Data in an OLAP Report in the Online Analytical Processing (OLAP) manual.

- Identify an external Cascading Style Sheet (CSS) or use an internal Cascading Style Sheet to take advantage of improvements in the display of HTML reports in browsers. For details about external CSS, see How to Apply an External Cascading Style Sheet to an HTML Report on page 247 and the Creating Reports With WebFOCUS Language manual. For information about internal CSS, see How to Apply an Internal Cascading Style Sheet to an HTML Report on page 247.

- Type a name for an HTML report in the Report Title input field. It appears in the browser's title bar.

- Use Accordion Reports. For more information, see Controlling the Display of Sorted Data With Accordion Reports on page 154.

- Freeze the scrollable area and display a scroll bar for HTML output. For more information, see How to Freeze the Scrollable Area for HTML Report Output on page 249.

Procedure: How to Request On Demand Paging for an HTML Report

This option causes the server to send the report to your browser one page at a time. You can use controls on your browser to display the next or previous page, all pages, or to navigate to a specific page.
This procedure assumes that the required setup has been done to enable On Demand Paging and that your procedures are being run remotely against a WebFOCUS Reporting Server. For details about on demand paging, see Navigating With On-Demand Paging in the Creating Reporting Applications With Developer Studio manual.

1. Click Features from the Report menu.
2. Ensure that HTML Web Document or HTML Table is selected as the output format.
3. Select the On Demand Paging check box in the HTML options area.

**Procedure: How to Apply an Internal Cascading Style Sheet to an HTML Report**

1. Click Features from the Report menu.
2. Ensure that HTML Web Document or HTML Table is selected as the output format.
3. Select the Cascading Style Sheets check box in the Features tab of the HTML Option.

**Note:** Cascading Style Sheets is selected by default.

**Procedure: How to Apply an External Cascading Style Sheet to an HTML Report**

Cascading style sheets (CSS) are an extension to HTML that enable you to specify formatting for an HTML document. To link a CSS file to a report, use the External Cascading Style Sheet URL field in the Report Painter StyleSheet File Selector.

**Note:** The external CSS (Cascading Style Sheet) file should be saved in an alias on the web server.

1. Click Styling from the Report menu.
   The Report Options dialog box opens at the Style tab.
2. Click the Style File Selection button.
   The StyleSheet Selection dialog box opens.
3. Enter a URL in the External Cascading StyleSheet URL input field.
4. Click Finish to close the StyleSheet Selection dialog box.
5. Click OK to close the Report Options dialog box.

For more information about the StyleSheet File Selector, see Using the StyleSheet File Selector on page 421.
**Procedure:**  How to Control the Display of the OLAP Control Panel and OLAP Selection Panel

1. Click *Features* from the Report menu.
2. Ensure that *HTML Web Document* or *HTML Table* is selected as the output format.
3. Select an Enable OLAP option:
   - **Disabled.** OLAP options are disabled and not shown in the OLAP report.
   - **Off.** Turns off the OLAP Control Panel and the OLAP Selections pane, but allows OLAP functionality from the report itself. You can access options on right-click menus, drag and drop columns within the report, and use up and down arrows to sort columns from high to low or vice versa.
   - **On.** Provides access to the OLAP Selections pane from a square button to the left of the column titles. You can open the Control Panel by clicking the OLAP button in the OLAP report.
   - **Top Panel.** Opens the OLAP Selections pane above the report. The Measures, Graph, and Dimension controls, as well as the band containing the OLAP, Run, and Reset buttons appear above the report output. You can open the Control Panel by clicking the OLAP button on the Selection pane.
   - **Bottom Panel.** Opens the OLAP Selections pane below the report. The Measures, Graph, and Dimension controls, as well as the band containing the OLAP, Run, and Reset buttons appear below the report output. You can open the Control Panel by clicking the OLAP button on the Selection pane.
   - **Hidden Panel.** Opens the OLAP report with the OLAP Selections pane hidden. You can perform a variety of analytic tasks from the report itself. Selection Criteria is shown next to the OLAP button.
   - **Show Tabbed.** For OLAP reports that have multiple dimensions, this option groups the dimension elements under a tab labeled with the dimension name.

**Tip:** You can also choose an OLAP options by selecting *OLAP* from the Report menu.

**Procedure:** How to Enable Auto Drill Down

Auto Drill enables you to transform a report immediately, by drilling down on Dimensions and Measures.

1. Click *Features* from the Report menu.
2. Ensure that *HTML Web Document* or *HTML Table* is selected as the output format.
3. Select an Automatic Drill Down option:
   - Dimensions to enable automatic drill down functionality for dimensions.
   - Dimensions and Measures to enable automatic drill down functionality for dimensions and measures.

If you select an option from the Automatic Drill Down list without selecting an option from the Enable OLAP drop-down list, the Enable OLAP option will automatically be set to Off. This is due to Automatic Drill Down requiring an OLAP setting other than Disabled. If you attempt to change the Enable OLAP drop-down back to Disabled, you will receive the following message, as shown in the following image.

![Message](image)

4. Click the Build Auto Drill Dimensions button to invoke the Dimension Builder. For more information on the Dimension Builders, see the Describing Data With Graphical Tools manual.

**Procedure: How to Freeze the Scrollable Area for HTML Report Output**

You may freeze page headings and footings, report headings and footings, column titles, and totals for your report output. A scroll bar is created so that the headings and footings are locked in place in the HTML output. The freeze option is available from the Features tab of the Report Options dialog box.

**Note:** The Features tab is only available for the following report output formats: HTML Web Document (HTML), Portable Document Format (PDF), Default, and User (HTML) reports.

1. In Report Painter, click Features from the Report menu.
   - The Report Options dialog box opens at the Features tab.

2. From the Freeze section, select the freeze type from the Headings/Footings drop-down list.
   - The options are:
Choosing an Output Format

- Off. This is the default.
- On. Freezes the headings, footings, column titles, and totals.
- Top. Freezes the headings and column titles.
- Bottom. Freezes the totals and footings.

3. Enter the scroll height in measurement of inches.

   **Note:** If the scroll height is not set, the default scroll height is 4 inches.

4. Click OK to close the Report Options dialog box.

5. Save and run your report.
In the example below, Freeze is set to ON. The page heading (Sales by Movie), report heading (Sales Report), and column titles (RATING, CATEGORY, TITLE, WHOLESALEPR) are frozen when scrolling in the browser.

Creating a Drill Down Procedure

The drill down feature enables you to add one or more layers of detail to a report by embedding procedures into the report. A drill down procedure can be:

- Any type of executable object, such as a report or graph.
- A link to a URL from an HTML or PDF report, or to a JavaScript from an HTML report.
- A link to a Maintain case (function).
- A link to a Maintain procedure.
After the base (summary) report appears in the browser, you can drill down to selected data or to a URL or script (or procedure). For example, if you run a report on the country and title of all cars imported into the United States, and you have embedded the appropriate procedures in the report and defined the correct parameters, you can drill down on:

- **ENGLAND**, to view a more detailed report on the sales of all English cars.
- **JAGUAR**, to see specific information about the Jaguar.
- A summary report row, to view the values behind each field in the row.

You can also define conditions that determine when to run an embedded drill down procedure. For example, suppose you have embedded a procedure in the country column of the summary report, but you want your drill down report to appear only for England. You can define a condition that enables the embedded drill down only when country equals England.

**Note:** To apply a customized report style, you must do so before you define any drill down attributes or those attributes will be overwritten. For additional information on style sheets, see the *Creating Reports With WebFOCUS Language* manual.
**Procedure:** How to Execute a Drill Down Procedure

When a report with drill down capability appears in the browser, the hyperlinked values are underlined.

To view a drill down procedure:

1. Run the summary report.
2. Move the cursor over the underlined hyperlinks.
3. Click the hyperlink you wish to drill down on and click the left mouse button. The detail procedure is executed and the output appears in the browser.

**Note:** The browser can be programmed to open a new window for each drill down report. However, at present, if you are viewing an HTML report, the detailed report replaces the summary report in the browser. You can click the Back button on the toolbar to recall the summary report.

**Creating a Hyperlink in an HTML or PDF Report**

From a hyperlink in an HTML or PDF report, you can access other reports, documents, or websites, or perform other actions. The browser supports two kinds of hyperlinks:

- **Drill Down hyperlinks** enable you to create a series of drill down reports by linking the procedures that generate these reports.

  With a dynamic hyperlink, or drill down, a users click in the browser passes the value of the clicked report object to the linked procedure. The passed value dynamically determines what the user sees next.

- **URL hyperlinks** enable you to link to other HTML documents, websites, or non-World Wide Web resources, such as email applications. The URLs can reference Servlet scripts that require parameters. For an illustration, see *Creating a URL Hyperlink With Parameters* on page 262.

  You can define a hyperlink from any field or image in a report by selecting the report component in Report Painter and referencing the URL of the HTML document by using the Drill Down dialog box.

**Note:** You can also use coded Style Sheets for this task. For more information, see the *Creating Reports With WebFOCUS Language* manual.
Attaching or Opening a Drill Down Procedure in Report Painter

To drill down to a more detailed level of information in a report, you attach a procedure to one or more columns or to another object area in a report, while you are in Report Painter. When you run the report, the values in the chosen column become hot spots that, when selected, run the underlying procedure or link to a specified URL.

You attach drill down (detail) procedures with the Drill Down tab in the Report Options dialog box. You can also open a detail procedure, for viewing or modification, from this tab. For more information about the Drill Down tab, see Field Properties Drill Down Tab on page 59.

For HTML reports, when defining a link from a report component to a report procedure or URL, you can specify that the results of the drill-down link display in a target frame on a web page.

Procedure: How to Attach a Detail Procedure to a Column or Other Object Area

To attach a detail procedure to a column or columns:

1. Right-click a column (or columns) in Report Painter and click Options from the context menu. The Field Properties dialog box opens.
2. Click the Drill Down tab.
3. From the active object area drop-down list, select the column component (Column Title and Data, Column Data, or Column Title) from which you want to drill down.
4. From the Drill Down Type drop-down list, click Execute Procedure.
5. In the Procedure Name field, type the name of an existing detail procedure, or select a procedure from the drop-down list.
6. Select a target frame. This is optional and is for HTML reports only.
7. Click OK.

To attach a detail procedure to another object area (for example, a heading or footing):

1. Highlight the object area, right-click and click Drill Down from the context menu. The Drill Down dialog box opens.
2. Select the Execute Procedure option button as the drill down type.
3. In the Procedure Name field, type the name of an existing detail procedure, or select a procedure from the drop-down list.
4. Select a target frame. This is optional and is for HTML reports only.
5. Click OK.
**Procedure: How to Open a Detail Procedure**

1. Right-click a column in Report Painter and click *Options* from the context menu. The Field Properties dialog box opens.
2. Click the *Drill Down* tab.
3. From the Drill Down Type drop-down list, click *Execute Procedure*.
4. In the Procedure Name field, type the name of an existing detail procedure, or select a procedure from the drop-down list.
5. Click the *Open* button.
6. Developer Studio asks if you want to save changes to the current summary procedure. Click Yes.

The detail procedure opens in the Procedure window, where you can open a component for viewing or modification in a new instance of Report Painter. When you are finished, you return to the summary procedure in the previous instance of Report Painter.

**Creating a Parameter**

Parameters allow you to specify criteria and conditions for the drill down report. By defining parameters, you can control the amount and type of information to retrieve for the drill down report.

For example, you can create parameters in the drill down report as amper (&) variables that prompt you for a value at run time. When the main report is run, you supply a value for the parameter using the drill down feature.

**Note:** To avoid conflicts, do not name variables beginning with Date, IBI, or WF, as variables beginning with these values are reserved for Information Builders use.

**Procedure: How to Create a Drill Down Parameter**

From the drill down report (the report that provides the detail information):

1. Click the Where button from the *Where/If* drop-down menu.

   The Expression Builder opens.

2. Create an expression that compares the parameter against a report field that appears in both reports.

3. Click *OK*.
**Procedure: How to Pass a Parameter From the Main Report**

To add the ability to call the drill-down report and pass parameters, do the following from the main report:

1. In the Report Painter window, right-click the object or objects that you want to drill down on and click *Options* from the context menu.
   
   The Field Properties dialog box opens.

2. Click the *Drill Down* tab.

3. Click *Execute Procedure* from the Drill Down Type drop-down list, and select the appropriate procedure from the Procedure Name drop-down list. For more information, see *Attaching or Opening a Drill Down Procedure in Report Painter* on page 254.

4. Click the *Add* button in the With Parameters area.
   
   The Drill Down Parameter dialog box opens.

5. Select the name of the parameter you created in the drill down report from the Parameter name drop-down list.
When passing parameters to a drill down procedure, you must use local variables (&variables). Global variables (&&variables) cannot be used as drill down parameters.

The Drill Down Parameter dialog box displays all parameters that are unresolved, are set to a value, or have a default, as shown in the following image.

When you pass the parameter to the drill down report, you must set a value for it in the Drill Down Parameter dialog box:

- **Field** picks up the value of the selected field from the point at which the user clicks the hyperlink. Click the arrow and select a report field from the list.
- **Constant value** sets the parameter to a specified value. Type a value in the entry field.
- **Variable** enables you to enter the name of a Dialogue Manager variable. The variable will automatically be postfixed with the .QUOTEDSTRING operator. This allows the variable to contain both single and multi-select values.

**Note:** If the drill down report contains a -DEFAULT statement that sets a default value to the same variable passed from the main report, the variable value in the -DEFAULT statement will overwrite the variable value passed from the main report. Therefore, the output in the drill down report will reflect the default value passed from the -DEFAULT statement and will not reflect the value passed from the main report.
6. After a value has been supplied, click OK to return to the Drill Down tab on the Field Properties dialog box.

   The parameter is added to the With Parameters list box.

**Reference: Drill Down Parameter Dialog Box**

You use the Drill Down Parameter dialog box to supply parameters that the drill down report or Servlet script might require, as shown in the following image.

![Drill Down Parameter Dialog Box](image)

**Parameter name**

Use the drop-down list to select the name of the parameter that the linked FOCUS procedure or linked Servlet script expects.

**Note:** The Drill Down Parameter dialog box displays all parameters that are unresolved, are set to a value, or have a default.

**Parameter value**

Assign a value to the parameter:

Field picks up the value of the selected field from the point at which the user clicks the hyperlink. Click the arrow and select a report field from the list.

Constant value sets the parameter to a specified value. Type a value in the entry field.

Variable enables you to enter the name of a Dialogue Manager variable. The variable will automatically be postfixed with the .QUOTEDSTRING operator. This allows the variable to contain both single-select and multi-select values.
Sample Drill Down Procedures

The following examples illustrate how to drill down to a detail report by passing parameters and how to hyperlink to a URL by passing parameters.

Example: Creating Drill Down Reports

Suppose you want to create a summary report that allows for drill down to details from the summary values. The following example shows how to create a main report of total sales and sales quotas for all Gotham Grinds stores by state. The State column in the main report will provide hyperlinks to a detail report of sales and quota figures.

Part I: Create the detail report (the report to drill down to)

1. Open the GGSALES Master File in Report Painter.
2. Identify and format the columns for the detail report.
   a. Double-click or drag ST, DOLLARS, and BUDDOLLARS from the Fields tab of the Object Inspector into Report Painter.
   b. Click State and click By on the Report Painter toolbar.
   c. Format the Dollar Sales and Budget Dollars columns. Right-click Dollar Sales in the Report Painter window and select Format. Click Decimal in the Format Types box. Click Floating dollar – M from the Edit Options list. Click OK. Repeat the same steps for Budget Dollars.
3. Create a parameter:
   a. Click the Where button from the Where/If drop-down menu.
   b. Double-click ST from the Data section.
   c. Click equals from the Logical Relation column.
   d. Click Parameter from the Compare Type drop-down list.
   e. Double-click the Compare Value field. The Variable Editor opens.
   f. Enter PARAMETER in the Name input field.
   g. Click OK. Your new expression is added to the Expression Builder.
   h. Click OK to return to the Report Painter window.


**Part II: Create the main report and link it to the detail report**

1. Open the GGSALES data source in Report Painter.

2. Identify and format the summary columns for the main report.
   a. Click By on the Report Painter toolbar and double-click or drag ST from the Fields tab of the Object Inspector into Report Painter.
   b. Move the insertion point after the State field and click Sum on the Report Painter toolbar. Double-click or drag DOLLARS and BUDDOLLARS from the Fields tab of the Object Inspector.
   c. Format the Dollar Sales and Budget Dollars columns. Right-click Dollar Sales in the Report Painter window and click Format. Click Decimal in the Format Types box. Click Floating dollar – M from the Edit Options list. Click OK. Repeat the same steps for Budget Dollars.

3. Link the detail report to the main report:
   a. Right-click State in the Report Painter window and click Options from the context menu to open the Field Properties dialog box.
   b. Click the Drill Down tab.
   c. Click Execute Procedure from the Drill Down Type drop-down list.
   d. Select your detail report from the Procedure Name drop-down list.
   e. Click Add to open the Drill Down Parameter dialog box.
   f. Type PARAMETER in the Parameter name entry field. This passes a parameter to the detail report from the main report.
g. Click OK. Note that the parameter, &PARAMETER = ST, appears in the With Parameters list box. This means the value of state that the user drills down on will be passed to the drill down procedure in the variable &PARAMETER.

h. Click OK to return to Report Painter.

4. Run the report by clicking the Run button on the toolbar. The main report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$7,642,272.00</td>
<td>$7,586,347.00</td>
</tr>
<tr>
<td>CT</td>
<td>$3,782,049.00</td>
<td>$3,832,202.00</td>
</tr>
<tr>
<td>FL</td>
<td>$3,923,215.00</td>
<td>$3,870,405.00</td>
</tr>
<tr>
<td>GA</td>
<td>$4,100,107.00</td>
<td>$4,247,597.00</td>
</tr>
<tr>
<td>IL</td>
<td>$3,924,401.00</td>
<td>$3,866,856.00</td>
</tr>
<tr>
<td>MA</td>
<td>$3,707,986.00</td>
<td>$3,818,397.00</td>
</tr>
<tr>
<td>MO</td>
<td>$3,761,286.00</td>
<td>$3,646,838.00</td>
</tr>
<tr>
<td>NY</td>
<td>$3,902,275.00</td>
<td>$3,926,333.00</td>
</tr>
<tr>
<td>TN</td>
<td>$3,687,057.00</td>
<td>$3,689,979.00</td>
</tr>
<tr>
<td>TX</td>
<td>$3,714,978.00</td>
<td>$3,680,679.00</td>
</tr>
<tr>
<td>WA</td>
<td>$4,010,685.00</td>
<td>$4,055,166.00</td>
</tr>
</tbody>
</table>

5. To run the detail report, place your cursor over CA in the State column to reveal the drill down icon (a hand). Click CA.
The detail report lists sales and quota figures for California, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$19,162.00</td>
<td>$18,576.00</td>
</tr>
<tr>
<td></td>
<td>$25,005.00</td>
<td>$17,568.00</td>
</tr>
<tr>
<td></td>
<td>$16,016.00</td>
<td>$12,606.00</td>
</tr>
<tr>
<td></td>
<td>$18,096.00</td>
<td>$15,390.00</td>
</tr>
<tr>
<td></td>
<td>$23,282.00</td>
<td>$14,640.00</td>
</tr>
<tr>
<td></td>
<td>$15,704.00</td>
<td>$12,456.00</td>
</tr>
<tr>
<td></td>
<td>$17,916.00</td>
<td>$16,808.00</td>
</tr>
<tr>
<td></td>
<td>$23,153.00</td>
<td>$19,008.00</td>
</tr>
<tr>
<td></td>
<td>$17,853.00</td>
<td>$24,178.00</td>
</tr>
<tr>
<td></td>
<td>$22,785.00</td>
<td>$21,960.00</td>
</tr>
<tr>
<td></td>
<td>$15,264.00</td>
<td>$15,120.00</td>
</tr>
<tr>
<td></td>
<td>$17,820.00</td>
<td>$19,725.00</td>
</tr>
<tr>
<td></td>
<td>$14,970.00</td>
<td>$15,510.00</td>
</tr>
<tr>
<td></td>
<td>$17,765.00</td>
<td>$17,590.00</td>
</tr>
</tbody>
</table>

**Example: Creating a URL Hyperlink With Parameters**

The following example shows how to link a report that lists the name of each company employee to a Servlet that looks up his or her phone number and displays it in your browser.

1. Open the EMPLOYEE data source in Report Painter.
2. Double-click or drag LAST_NAME and FIRST_NAME from the Fields tab of the Object Inspector.
3. Add a report footing by typing the following:
   
   *Click on a last name to look up a phone number*

4. Right-click the field LAST_NAME in the Report Painter window and click Options.
5. Click the Drill Down tab on the Field Properties dialog box.
6. Click URL from the Drill Down Type drop-down list.
7. Enter the following URL of the Servlet, that provides the phone numbers:

   `http://LOCALHOST:8080/ibi_Apps/WFServlet/corphone.exe?`
8. Click the Add button.

   The Drill Down Parameter dialog box appears.

9. Enter the name of the parameter that the Servlet, expects and supply a value, which in this case, is the field LAST_NAME.

10. Click OK to return to the Drill Down tab in the Field Properties dialog box.

11. Click OK to return to the Report Painter window.

12. Run the report by clicking the Run button on the toolbar.
The report appears in the browser, as shown in the following image.

![FOCUS Report - Microsoft Internet Explorer](image)

**Click on a last name to look up a phone number**

### Drilling Down to a Maintain Procedure

You can attach a Maintain procedure to a field or fields in a report from the Drill Down dialog box.

Drilling down to a Maintain procedure is only supported when the procedure is executed from a web browser, such as Netscape® or Internet Explorer.
Procedure: How to Drill Down to a Maintain Procedure

To access the Drill Down dialog box:

1. Right-click the fields in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens.

2. Click the Drill Down tab.

3. Click Maintain Procedure from the Drill Down Type drop-down list.

   or

   If the procedure is compiled, select Maintain Procedure Compiled from the check box. (Consult your Maintain developer to determine if your procedure is compiled.)

4. Type the name of the drill down procedure in the Procedure name field.

5. Click OK.

Reference: Drilling Down to a Maintain Procedure on a Secured Maintain Server

If the Maintain procedure you are drilling down to is on a secured Maintain Server, in order to pass data from the report to the Maintain procedure you need to define additional parameters for name and password. For details on creating drill down parameters, see How to Create a Drill Down Parameter on page 255.

For security concerns, it is suggested that a fictitious name and password is used because the entire path to the CGI (including name and password) is disclosed in your browsers status window.

The following is a list of parameters that must be defined when drilling down to a Maintain Procedure on a secured Maintain Server.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBIC_user</td>
<td>Represents the user name and in most cases it is case-sensitive.</td>
</tr>
<tr>
<td>IBIC_pass</td>
<td>Represents the user password and in most cases it is case-sensitive.</td>
</tr>
</tbody>
</table>

For related information, see Maintain Syntax for CGI Coding on page 266.
Drilling Down to a Maintain Procedure in a Multi-Server Environment

If you are drilling down to a Maintain procedure on a specific server, in order to pass data from the report to the Maintain procedure you must define additional parameters for the server and outbound communications. For details on creating drill down parameters, see How to Create a Drill Down Parameter on page 255.

The following is a list of parameters that must be defined when drilling down to a specific Maintain Server.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBIC_server</td>
<td>Represents the node name in the ODIN.CFG.</td>
</tr>
<tr>
<td>IBIS_outbound</td>
<td>Represents whether server communication is turned on or off.</td>
</tr>
<tr>
<td></td>
<td>This value should be set to on.</td>
</tr>
</tbody>
</table>

For related information, see Maintain Syntax for CGI Coding on page 266.

Maintain Syntax for CGI Coding

The Maintain Development Environment (MDE) provides design tools that encapsulate the necessary CGI code for many of its FORM operations. It does not usually require additional CGI programming by developers.

For example, Maintain FORMS uses the CGI to output HTML to the client. In turn, the client uses the CGI to send the response back to Maintain.

For development situations that go beyond the normal use, CGI parameter data can be retrieved implicitly from within a Maintain Procedure.

For syntax illustrations, see Using Drill Downs in Maintain Procedures on page 267.
**Example:** **Using Drill Downs in Maintain Procedures**

The following example retrieves CGI Parameter data within a Maintain Procedure:

```plaintext
MAINTAIN
MODULE IMPORT (WEBBASE2 ERRORS);
Case Top
Declare FoundKeyName/i1 = IWC.FindAppCgiValue (KeyName, KeyValue);
EndCase
END

$$KeyName   Name of CGI Parameter
$$KeyValue Maintain Variable to receive Parameter Data
$$FoundKey Name   0 = Not Found / 1 = Found
```

The following example calls Maintain using the URL:

```plaintext
http://www/cgi-ibi/ibi_cgi/ibiweb.exe?IBIF_cmd=MNTCON%20EX%20cgivars&IBISPassthru=on
```

The following example calls Maintain using HTML forms:

```plaintext
<HTML>
<BODY onLoad='document.form.submit();'>
<FORM NAME='form' ACTION='/ibi_cgi/ibiweb.exe' METHOD='POST'>
<input TYPE='hidden' name='IBIF_cmd' value='MNTCON EX name_of_fex'>
</FORM>
</BODY>
```

**Creating a Drill Through Report**

Drill Through provides a way to easily relate the data in separate reports within a PDF formatted document. In the Document Composer you can internally link reports using the Drill Through Destination property of reports that were created with the Drill Through property enabled in Report Painter.

For more information on how to create a PDF document with multiple reports that can be navigated using Drill Through, see the *Creating Compound Reports With Document Composer* manual.
**Procedure:** How to Create a Drill Through Enabled Report

1. Right-click a column in Report Painter and select *Options* from the context menu. The Field Properties dialog box opens.

2. Click the *Drill Down* tab.

3. From the Drill Down Type drop-down list, select Drill Through, as shown in the following image.

4. From the Drill Through Direction radio buttons, select the direction of the drill through (Down or First).

   - **Down** is used to link to the following report, and **First** is used to link to the first report in the drill-through sequence.

5. Click the *Link Fields* button.
The Link Fields dialog box appears, as shown in the following image.

Note: For Down, a Source column and a Target column are available. For First, only a Source column is available.

6. Click the Add new item button to link the source and target fields (for Down) or just the source field (for First).
Creating a Multiple Drill Down Procedure

The multiple drill down feature enables you to add detail to a report by creating hyperlinks that have multiple actions. For example, you can create hyperlinks that run a detail report or Maintain procedure, execute a JavaScript function, and link to a URL. When you click a component in the summary report, a pop-up menu appears, with the possible options to drill down to.

The multiple drill down feature applies to:

- HTML reports and format HTMTABLE. In the Report Options dialog box, the selected output format must be HTML or HTMTABLE.
- Data fields in the body of the report, not to headings, subheadings, footings, or subfootings.

Note: You may change the default styling of the drill down menu by applying StyleSheet syntax. For more information, see Creating Multiple Drill-Down Links in the Creating Reports With WebFOCUS Language manual.

Procedure: How to Create a Multiple Drill Down Procedure

To create a multiple drill down procedure:

7. Click OK.
1. Create a new procedure or open an existing procedure in the Report Painter window.

2. Right-click the report component for which you will drill down.

3. Click Options from the context menu.
   
The Field Properties dialog box opens.

4. Click the Drill Down tab.

5. Select the Multiple Drill Downs check box.
   
The Drill Menu Items input box is enabled and the default drill down name, DrillDown 1, appears.
Tip: The pop-up menu of drill-down options is only visible in the report output if the Multiple Drill Downs check box is enabled and you have at least one drill down definition, as shown in the following image.

6. Double-click *DrillDown1* and type the first drill down name in the Drill Menu Items input box. This is the name that appears on the pop-up menu in the report output.

   The Drill Menu Items input box also features buttons that allow you to add, delete, or change the order of drill down names.
7. Select a drill down type from the Drill Down Type drop-down list.

The drill down type can be any of the following:

- An executable procedure.
- An executable Guided procedure. For more information on Guided Reports, see Creating Guided Reports on page 327.
- A URL.
- A URL from a field.
- A JavaScript function.
- A Maintain procedure.
- A compiled Maintain procedure.
- A Maintain case.
- A Drill Through procedure.

For a description of the drill down types, see Field Properties Drill Down Tab on page 59.

8. Enter any values required by the selected drill down type. For example, if the drill down type is Execute Procedure, the Procedure Name drop-down list appears. Select the name of the detail procedure.

9. Click Add if you need to pass a parameter from the main report. For more information, see Creating a Parameter on page 255.

The Drill Down Parameter dialog box opens.

For a description of the fields in the dialog box, see Drill Down Parameter Dialog Box on page 258.

Click Cancel to return to the Field Properties dialog box.

10. After creating the first drill down definition, click the Add new item button on the Field Properties dialog box.

When you click the Add new item button, the default name for the next drill down, DrillDown2, appears in the Drill Menu Items input box, then DrillDown3, and so on. If you change the default name of the first drill down definition, DrillDown 1, that value appears again when you create the second drill down definition.
11. Type an additional drill down name in the Drill Menu Items input box.

When you create multiple drill down items, the Multiple Drill Downs check box is automatically checked and disabled to avoid the inadvertent loss of drill down items you previously created. If you delete drill down items until one remains, the Multiple Drill Downs check box is enabled again.

12. Select a drill down type from the Drill Down Type drop-down list.

13. Enter any values or parameters required by the selected drill down type.

14. To continue adding drill down items, click the Add new item button and repeat steps 6-9.

15. When you are finished, click OK to return to the Report Painter window.

16. Save and run the report by clicking the Save and Run buttons on the toolbar.

The main report appears in the browser.

17. To view the pop-up menu of drill down options:

   a. Place the cursor over one of the highlighted components to reveal the drill down icon (a hand).

   b. Click the component.

      The pop-up menu appears, as shown in the following image.

![Drill Down Options](image)

18. Click each of the menu options to open the corresponding drill down item.

   The currently selected option is underlined in red. An additional browser window opens with your output.

19. Click Back on your browser to return to the main report.

20. Click a highlighted component to redisplay the pop-up menu.
If you click the last field of the report output, scroll bars appear in the browser window if required for access to all of the menu options.

**Procedure: How to Select HTML Format**

To use the multiple drill down feature, select HTML output format from the Report Painter window:

   
   The Report Options dialog box opens.

2. Select *HTML* or *HTMTABLE* from the Select Format drop-down list.

3. Click *OK* to return to the Report Painter window.

Another way is to select *HTML* from the Output Format toolbar.
If you select a report format other than HTML in the Report Options dialog box, the multiple drill down feature is disabled as shown in the following image.

If you select the display format User, you can create a multiple drill down report in Report Painter. When you run the report, Developer Studio prompts you for the desired format. If you choose a format other than HTML, the report runs, but the pop-up menu of drill down options is not displayed, and the drill down action defaults to the first drill down definition created.
Multiple Drill Down Error Messages

If you try to create a new drill down definition without selecting a Drill Down Type for the current definition, the following error message appears:

![Error Message](image)

If you create a drill down definition with a drill down type, but omit the required value for the type, an error message appears if you try to create a new definition. For example, if you select URL from the Drill Down Type list, and you do not supply a URL address, the following error message appears when you click New.

![Error Message](image)

Creating a Multiple Drill Down Report

The following example illustrates the multiple drill down feature using the main and detail reports that were created in Creating Drill Down Reports on page 259. It assumes you completed and have access to those reports.

The examples use the GGSALES.MAS Master File. The State column in the main report will provide the hyperlinks available from the pop-up menu of drill down options.

1. Open the main GGSALES report in Report Painter.
2. Do one of the following to ensure that HTML is the selected output format:
   - Select Output from the Report menu to display the Report Options dialog box. Select HTML or HTMTABLE as the selected output format.
   - Select HTML from the drop-down list on the Output Format toolbar.
3. Do one of the following to open the Field Properties dialog box:
   - Right-click the field State in the Report Painter window and select Options from the context menu.
   - Select the field State. From the Properties menu, select Options.

4. Click the Drill Down tab.

5. In the Drill Down Definition area, select the Multiple Drill Downs check box.

6. Double-click the default value, DrillDown 1, and type the drill down name Procedure in the Drill Menu Items input box.

7. You previously created the detail report in Creating Drill Down Reports on page 259, so values for Drill Down Type, Procedure Name, and With Parameters are already supplied. The first drill down definition is complete.

8. Click the Add new item button to create the second drill down definition.

9. Double-click the default value and type URL in the Drill Menu Items input box.

10. Select URL from the Drill Down Type list.
11. To simplify this example, you will specify a single URL that accesses a website. For details on the URL drill down type, see Creating a URL Hyperlink With Parameters on page 262, and the section on linking a report to other resources, in the Creating Reports With WebFOCUS Language manual.

Type the URL address, http://www.informationbuilders.com, in the URL input box.

**Tip:** You must type the entire address, including http://.

12. Click **Open** to ensure the URL is working properly. Close the browser.

13. Click **OK** on the Field Properties dialog box to return to the Report Painter window.

14. Save and run the report by clicking the **Save** and **Run** buttons on the toolbar.
The main report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$7,642,261.00</td>
<td>$7,586,347.00</td>
</tr>
<tr>
<td>CT</td>
<td>$3,782,049.00</td>
<td>$3,832,202.00</td>
</tr>
<tr>
<td>FL</td>
<td>$3,923,215.00</td>
<td>$3,870,405.00</td>
</tr>
<tr>
<td>GA</td>
<td>$4,100,107.00</td>
<td>$4,247,587.00</td>
</tr>
<tr>
<td>IL</td>
<td>$3,924,401.00</td>
<td>$3,866,856.00</td>
</tr>
<tr>
<td>MA</td>
<td>$3,707,986.00</td>
<td>$3,818,397.00</td>
</tr>
<tr>
<td>MO</td>
<td>$3,761,286.00</td>
<td>$3,646,838.00</td>
</tr>
<tr>
<td>NY</td>
<td>$3,902,265.00</td>
<td>$3,926,322.00</td>
</tr>
<tr>
<td>TN</td>
<td>$3,687,057.00</td>
<td>$3,689,979.00</td>
</tr>
<tr>
<td>TX</td>
<td>$3,714,978.00</td>
<td>$3,680,679.00</td>
</tr>
<tr>
<td>WA</td>
<td>$4,010,685.00</td>
<td>$4,055,166.00</td>
</tr>
</tbody>
</table>

15. To view the pop-up menu:
   a. Place your cursor over CA in the State column to reveal the drill down icon (a hand).
   b. Click CA.

The pop-up menu appears, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$7,642,261.00</td>
<td>$7,586,347.00</td>
</tr>
<tr>
<td>GA</td>
<td>$4,100,107.00</td>
<td>$4,247,587.00</td>
</tr>
<tr>
<td>IL</td>
<td>$3,924,401.00</td>
<td>$3,866,856.00</td>
</tr>
<tr>
<td>MA</td>
<td>$3,707,986.00</td>
<td>$3,818,397.00</td>
</tr>
<tr>
<td>MO</td>
<td>$3,761,286.00</td>
<td>$3,646,838.00</td>
</tr>
<tr>
<td>NY</td>
<td>$3,902,265.00</td>
<td>$3,926,322.00</td>
</tr>
<tr>
<td>TN</td>
<td>$3,687,057.00</td>
<td>$3,689,979.00</td>
</tr>
<tr>
<td>TX</td>
<td>$3,714,978.00</td>
<td>$3,680,679.00</td>
</tr>
<tr>
<td>WA</td>
<td>$4,010,685.00</td>
<td>$4,055,166.00</td>
</tr>
</tbody>
</table>
When you point to a drill down menu item, it appears in red and is underlined, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$7,642,261.00</td>
<td>$7,586,347.00</td>
</tr>
<tr>
<td>GA</td>
<td>$4,100,107.00</td>
<td>$4,247,587.00</td>
</tr>
<tr>
<td>IL</td>
<td>$3,924,401.00</td>
<td>$3,866,856.00</td>
</tr>
<tr>
<td>MA</td>
<td>$3,707,986.00</td>
<td>$3,818,397.00</td>
</tr>
<tr>
<td>MO</td>
<td>$3,761,286.00</td>
<td>$3,646,838.00</td>
</tr>
<tr>
<td>NY</td>
<td>$3,902,265.00</td>
<td>$3,926,322.00</td>
</tr>
<tr>
<td>TN</td>
<td>$3,687,057.00</td>
<td>$3,689,979.00</td>
</tr>
<tr>
<td>TX</td>
<td>$3,714,978.00</td>
<td>$3,680,679.00</td>
</tr>
<tr>
<td>WA</td>
<td>$4,010,685.00</td>
<td>$4,055,166.00</td>
</tr>
</tbody>
</table>

16. Click the *Procedure* menu option. The detail report opens in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>State</th>
<th>Dollar Sales</th>
<th>Budget Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>$19,162.00</td>
<td>$18,576.00</td>
</tr>
<tr>
<td></td>
<td>$25,005.00</td>
<td>$17,568.00</td>
</tr>
<tr>
<td></td>
<td>$16,016.00</td>
<td>$12,606.00</td>
</tr>
<tr>
<td></td>
<td>$18,096.00</td>
<td>$15,390.00</td>
</tr>
<tr>
<td></td>
<td>$23,282.00</td>
<td>$14,640.00</td>
</tr>
<tr>
<td></td>
<td>$15,704.00</td>
<td>$12,456.00</td>
</tr>
<tr>
<td></td>
<td>$17,916.00</td>
<td>$18,808.00</td>
</tr>
<tr>
<td></td>
<td>$23,153.00</td>
<td>$19,008.00</td>
</tr>
<tr>
<td></td>
<td>$17,853.00</td>
<td>$24,178.00</td>
</tr>
<tr>
<td></td>
<td>$22,785.00</td>
<td>$21,960.00</td>
</tr>
<tr>
<td></td>
<td>$15,264.00</td>
<td>$15,120.00</td>
</tr>
<tr>
<td></td>
<td>$17,820.00</td>
<td>$19,725.00</td>
</tr>
<tr>
<td></td>
<td>$14,970.00</td>
<td>$15,510.00</td>
</tr>
<tr>
<td></td>
<td>$17,765.00</td>
<td>$17,590.00</td>
</tr>
</tbody>
</table>

17. Click *Back* on your browser to return to the main report.

18. Click CA to redisplay the pop-up menu.
Click the URL menu option.

The website opens in the browser.

Creating an Active Technologies Report

An active report is a report that is designed for offline analysis. When using an active report, a user can:

- Interact with the data, using analysis options similar to those found in an Excel workbook, without any connection to a server. Analysis options include filtering, sorting, charting, and much more.

- Work offline without any additional plug-ins or programs. An active report is a self-contained report, meaning it contains all of the data and JavaScript within the HTML output file. Packaging the data and the interactive functions in the HTML file also makes the output highly compressible for email and transparent to security systems.

- Save the report on a local machine with active report functionality. Since no connection to a server is required to view the data or use the analysis options, a user can save and use the report anywhere.

- An active report using Adobe Flex includes most of the capabilities available in the HTML version of active reports in a visually enhanced user-friendly report format. An active report delivered as a self-contained Adobe Flash file (.SWF files that are Adobe Flash Player compatible) allows for faster analysis of large data sets and interaction with the active report.
The following image shows a simple HTML active report. The record status and page navigation bar appears at the top of the report.

<table>
<thead>
<tr>
<th>Manufacturing Plant</th>
<th>PROTYPE</th>
<th>Product Name</th>
<th>Order Number</th>
<th>Date Of Order</th>
<th>Line Total</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOB</td>
<td>Analog</td>
<td>110 VHS-C Camcorder 20 X</td>
<td>74660</td>
<td>2002/01/02</td>
<td>$93,654,578.81</td>
<td>391,3</td>
</tr>
<tr>
<td>Dal</td>
<td>Digital</td>
<td>ZT Digital PDA - Commercial</td>
<td>74660</td>
<td>2002/01/02</td>
<td>$168,078,382.02</td>
<td>952,4</td>
</tr>
<tr>
<td>LA</td>
<td>Analog</td>
<td>ZC Digital PDA - Standard</td>
<td>74300</td>
<td>2002/01/02</td>
<td>$63,17</td>
<td>140,3</td>
</tr>
<tr>
<td>ORL</td>
<td>Digital</td>
<td>ZT Digital PDA - Commercial</td>
<td>74410</td>
<td>2002/01/02</td>
<td>$60,48</td>
<td>140,3</td>
</tr>
<tr>
<td>SEA</td>
<td>Analog</td>
<td>ZT Digital PDA - Commercial</td>
<td>74710</td>
<td>2002/01/02</td>
<td>$60,60</td>
<td>140,3</td>
</tr>
<tr>
<td>STL</td>
<td>Digital</td>
<td>ZC Digital PDA - Standard</td>
<td>74670</td>
<td>2002/01/02</td>
<td>$121,70</td>
<td>140,3</td>
</tr>
</tbody>
</table>

You can save existing reports as active reports. If you do this, be sure to modify any unsupported features as necessary.

For more information about using active reports, see the *Active Technologies User's Guide*.

**Procedure:** How to Create an Active Technologies Report Using Report Painter

2. From the Report menu, select Output.
   The Report Options dialog box opens.
3. From the Select Format drop-down list, select HTML active report (AHTML).
   **Tip:** You can also select active report for Adobe Flash Player (FLEX) or active report for PDF (APDF).
4. Click OK.
**Reference: Report Options Features Tab for Active Technologies Reports**

The following image shows the Features tab of the Report Options dialog box for the active report formats.

![Report Options Features Tab](image)

**active cache**

Because all post-retrieval processing is performed in the memory of the web browser, an active report has a processing limit of approximately 5,000 records or 100 pages of output. The active cache option enables you to send only the first page of active report output to the browser and retrieve subsequent pages from a temporary cache on the WebFOCUS Reporting Server. The server also becomes the resource for performing all calculations, sorting, and filtering when active cache is enabled. Since active cache uses on-demand paging functionality, WebFOCUS Viewer is not supported.

**active cache**

Enables reports to cache the data in a binary file and return the data to the output window in pre-set increments.

In Report Painter, the active cache option is not applicable to active reports for Adobe Flash Player.
Number of rows retrieved

The number of rows retrieved in the output. The default number of rows retrieved is 100.

Tip: It is recommended that you set the number of rows retrieved five times greater than the number of lines retrieved per page (as indicated in SET LINES). The minimum number of rows retrieved is 100.

Calculations

Enables you to turn on calculations for fields in the report. All visible fields in the report appear in the Column list in the order they appear in the report. Hidden fields do not appear in the Column list.

You can select a calculation for each field in the Column list from the Calculation drop-down list. Calculation options are determined by the field type. If the field is an alphanumeric format, the drop-down list contains: Count and Count Distinct. If the field is a numeric format, the drop-down list contains: Sum, Average, Count, Count Distinct, Minimum, and Maximum.

Viewing restrictions

Specifies that a password is required to view the active report output. Prior to opening the report output, you are prompted to enter a password to unlock the report.

Password

A character string up to 32 characters in length.

Only standard alphanumeric English characters are allowed in the password for an active report in AHTML format. National Language Support (NLS) characters are not allowed in the password. Any NLS character in the password for an AHTML report makes the password invalid.

Expire

The date when an active report expires and the report output can no longer be opened (displayed).

Enter the expiration date in year, month, day (ymmd) format or in day format (1-999 DAYS) where the value indicates the number of days from the current date that the report expires. Valid values are 1 to 999 days. Note that you must enter the number and the word DAYS as part of the value.

In Report Painter, the Viewing restrictions option is not applicable to active reports for Adobe Flash Player.
Default Chart Engine

<Not Set>. No selection has been made.

Legacy. The default JavaScript charts will be used.

Dynamic. This option will change the engine to use Fusion charts.

HTML5. This option will change the engine to use High charts. This is the default chart engine for AHTML and FLEX formatted reports.

Flash. This option will change the engine to use Flex charts, if available.

**Reference:** Report Options Format Tab for Active Technologies Reports

The following image shows the Format tab of the Report Options dialog box for the active report formats. This tab provides options for formatting an active report.
**Note:** The colors shown on the Format tab are different depending on what style sheet you have selected. The Information Builders style sheet is selected by default.

---

**Initial Presentation**

Sets the active report output to appear as a default active report, Grid, Pivot, or chart. This is especially useful when creating compound reports from other Developer Studio tools. The active report for Adobe Flash Player (FLEX) output format has an additional Other Chart option. The Other Chart option provides the following chart types, which are available by clicking the ellipsis (…) button to the right of the drop-down menu.
Bar

Bar charts plot numerical data by displaying rectangular blocks against a scale (numbers or variable measures that appear along the axis). The length of a bar corresponds to a value or amount. You can clearly compare data series (fields) by the relative heights of the bars. Use a bar chart to display the distribution of numerical data. You can create horizontal, as well as vertical bar charts. The following bar chart types are available.

- Column 2D
- Column 3D
- Multi-Series Column 2D
- Multi-Series Column 3D
- Stacked Column 2D
- Stacked Column 3D
- Scroll Multi-Series Column 2D
- Scroll Stacked Column 2D
- Logarithmic Multi-Series Column 2D
- Inverse Y-Axis Multi-Series Column 2D
- Bar 2D
- Multi-Series Bar 2D
- Multi-Series Bar 3D
- Stacked Bar 2D
- Stacked Bar 3D

Pie

Pie charts emphasize where your data fits, in relation to a larger whole. Pie charts work best when the data consists of several large segments. Too many variables divide the pie into small segments that are difficult to see. Use the different dimensions available to create visual contrast. The following pie chart types are available.

- Pie 2D
- Pie 3D
Doughnut 2D
Doughnut 3D
You may receive a JavaScript error message when executing a large chart request, especially a pie chart request.

This happens because HTML active reports run scripts that can time out before they complete. Internet Explorer tracks the script execution count associated with these AJAX controls and by default displays a message when the count exceeds a certain number. To avoid this, you can place an entry in the registry for these scripts and set the value to a high number, such as 5,000,000.

**Line**

Line charts are useful for emphasizing the movement or trend of numerical data over time. They allow you to trace the evolution of a data point by working backward or interpolating. Highs and lows, rapid or slow movement, or a tendency towards stability are all types of trends well suited to a line chart. The following line chart types are available.

- Line 2D
- Multi-Series Line 2D
- Scroll Multi-Series Column 2D
- Logarithmic Multi-Series Line
- Inverse Y-Axis Multi-Series Line 2D
- Spline
- Multi-Series Spline
- Area 2D
- Multi-Series Area 2D
- Stacked Area 2D
- Scroll Multi-Series Area 2D
- Inverse Y-Axis Multi-Series Area 2D
- Spline Area
- Multi-Series Spline Area
**Scatter**

Scatter charts share many of the characteristics of basic line charts. You can plot data using variable scales on both axes. When you use a scatter chart, the data is plotted with a basic line pattern so that you can visualize the density of individual data values around particular points, or discern patterns in the data. The following scatter chart types are available.

- Scatter (XY Plot)
- Bubble

**Other**

Includes a variety of additional charts.

- Funnel
- Pyramid
- Radar

**Legend Options**

Legend options are applicable when using active report for Adobe Flash Player (FLEX) and active report for PDF (APDF) output formats, where you can click the Legend button to show or hide the chart legend. Legend options are only available when the initial presentation format is set to Bar, Line, Pie, or Scatter chart.

**Report view**

You can set the report view as a standard table (Tabular) or as an expandable report (Accordion). An expandable report is a collapsed report that can be fully expanded for sorting and other purposes.

If you are working with an Accordion active report, the Freeze columns option and Pagination options are not available.

Accordion Reports are not supported when creating HTML active reports using active cache and active reports for Adobe Flash Player.

Accordion Reports do not work when using By Hierarchy data.

**Window display**

Sets the window display option in the report output when multiple windows are open in the active report web browser. Select from Default, Cascade, or Tabs.

The window display option can also be changed directly from the active report web browser.
**Freeze columns**

You can freeze the report at a particular point so that columns to the left of the freeze point remain in view while the user scrolls through the other report columns. Options include:

- None, which turns off the freeze option. This is the default value.
- The fields in the request. If the report can be fully viewed in the browser window, freeze is not applied.

The Freeze columns option is not available for expandable report (Accordion) views.

**Pagination options**

You can set the justification for the information that appears in the record status and page navigation bar. You can also set the number of records that appear per page.

The following are the pagination options for active reports.

**Justification**

Controls the location of the record status and page navigation bar, and justifies the text that appears in the bar. Options are Top Left, Top Center, Top Right, Bottom Left, Bottom Center, and Bottom Right. Top Center is the default value.

**Lines per page**

Sets the number of records that appear per page. Options are Default, 10, 20, 30, 40, 50, and Show All. The default is 57 lines per page.

**Text**

Sets the color for the text in the record status and page navigation bar. Black is the default color.

**Background**

Sets the background color for the record status and page navigation bar. Silver is the default color.

**Pagination Check Box**

Turns the pagination bar off when selected. With the Pagination check box selected, Justification, Text, and Background will be unavailable. By default, this check box is not selected.
Pagination options are not available for expandable report (Accordion) views.

**Visualization colors**

Users can apply data visualization to numeric fields in an active report. You can designate the colors of the bars and set different colors for positive and negative values. The default color for positive and negative values is black.

**Row selection colors**

An active report offers visual assistance for viewing data in the report. For example, when a user hovers over a row of data the row is highlighted with a background color, and when the user clicks a row of data it is also highlighted with a background color. You can set the colors for these options, Hover and Selected. The default color for Hover is RGB(255 252 204), which is pale yellow, and the default color for Selected is RGB(51 255 204), which is blue-green.

**Calculations**

**Colors**

- Values sets the font color of the calculation results. The default color is black.
- Background sets the background color of the calculation results. The default color is white.

**Location**

Sets the location of the calculations. Options are Top row or Bottom row. Top row is the default value.

**Menu options**

Set options for the menu.

**User type**

Select a user type to determine the level of functionality and interactivity available to the user in the report output. The user types are logical groupings of functionality enabling a quick selection of options, and have no dependency on Managed Reporting user types, security, and so on. Each user type can be customized. The user types are:

- **Default user.** This is the default user type. All functionality is available for this user except the advanced tools and grid tools.
- **Power user.** All functionality is available for this user.
- **Analytical user.** All functionality is available for this user type except visualization and charting.

- **Business user.** All functionality is available for this user type except visualization, charting, filtering, and exporting.

### Customize User Interactivity

Click the ellipsis (…) button, located next to the User type drop-down list in the Menu options section, to open the Customize User Interactivity dialog box. The Customize User Interactivity dialog box enables you to customize the options for each user type. For a Power user, all options are selected by default. Uncheck any option that you want to hide in the active report.

If you select a combination of options that does not match one of the existing user types (Power user, Analytical user, or Business user), the User level name that appears in the Customize User Interactivity dialog box is Custom user. This is not a default user type or a selectable user type. It is used to show that options for this user do not match any of the existing user types.

![Customize User Interactivity dialog box](image)

### Font color

Enables you to set the colors for the menu text:
Running and Saving a Report

- Text sets the color of the text. The default color is black.

- Hover sets the color of the text when the mouse hovers over it. The default color is black (text hover does not show).

**Menu color**

Sets the colors for the menu:

- Background sets the background color of the menu. The default color is silver.

- Hover sets the background hover color of an individual item on the menu. For example, if the background color of the menu is black, the hover color can be set to white to show which option on the menu the mouse is currently hovering over. The default color is white.

- Border sets the color of the menu border. The default color is white.

**Dimension**

Sets the width and height for an active report for Adobe Flash Player (FLEX) or active report for PDF (APDF) report container on the page. The measurement unit is specified in the Measurement Units drop-down box under the Output tab of the Report Options dialog box.

Running and Saving a Report

After creating a report in Report Painter you can run it to quickly see the results displayed in your browser.

When you close the browser you return to the Painter, where you can edit the report request and rerun it.

Depending on your output destination, the report may be sent to the printer or saved as an output file in a variety of reusable formats, rather than being displayed on your screen. For related information, see *Viewing and Printing Reports and Graphs* and *Saving and Reusing Report Output* in the *Creating Reporting Applications With Developer Studio* manual.

When running a report, you can view the Message Viewer which enables you to see messages including error messages, informational messages, and Dialogue Manager commands. These messages appear in a separate frame below the report output and serve as a good resource for debugging an application.

After creating or editing a report request you can save it in Report Painter without leaving the tool. You can also save a request as you exit any reporting tool.
**Procedure:** How to Run a Report From Report Painter

Choose one of the following methods:

- From the General toolbar, click the Run button.
- Choose Run from the File menu.

**Procedure:** How to View Messages With the Message Viewer

1. From the main Developer Studio toolbar, use the Run drop-down list to select a Message Viewer option.

   You may view messages by selecting:

   - **Message Viewer OFF.** Disables the Message Viewer. This is the default option.
   - **Message Viewer ON.** Displays messages in a separate frame below the report output.
   - **Display command lines.** Displays messages and lines in a separate frame below the report output that are expanded and stacked for execution.
   - **Display Dialogue Manager commands.** Displays messages and lines in a separate frame below the report output that are expanded and stacked for execution while also displaying all Dialogue Manager commands.

2. Run the report.

   The Message Viewer option you select is saved until it is changed again. Message Viewer options are available for all report output formats.

**Procedure:** How to Save a Report Request in Report Painter

Select Save from the File menu. The report is saved as a component in the procedure in which it was created.
Creating Precision Reports

Precision reports enable you to create perfectly aligned output for a preprinted form, such as a Bill of Sale or Shipping invoice. The Precision Report tool enables you to build an exact layout for a form by embedding data in headings and text objects, managing images, and drawing objects to fit specific positions. The Precision Report tool is accessible from Report Painter.

**Note:** Precision reports are available for PDF, DHTML, and PS output formats.

You can build the report in Report Painter and click the *Precision Report* button. The report then becomes a precision report. In order to create a new Precision Report, you are required to build a report in the Data Matrix and add fields as objects in the Headings/Footings of the layout.

- The Data Matrix Layer inserts a placeholder for the reporting data. Within the Data Matrix, the behavior is identical to creating a report in Report Painter.

- The Heading and Footing Layers enable you to build objects and embed data as variables. These objects are used as fields on your form. When you run the Precision Report, these fields are populated with the results of the report that you created in the Data Matrix.

The following image is an example of the Precision Report tool.
The following image is an example of the Precision Report output in PDF format.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>TITLE</th>
<th>WHOLESALEPR</th>
<th>LISTPR</th>
<th>COPIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHILDREN</td>
<td>SNURFS, THE</td>
<td>10.00</td>
<td>19.95</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>SCOOBY-DOO-A DOG IN THE RUFF</td>
<td>9.75</td>
<td>19.95</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ALICE IN WONDERLAND</td>
<td>12.50</td>
<td>29.95</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>SESAME STREET-BEDTIME STORIES AND SONGS</td>
<td>7.65</td>
<td>14.95</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ROMPER ROOM-ASK MISS MOLLY</td>
<td>7.99</td>
<td>14.98</td>
<td>1</td>
</tr>
</tbody>
</table>

**Accessing the Precision Report Tool From Report Painter**

The Precision Report tool is accessible from the Report Painter General toolbar. You may convert an existing report to a Precision report, or create a new one.

**Note:** Once a Precision Report has been saved, it will automatically open in the Precision Report tool.

**Procedure:** **How to Access the Precision Report Tool From an Existing Report**

1. Open a procedure (.fex).
   
   The Procedure Viewer opens. If the original procedure (.fex) was created by specifying *Create with Report Painter*, Procedure Viewer will not open.

2. Double-click a report component.
   
   The report opens in Report Painter.

3. Click the *Precision Report* button located on the General Toolbar.
   
   A Style warning message appears indicating that the report will be converted to a Precision Report.
   
   - Click YES to convert the report.

   **Note:** Once a Precision Report has been saved, it will automatically open in the Precision Report tool.
Click NO to remain in Report Painter.

The existing report is converted to a Precision report. You may edit the existing data and change the alignment and position of the objects in report.

**Note:** The report output will automatically change to PDF output in the Precision Report tool. Optionally, you may select DHTML or PS as the output format.

**Reference: Usage Notes for Converting Existing Reports to Precision Reports**

The following apply to the use of converting existing reports to Precision reports:

- If you are converting a report component that was created using the Document Composer tool and the output format is not supported by the Precision Reports tool, the following message displays:
  
  *Your report is using a locked format that is not supported by Precision Report.*

- Report Heading and Report Footing will not convert to the Precision report.

  **Note:** You can create a Report Heading Layer and Report Footing Layer in the Precision Report tool.

- The SubHeading and SubFooting will convert to the Precision Report, including the Alignment Grid options set in Report Painter, and will be editable in Data Matrix Layer of the Precision Report tool.

- Reports with images, parameters, and drill downs will convert to the Precision Report, but will not be editable in the Precision Report tool.

**Procedure: How to Access the Precision Report Tool For a New Report**

1. Create a new procedure (.fex), or open an existing procedure.
   - The Procedure Viewer opens. If the original procedure (.fex) was created by specifying *Create with Report Painter*, Procedure Viewer will not open.

2. Click the yellow diamond and select *Report* from the Component Connector toolbox.
   - The Open dialog box appears.

3. Select a Master File and click *Open*.
   - Report Painter opens.

   A Style warning message appears indicating that the report will be converted to a Precision Report.

   - Click **YES** to convert the report.

   **Note:** Once a Precision Report has been saved, it will automatically open in the Precision Report tool.

   - Click **NO** to remain in Report Painter.

The report is converted to a Precision report. You may build the report and add fields as objects. For details on how to build a Precision report, see *Creating Precision Reports* on page 311.

**Precision Report Layout**

The Precision Report layout is similar to the Report Painter layout with additional Tools and Palettes, enabling you to design the exact layout of your preprinted form.

The layout of the Precision Report tool is a grid that contains a placeholder for your report (the Data Matrix). You can snap objects (such as lines, images, and so on) to the layout. These placeholder objects can be positioned and aligned according to the layout of the items on your preprinted form.

**Reference:  Precision Report Tools**

The Precision Report Tools box contains buttons that provide quick access to commonly performed functions that you may use in the Headings and Footings of the Precision Report layout. Headings and Footings enable you to create fields using variables from the reporting object (the Data Matrix).

The behavior of the tools options are determined either by the selected object or the previously performed command or action. Therefore, depending upon your location in the Precision Report tool or previously performed actions, certain tool buttons may be inactive.

The Precision Report Tools box is displayed in the layout. You may move the Tools box.
The following table lists and describes the objects in the Precision Report tools box.

<table>
<thead>
<tr>
<th>Button</th>
<th>Definition</th>
</tr>
</thead>
</table>
| ![Selection button](image) | The Selection button indicates that the items in the Data Matrix, Headings, and Footings can be selected.  
**Tip:** Click the Selection button after inserting a box, line, image, or text to return to select mode. |
| ![Box button](image) | Inserts a box in the Heading or Footing layer.  
**Note:** When you select the Box object from the Tools box, the Box toolbar appears with options to set the pen size, line style, fill color, and line color. This sets the box options until you change them again.  
The cursor changes into a crosshair. Click and drag the crosshair on the canvas to create the box object and adjust it to the size you want. |
| ![Line button](image) | Inserts a line in the Heading or Footing layer.  
**Note:** When you select the line object from the Tools box, the Line toolbar appears with options to set the pen size, line style, and line color. This sets the line options until you change them again.  
The cursor changes into a crosshair. Click and drag the crosshair on the canvas to create the line object and adjust it to the size you want. |
| ![Image button](image) | Inserts an image in the Heading or Footing layer.  
The cursor changes into a crosshair. Click and drag the crosshair on the canvas to create the image object and adjust it to the size you want.  
Select the image from the Open dialog box. |
**Button**  
Inserts text in the Heading or Footing layer.

**Note:** When you select the text object from the Tools box, the Font toolbar appears with options to set the font type, size, color, and text formatting. This sets the font options until you change them again.

The cursor changes into a crosshair. Click and drag the crosshair on the canvas to create the text object and adjust it to the size you want.

Enter the text, or embedded field, as the input field for your form.

For more information about using these objects in Headings and Footing, see *Creating Precision Reports* on page 311.

**Reference:** **Alignment Toolbar**

Alignment options enable you to multi-select objects and easily position them relative to one another. These options are available from the Alignment toolbar in the Precision Report tool.

**Note:** You may only align objects that are in the same layer. For example, you may align multiple Heading objects, or multiple Footing objects but you may not align Heading and Footing objects.

The behavior of the Alignment buttons are determined either by the selected object or the previously performed command or action. Therefore, depending upon your location in the Precision Report tool or previously performed actions, certain Alignment buttons may be inactive.

The Alignment toolbar is displayed in the layout by default. You may move or hide this toolbar.

**Tip:** Select Alignment from the View/Toolbars menu to view or hide the Alignment toolbar.

The Alignment toolbar contains the following buttons:
<table>
<thead>
<tr>
<th><strong>Button</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Left Align" /></td>
<td>Aligns objects to the left.</td>
</tr>
<tr>
<td><img src="image2" alt="Right Align" /></td>
<td>Aligns objects to the right.</td>
</tr>
<tr>
<td><img src="image3" alt="Top Align" /></td>
<td>Aligns objects by the top of the highest selected object.</td>
</tr>
<tr>
<td><img src="image4" alt="Bottom Align" /></td>
<td>Aligns objects by the bottom of the lowest selected object.</td>
</tr>
<tr>
<td><img src="image5" alt="Width Equal" /></td>
<td>Makes two or more objects the same width.</td>
</tr>
<tr>
<td><img src="image6" alt="Height Equal" /></td>
<td>Makes two or more objects the same height.</td>
</tr>
<tr>
<td><img src="image7" alt="Size Equal" /></td>
<td>Makes two or more objects the same size.</td>
</tr>
<tr>
<td><img src="image8" alt="Horizontal Spacing" /></td>
<td>Spaces evenly across for the objects selected. <strong>Tip:</strong> To select multiple objects, use the Shift key.</td>
</tr>
<tr>
<td><img src="image9" alt="Vertical Spacing" /></td>
<td>Spaces evenly down for the objects selected.</td>
</tr>
<tr>
<td><img src="image10" alt="Grid" /></td>
<td>Shows or hides the grid in the Precision Report layout. Snaps or unsnaps the objects to the grid.</td>
</tr>
<tr>
<td><img src="image11" alt="Guides" /></td>
<td>Shows or hides guides in the Precision Report layout. Snaps or unsnaps the objects to the guides. <strong>Note:</strong> These options are applicable when the page ruler is on.</td>
</tr>
<tr>
<td><img src="image12" alt="Page Ruler" /></td>
<td>Toggles the page ruler on or off in the Precision Layout tool.</td>
</tr>
</tbody>
</table>
Composition options enable you to create composition templates that run the same Precision report with different properties. This may be beneficial if you need to run a Precision report with modifications for internal and external use.

These options are available from the Composition toolbar in the Precision Report tool. The Composition toolbar is displayed in the layout by default. You may move or hide this toolbar.

**Tip:** Select Composition from the View/Toolbars menu to view or hide the Composition toolbar.

The Composition toolbar contains the following buttons:

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="DEFAULT" /></td>
<td>The composition selection list. The DEFAULT composition shows the original Precision report and cannot be deleted.</td>
</tr>
<tr>
<td>![+]</td>
<td>Add Composition enables you to create a composition template.</td>
</tr>
<tr>
<td>![−]</td>
<td>Remove composition deletes the composition template from the selection list.</td>
</tr>
</tbody>
</table>

For details on how to use compositions, see *How to Run Different Compositions for the Precision Report* on page 319.

**Precision Report Palettes**

There are several palettes that appear in the Precision Report layout. These palettes enable you to design and create positioned elements for your report.

The Layers palette is the main palette where the Data Matrix, Heading, and Footing layers are created.

The Precision Report palettes are displayed in the layout by default. You may move or hide these palettes.

**Tip:** Select Palettes from the View menu to view or hide the Precision Report palettes.
Note: The arrangement of the palettes may appear differently, depending on which palette was selected last.

Reference: Precision Report Layers Palette

The Layers palette consists of the Page, Report Heading, Heading, Data Matrix, Footing, and Report Footing layers by default.

There are several Layer icons available on the Layers palette. The icons and their meanings are defined in the following table:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Icon" /></td>
<td>Shows or hides the selected layer in the Precision Report layout.</td>
</tr>
<tr>
<td><img src="image2" alt="Icon" /></td>
<td>Enables or disables styling changes.</td>
</tr>
<tr>
<td><img src="image3" alt="Icon" /></td>
<td>Enables or disables data changes.</td>
</tr>
<tr>
<td>Icon</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>🗝️</td>
<td>Enables or disables all changes.</td>
</tr>
</tbody>
</table>
| 🗄️ | Creates a new layer for the Precision Report.  
The Layers palette consists of the Page, Report Heading, Heading, Data Matrix, Footing, and Report Footing layers by default.  
**Note:** If any layer is deleted, the option is available to create the layer from the Create new layer icon. |
| ✗   | Deletes the selected item and all of its layers. |
| 🔽🔺 | Moves the selected item up or down in the selected layer. |
**Reference: Precision Report Sort Groups Palette**

You can view and modify the sorting properties of fields in the Data Matrix from the Sort Groups palette in the Precision Report tool, as shown in the following image.

![Sort Groups Palette Image](image)

The Sort Groups palette displays the sorting method being applied to each column in the Data Matrix window. You can change the sorting method (for example, from By to Across or from Detail to Sum) by using the right-click context menu. The changes are reflected in the Columns and Sort Groups palettes and in the Data Matrix window.

You can also use the Sort Groups palette to create multi-verb requests. For more information, see *Sorting in Groups to Create a Combined Detail/Summary Report* on page 151.

**Reference: Sort Type Icons**

The icons in the first column to the left of the field name display the type of sort field. The icons and their meanings are defined in the following table:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Across Icon" /></td>
<td>Across field.</td>
</tr>
<tr>
<td><img src="image" alt="By Icon" /></td>
<td>By field.</td>
</tr>
</tbody>
</table>
### Reference: Precision Report Columns Palette

You can view and modify the columns in the Data Matrix window from the Columns palette in the Precision Report tool, as shown in the following image.
Right-click a column and select *Options* from the context menu to open the Field Properties dialog box, where you can format and style your column, as well as apply drill down capabilities. Any changes made to the column properties are reflected in the Data Matrix layer.

**Reference:** **Precision Report Fields Palette**

You can view the fields list in the Data Matrix as a:

- Tree separated by segments (the Field Tree).
- List of fields (the Field List).
- Tree separated by Dimensions (the Dimension Tree).

You can double-click or drag segments or fields from this palette to the Data Matrix window, where they become report columns. You can customize how you view the fields list and save your settings. You can also search for fields in the fields list.
Reference: Precision Report Properties Palette

When you select an attribute object or layer, its properties are reflected in the Properties palette in the Precision Report tool, as shown in the following image.

To edit properties, there are drop-down lists, input fields, and Yes/No options in the value column. Click the symbol to edit the property.
Reference: Precision Report Setup Palette

Click a component in the Setup palette to open the tool that created the component. Right-click a component in the Setup palette and select *Hide Details section* to display the syntax for that component in the Precision Report tool.

Reference: Precision Report Navigate Palette

You may view the entire layout of the Precision Report in the Navigate palette.

- The slider bar enables you to increase or decrease the zoom percentage of the layout.
Click and drag the orange box in the Navigate palette to view different elements of the Precision Report in the layout, as shown in the following image.

For more information about using these palettes in the Precision Report layout, see Creating Precision Reports on page 311.

Creating Precision Reports

The Precision report is created by using the Data Matrix as the reporting object, and by inserting objects in the Headings/Footings layers as fields.

Procedure: How to Build a Report in the Data Matrix

1. Click REGION under the Data Matrix layer.

   Note: REGION displays as a placeholder for the Data Matrix object regardless of which Master File you use and what fields are selected.
The Data Matrix object is shown in the layout, as shown in the following image.

2. Double-click the Data Matrix object in the layout.

A hand displays in the Data Matrix enabling you to begin building or editing your report, and the basic Report Painter functions are enabled, as shown in the following image.
3. Click the *Fields* palette to select the sort fields for the report. If the fields are sort fields, you need to click the *By* button before you add the fields, as shown in the following image.

4. Style your report as you would in Report Painter by using the right-click and/or toolbar options.

5. Click Save from the File menu to save the report in the Data Matrix.

   **Note:** You may resize the Data Matrix placeholder at anytime in Selection mode.

---

**Procedure: How to Design the Page Layout for Precision Reports**

Once the report has been built in the Data Matrix, you may design the page layout for the Precision Report. Objects added to the page layout appear on each page of the form at run time.

1. From the Layers palette, click the *Page* layer to toggle to edit mode.
The Tools objects are enabled, as shown in the following image.

2. To set the default box settings, select the box object from the Tools box to view the corresponding options.

The following image shows the toolbar that appears underneath the Alignment toolbar when the box object is selected. Set the pen size, line style, fill color, and line color for the box object. This sets the box options until you change them again.

3. To set the default line settings, select the line object from the Tools box to view the corresponding pen options.
This toolbar appears underneath the Alignment toolbar when the line object is selected, as shown in the following image.

4. Select the box, line, or image object from the Precision Report Tools box.

**Note:** The Text object is not available for the Page layer.

The cursor changes into a crosshair.

5. Click and drag the crosshair on the Precision Report layout to add the object and adjust it to the size you want.

**Note:** Objects snap to the grid for perfect alignment.

As items are added to the page layout and appear under the Page layers, as shown in the following image.

6. Optionally, you may use the Layer options to delete or move the Page layer objects.
**Tip:** Once the line object has been added to the Page layer, you may use the Properties palette to change the pen options.

When you run the report, the items added to the Page layer appear on every page of the report output.

**Procedure:** How to Add Heading or Footing Layers in the Precision Report Layout

Once the report has been built in the Data Matrix, add Heading and Footing objects as placeholders for fields on your form.

1. From the Layers palette, click the **Heading**, **Footing**, **Report Heading**, or **Report Footing** layer to toggle to edit mode.

   The Tools objects are enabled, as shown in the following image.

2. To set the default box, line, or text settings, select the object from the Tools box to view the corresponding pen or font options.

   These toolbars appear underneath the Alignment toolbar when the box, line, or text objects are selected.


   The cursor changes into a crosshair.

4. Click and drag the crosshair on the Precision Report layout to add the object and adjust it to the size you want.
**Note:** Objects snap to the grid for perfect alignment.

As items are added, they appear under the Heading/Footing layers, as shown in the following image.

5. Optionally, you may use the Layer icons to delete or move the Heading/Footing layer objects.

**Procedure:** **How to Add Embedded Fields in the Heading/Footing Text Objects**

You may embed fields and variables in your Heading/Footing layers as text objects. The Precision Report retrieves the value for the field when the report is run.

**Note:** If adding embedded fields, values are calculated differently in Heading and Footings. Headings use the first value on the page of the report, and Footings use the last value on the page of the report.

To embed field values in a Heading or Footing text object:

1. Place the cursor in the text object where you want to embed the value.

2. Double-click a field from the Fields palette in the Precision Report tool.

   This includes Report Variables, Computed, and Defined fields.

   The field is added to the text object as `<FIELDNAME>`.
3. Optionally, you may also perform a calculation on a field value in the text object:
   a. Highlight <FIELDNAME> in the text object.
   b. Right-click and choose Prefix Operators and the desired operator from the context menu.

   **Tip:** The list of available operators adjusts to show those that are appropriate for the type of field you select.

---

**Procedure: How to Control Spacing Between Wrapped Lines**

You can use the WrapGap option in a style sheet to control spacing between wrapped lines in PDF and PostScript report output. The WrapGap option is available for only an active object of type Data.

1. Click the Options button from the Output Format Toolbar.
2. Click the Style tab and select Data under the active object drop-down list.
3. Click Wrap in the Width drop-down box under the Data Layout section.
The Wrap Options button displays next to the Width drop-down box.

4. Click the Wrap Options button and click the ON radio button under the WrapGap section.
5. Type the number of inches to leave between wrapped lines.
6. Click OK to exit the Wrap Options dialog box.

**Procedure: How to Run Different Compositions for the Precision Report**

You may run the Precision report with different composition templates. Composition templates enable you to run the same Precision report with different properties. This may be beneficial if you need to run a Precision report with modifications for internal and external use. For example, you have an internal report that shows your trademark image in the Report Heading Layer. You can create a composition template that hides your trademark image for an external customer.

1. To create a composition template:
   - Click the Add Composition icon from the Composition toolbar.
The composition selection list creates a template name, as shown in the following image.

- Type a name for the composition or use the default provided.
- From the Precision Report Properties palette, change the desired options.
  
  For example, in the Properties palette below, the Visible property for the image object was changed to No, thus removing the image from the layout.

- Click Save.
  
  The composition template is added to the composition selection list. As per this example, the composition template saved hides the image in the Precision report.

2. To remove a composition:

- Select the composition name from the drop-down list.
- Click the Remove Composition icon from the Composition toolbar.

  **Note:** The DEFAULT composition cannot be deleted.

  A confirmation message appears indicating that the composition template will be deleted.

- Click Yes.
  
  The composition template is removed from the composition selection list.
3. Select the composition template from the composition selection drop-down list, as shown in the following image.

![Composition Selection Drop-Down List](image)

4. Run the Precision report.

The Precision report runs with the values specified in the Properties palette for the selected composition.

**Example**: Creating a Precision Report

The following example shows how to create a form by Ratings and Total Copies for Movies.

1. From the Procedure Viewer, create a new report using *movies.mas* as the data source.

   Report Painter opens.

2. Click *Precision Report* located on the General Toolbar.

   A Style warning message appears indicating that the report will be converted to a Precision Report.

3. Click *YES* to convert the report.

4. Create a report in the Data Matrix:
   a. Click *REGION* under the Data Matrix layer in the Layers tab.

      The Data Matrix object is selected in the layout.
   b. Click in the Data Matrix object to begin building your report.
   c. Click the *By* sort field from the Columns toolbar and select *CATEGORY* from the Fields palette.
   d. Select the space after the Category field and click the *Detail* sort field from the Columns toolbar.
   e. Select *TITLE, WHOLESALEPR, LISTPR, and COPIES* from the Fields palette.
   f. The fields are added to the Data Matrix.

   **Note**: Not all fields may be visible in the layout. Use the Navigate palette to view all pages and fields in your layout.
g. Create a Where clause in the report to show only the movies with a G rating:
   Select the Where button from the Where/If from the Columns toolbar.

h. Type \textit{RATING EQ 'G'} in the Advanced section.

i. Click OK.

5. Resize and style fields in the Data Matrix:
   a. Click the Columns palette and double-click the Title field.
      The Field Properties dialog box appears.
   b. Click Minimum from the Column Layout Width drop-down list.
   c. Click OK to close the Field Properties dialog box.
      All of the fields should now be visible in the layout.
   d. Click and drag the Data Matrix placeholder to shrink the size of the object in the layout.

6. Add Page layer element to the report:
   a. Click the Page layer from the Layers palette.
      You may add a box, line, or image element to the page layer.
   b. Click Box from the Precision Report Tools box and click the drag the box element around
      the Data Matrix.

7. Add a Heading layer to the report:
   a. Click the Heading layer from the Layers palette.
   b. Click Box from the Precision Report Tools box and click the drag the box element above
      the Data Matrix.
   c. Click Text from the Precision Report Tools box and click and drag the text element within
      the box object.
   d. Type the text \textit{Movie Rating:} and double-click \textit{RATING} from the Fields palette.
      Movie Rating: \textless \textit{RATING} is added as the embedded field in the text element.

8. Add another Heading item to the report:
   a. Click the Heading layer from the Layers palette.
   b. Click Box from the Precision Report Tools box and click the drag the box element below
      the Data Matrix.
   c. Click Text from the Precision Report Tools box and click and drag the text element within
      the box object.
d. Type the text *Total Copies:* and double-click **COPIES** from the Fields palette.

   Total Copies: `<COPIES` is added as the embedded field in the text element.

e. Select `<COPIES`, right-click and select **TOT** from the Prefix Operators list.

   Total Copies: `<TOT.COPIES` is added as the embedded filed in the text element.

9. Save and run the report.

The form appears, showing the total copies for movies with a G rating, as shown in the following image.

![Image of form showing total copies for movies with a G rating](image_url)

**Using User Defined Functions**

When you create a DEFINE FUNCTION construct, the function will be available from the Function Arguments dialog box. When a user defined function is selected, a template is presented to allow you to enter the arguments for the function.
Procedure: How to Use User Defined Functions

1. With the Function Arguments dialog box open, select the Retrieve User Functions button, as shown in the following image.
2. Select **User Functions** from the Select a category drop-down menu, as shown in the following image.

The Select a function text area will be populated with all user defined functions. To refresh the list of user defined functions, select the **Refresh User Functions** button, which has replaced the **Retrieve User Functions** button in the Function Arguments dialog box.
A Guided Report is a highly parameterized report that allows you to select fields and options that participate in a report at run time.

Fields and options that have been added to the Guided Report are displayed in controls and are available for selection. Selecting fields from controls and running the report will display the data that correlates to the field values.

**In this chapter:**
- Creating a Guided Report

**Creating a Guided Report**

The advantage of using a Guided Report is that you can create one streamlined, highly parameterized report and from that one report, you can generate thousands of different report outputs at run time. It requires no knowledge of code to customize the final report with the data you want displayed.
A page with controls for the Guided Report parameters appears so you can customize and run different versions of the report dynamically, as shown in the following image.

![Guided Report Parameter Controls](image)

**Procedure:** How to Create a Guided Report Using One Variable for Each Selected Column

1. Create a new HTML page in HTML Composer using Guided Report Mode. See the *Designing a User Interface for a Web Application With the HTML Composer* manual for more information on Guided Report Mode.

   **Note:** Autoprompt is not recommended because variables are not displayed in the correct context.

2. In HTML Composer, invoke Report Painter to create a report component.
3. Add all the fields you could want to be displayed in the report, as shown in the following image. You are creating a report with every possible vertical sort field, every possible horizontal sort field, every possible detail or sum field, and so on.

![Table Image]

4. Multi-select the fields you want to be a part of the same parameter group, in this case COUNTRY and CAR, as shown in the following image.

![Table Image]

Being a part of the same parameter group means those fields will appear in the same control.

**Note:**

- Multi-select fields must be the same type. For example, all sort fields, or all detail fields.
- If the multi-select fields are not adjacent for the parameter grouping, Report Painter will reorder the columns to make the grouped columns adjacent to each other.
- BY, ACROSS, PRINT, and SUM columns are allowed in parameter groups. DEFINE, COMPUTE, TOTAL, and RANK columns are not permitted in parameter groups.

5. From the Columns toolbar, select the *One variable for each selected column* mode from the drop-down list, as shown in the following image.
One variable for each selected column creates one control for every selected column with all the selected field names as values. In this example, we are creating a parameter group for two sort fields and another parameter group for two sum fields. There will be four controls, two having COUNTRY and CAR (sort fields) and the other having RETAIL_COST and DEALER_COST (sum fields).

6. Click the Generate Parameter Group button.

Each column title has an ampersand in the top-left to signify that it is a member of a parameter group. In this mode, each field has a different color scheme. For example, COUNTRY has a blue background with a yellow ampersand and CAR has a blue background with a white ampersand.

7. In this example, multi-select the remaining fields and click the Generate Parameter Group button to create another parameter group.

In this example, RETAIL_COST and DEALER_COST make up the second parameter group, as shown in the following image.

![Image showing the parameter groups with different colors for each field]

Note that RETAIL_COST has a white background with a blue ampersand, and DEALER_COST has white background with a red ampersand.

8. When the report is complete, close Report Painter and save the changes to return to HTML Composer.

9. Run the HTML page.
The page is displayed, as shown in the following image.

Selecting different options from the controls and clicking *Run* will display different results, as shown in the following images.

At least one field must be selected. Otherwise, a message will appear instead of the output.
In the following image, COUNTRY, CAR, RETAIL_COST, and DEALER_COST are displayed.

In the following image, only CAR and RETAIL_COST are displayed.
10. Optionally, you can edit variable fields using the Variable Editor. To open the Variable Editor, right-click a column and select Edit Variable Fields from the pop-up menu, as shown in the following image.

The Edit Variable Fields option is available when one column is selected or multiple columns of the same parameter group are selected.
This is a scaled-down version of the Variable Editor. You can change the variable type only to Single Select or Multiselect (Single Select is the default). You can reorder the fields, add or delete fields, edit display and return values, edit prompt text, and change the variable name suffix. The scaled-down version of the Variable Editor is shown in the following image.

You can edit the display and return values to have user-friendly values or more sophisticated WebFOCUS syntax. For example:

Display Value: **TOP 5 CAR SALES**

Return Value: **HIGHEST 5 SALES**

**Procedure:** How to Create a Guided Report Using One Variable for All Selected Columns

1. Create a new HTML page in HTML Composer using Guided Report Mode. See the *Designing a User Interface for a Web Application With the HTML Composer* manual for more information on Guided Report Mode.

   **Note:** Autoprompt is not recommended because variables are not displayed in the correct context.

2. In HTML Composer, invoke Report Painter to create a report component.
3. Add all the fields you could want to be displayed in the report, as shown in the following image. You are creating a report with every possible vertical sort field, every possible horizontal sort field, every possible detail or sum field, and so on.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CAR</th>
<th>RETAIL_COST</th>
<th>DEALER_COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
</tbody>
</table>

4. Multi-select the fields you want to be a part of the same parameter group, in this case COUNTRY and CAR, as shown in the following image.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CAR</th>
<th>RETAIL_COST</th>
<th>DEALER_COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
<tr>
<td>B</td>
<td>A--------</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
</tbody>
</table>

Being a part of the same parameter group means those fields will appear in the same control.

**Note:**

- Multi-select fields must be the same type. For example, all sort fields, or all detail fields.
- If the multi-select fields are not adjacent for the parameter grouping, Report Painter will reorder the columns to make the grouped columns adjacent to each other.
- BY, ACROSS, PRINT, and SUM columns are allowed in parameter groups. DEFINE, COMPUTE, TOTAL, and RANK columns are not permitted in parameter groups.
5. From the Columns toolbar, click the *One variable for all selected columns* mode from the drop-down list, as shown in the following image.

![One variable for all selected columns mode](image)

One variable for all selected column creates one control for all selected columns with all the selected field names as values. In this example, there will be two controls. One control will have COUNTRY and CAR as options, the other will have RETAIL_COST and DETAIL_COST as options.

6. Click the *Generate Parameter Group* button.

Each column title has an ampersand in the top-left to signify that it is a member of a parameter group. In this mode, each parameter group is assigned the same color scheme. For example, both COUNTRY and CAR have a blue background with a yellow ampersand.

7. If you want another parameter group, multi-select the remaining fields and click the *Generate Parameter Group* button to create another parameter group.

In this example, RETAIL_COST and DEALER_COST make up the second parameter group, as shown in the following image.

![Table with parameter groups](image)

Note that RETAIL_COST and DEALER_COST will both have a white background with a blue ampersand.

8. When the report is complete, close Report Painter and save the changes to return to HTML Composer.

9. Run the HTML page.
Selecting different options from the controls and clicking Run will display different results, as shown in the following images.

At least one field must be selected. Otherwise, a message will appear instead of the output.
In the following image, COUNTRY, CAR, RETAIL_COST, and DEALER_COST are displayed.

<table>
<thead>
<tr>
<th>CAR</th>
<th>COUNTRY</th>
<th>RETAIL COST</th>
<th>DEALER COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALFA ROMEO</td>
<td>ITALY</td>
<td>5,705</td>
<td>4,915</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,820</td>
<td>5,660</td>
</tr>
<tr>
<td>AUDI</td>
<td>GERMANY</td>
<td>5,970</td>
<td>5,063</td>
</tr>
<tr>
<td>BMW</td>
<td>GERMANY</td>
<td>9,480</td>
<td>9,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,355</td>
<td>6,000</td>
</tr>
<tr>
<td>DATSUN</td>
<td>JAPAN</td>
<td>3,129</td>
<td>2,626</td>
</tr>
<tr>
<td>JAGUAR</td>
<td>ENGLAND</td>
<td>8,878</td>
<td>7,427</td>
</tr>
<tr>
<td>JENSEN</td>
<td>ENGLAND</td>
<td>17,830</td>
<td>14,940</td>
</tr>
<tr>
<td>MASERATI</td>
<td>ITALY</td>
<td>31,500</td>
<td>25,000</td>
</tr>
<tr>
<td>PEUGEOT</td>
<td>FRANCE</td>
<td>5,610</td>
<td>4,631</td>
</tr>
</tbody>
</table>
In the following image, only CAR and DEALER_COST are displayed.
10. Optionally, you can edit variable fields using the Guided Variable Definition dialog box. To open the Guided Variable Definition dialog box, right-click a column and select *Edit Variable Fields* from the pop-up menu.

The Edit Variable Fields option is available when one column is selected or multiple columns of the same parameter group are selected.
The Guided Variable Definition dialog box allows you to edit the prompt text, reorder the fields, edit the display and return values, and change the variable field suffix. Note that you cannot add or delete fields. The Guided Variable Definition dialog box is shown in the image below.

Multiselect is the default for One control for all selected columns mode. This can be changed to Single select if you want.

You can edit the display and return values to have user-friendly values or more sophisticated WebFOCUS syntax. For example:

Display Value: **TOP 5 CAR SALES**

Return Value: **HIGHEST 5 SALES**

**Procedure:** How to Create a Guided Report With Report Options

1. Create a new HTML page in HTML Composer using Guided Report Mode. See the *Designing a User Interface for a Web Application With the HTML Composer* manual for more information on Guided Report Mode.
2. In HTML Composer, invoke Report Painter to create a report component.

3. Add all the fields you could want to be displayed in the report, as shown in the following image. You are creating a report with every possible vertical sort field, every possible horizontal sort field, every possible detail or sum field, and so on.

![Report Example](image)

4. Multi-select the fields you want to be a part of the same parameter group, in this case COUNTRY and CAR, as shown in the following image.

![Parameter Group Example](image)

**Note:**
- Multi-select fields must be the same type. For example, all sort fields, or all detail fields.
- If the multi-select fields are not adjacent for the parameter grouping, Report Painter will reorder the columns to make the grouped columns adjacent to each other.
- BY, ACROSS, PRINT, and SUM columns are allowed in parameter groups. DEFINE, COMPUTE, TOTAL, and RANK columns are not permitted in parameter groups.

5. From the Columns toolbar, select a guided report mode from the drop-down list.
6. Click the Generate Parameter Group button.

7. Right-click a field that has been parameterized and select Options, as shown in the following image.

In this example, the CAR field was selected. CAR is a vertical (By) sort field.

The Field Properties window is displayed.

For non-sort fields in one control for all selected columns mode only, the chosen options affect the last field selected in the control at run time. The WebFOCUS syntax representation of this is shown below.

```
TABLE FILE CAR
PRINT DEALER_COST RETAIL_COST SALES NOPRINT
END
```

Because SALES is the last column in the request, any options will be applied only to SALES.

If these fields are a parameter group and you select DEALER_COST, then NOPRINT is applied to just DEALER_COST. If you select DEALER_COST and RETAIL_COST, then NOPRINT is applied to RETAIL_COST because it is last.

```
PRINT <DETAIL_COST, RETAIL_COST> NOPRINT
```

For sort fields, any options applied to that parameter group will be applied to all fields.
The Sorting, Grouping, and Actions tabs have options that can be variable or added as real values (not variable). The grouping tab will only display for a numeric field.

8. For each action, select **On**, **Off**, or **Variable** from the drop-down list, as shown in the following image. Variable makes the option a parameter whose value is prompted for at run time.

In One control for each selected column mode, all options affect any field selected in the control for the report column that was used to create the options.

**Note:** The Sort tab and the Actions subtab are only available for sort fields. Some of the options you can select for a sort field are: Underline, Skip Line, No Split, Page Break, and Restart Page Numbering. For detail and sum fields, options can be selected from the General tab. Some of the options you can select are Skip Line and Fold Line.

Putting options on a sort field in One control for all selected columns mode will apply the options to all sort fields in the parameter group regardless of which one was used to create the options.

Clicking the ampersand button for an option will open the Guided Variable Definition dialog box, as shown in the following image.
You can change the Display Values and Return Values for an option, reorder values, and add or delete values, as shown in the following image.

9. If you want another parameter group, multi-select the remaining fields and click the Generate Parameter Group button to create another parameter group.
In this example, DEALER_COST and RETAIL_COST make up the second parameter group, as shown in the following image.

<table>
<thead>
<tr>
<th>CAR</th>
<th>COUNTRY</th>
<th>DEALER_COST</th>
<th>RETAIL_COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axxxxxx</td>
<td>Axxxxxx</td>
<td>1,111,111</td>
<td>1,111,111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,222,222</td>
<td>2,222,222</td>
</tr>
</tbody>
</table>

10. When the report is complete, close Report Painter and save the changes to return to HTML Composer.

11. Run the HTML page.
The page is displayed with both the parameter groups and report options, as shown in the following image.

Select different options from the controls and click Run to display different results.

At least one field must be selected. Otherwise, a message will appear instead of the output.
In the following image, CAR, COUNTRY, DEALER_COST, and RETAIL_COST are displayed with all options turned on.

<table>
<thead>
<tr>
<th>CAR</th>
<th>COUNTRY</th>
<th>DEALER_COST</th>
<th>RETAIL_COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALFA ROMEO</td>
<td>ITALY</td>
<td>4,915</td>
<td>5,015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,660</td>
<td>6,820</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,660</td>
<td>6,820</td>
</tr>
<tr>
<td>AUDI</td>
<td>W. GERMANY</td>
<td>5,063</td>
<td>5,970</td>
</tr>
<tr>
<td>BMW</td>
<td>W. GERMANY</td>
<td>5,800</td>
<td>5,940</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,000</td>
<td>6,355</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10,000</td>
<td>13,752</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11,000</td>
<td>14,123</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8,300</td>
<td>9,077</td>
</tr>
</tbody>
</table>
In the following image, CAR, COUNTRY, DEALER_COST, and RETAIL_COST are displayed with all options turned off.

![Image showing column selection in Report Painter](image-url)

**Procedure:** How to Add a Guided Drill Down to a Column

1. Right-click a column (or columns) in Report Painter and select **Options**.
   
   The Field Properties dialog box opens.

2. Click the **Drill Down** tab.

3. From the active object area drop-down list, select the column component (Column Title and Data, Column Data, or Column Title) from which you want to drill down.

4. From the Drill Down Type drop-down list, click *Execute Guided Procedure*. 
5. Click Edit to open the Guided DrillDown dialog box, as shown in the following image.

From the Guided DrillDown dialog box, you can:

- Select the drill-down procedures you wish to choose from at run time and any parameters you wish to pass to those procedures.
- Change the prompt text that the user sees at run time.
- Change the variable name for the drill down.

6. Click Browse and select the drill-down procedures from the Open dialog box.
The return values and display values for the procedures are added to the Display Value and Return Value columns, as shown in the following image.

7. Click the Add button if you want to add parameters to pass to a procedure at run time. You must select the procedure for which the parameters will apply on the left side before clicking the Add button on the right side.

The Drill Down Parameter dialog box opens, as shown in the following image.
8. From the Parameter name drop-down list, select the parameter used in the drill-down procedure and select the Field or Constant value option for the parameter value.

9. Repeat steps 7 and 8 for each procedure listed on the left side of the Guided DrillDown dialog box.

10. Click OK.

The drill-down procedures are added to the field properties box, as shown in the following image.

11. Select a target frame. This is optional and is for HTML reports only.

12. Click OK and run the report.
The user will be prompted with a list of drill-down procedures from which to choose from at run time, as shown in the following image.

When the user selects a procedure, they can click the hyperlink in the report to perform the drill down to the selected procedure.
With the customized styling features of Report Painter, you can enhance the appearance of your reports and make it easier for users to identify certain data. Report Painter provides many customized styling elements, such as:

- Fonts, colors, and grids.
- Styling triggered by conditions you define.
- Embedded graphic images.
- Customized external style sheets.
- Support for mailing labels and multi-pane reports.

For details about using Report Painter to create reports, see *Creating Reports With Report Painter* on page 123.

**In this chapter:**

- Styling With Fonts, Colors, and Grids
- Styling or Aligning an Individual Item in a Text String
- Aligning Fields and Text in Headings and Footings
- Defining a Conditional Report Style
- Visualizing Trends in Reports
- Adding an Image
- Using the StyleSheet File Selector
- Generating Format-Specific Style Blocks
- Using Excel Templates
- Using Excel Named Ranges in WebFOCUS Applications
- Generating Overflow Sheets for an Excel 2000 Report
- Using PowerPoint Output Format and PowerPoint Templates
- Setting Up the Report Page
- Creating Mailing Labels
- Styling Different Elements of a Tabular Active Technologies Report
Styling With Fonts, Colors, and Grids

You can style a report or objects in a report by changing font size and style, adjusting colors, and adding grids.

If you have worked with HTML you know that you do not always have complete control over how your report or document looks in any given web browser, because browsers interpret HTML code and display it according to their local configurations. Nevertheless, Report Painter works with HTML to provide you with as much styling control as possible. In fact, since web browsers have gotten better at handling fonts and fonts sizes, you can apply a greater range of fonts and font styles to report element in HTML reports.

To further improve the display of HTML output, you can:

- Enable internal Cascading Style Sheets (CSS) from Report Painter. This option enables HTML output to interpret certain Style Sheet attributes that were not previously supported.
- Apply an external CSS to an HTML report. For more information, see the Creating Reports With WebFOCUS Language manual.

For PDF reports, output may be affected by limitations of Adobe® Reader®.

Procedure: How to Specify a Font for a Report Element

Report Painter enables you to apply a number of fonts and font styles to columns and the contents of object areas. You can apply fonts to any element of the report using the Font toolbar, from which you can also specify whether to apply font styles to Titles only, Data only, or Titles and Data.

1. Select a column or highlight an element in an object area.
2. For a column, click a component button to specify whether you want to style a title, data, or both.
3. Click a button on the Font toolbar to specify the style you want to apply. For details, see Font Toolbar on page 31.

Procedure: How to Copy Styling Characteristics From One Column to Another

You can copy styling characteristics from one column to another.

1. Select the column(s) that you want to apply styling to by simultaneously clicking your mouse and pressing the Shift key.
2. Select the column that contains the styling you want to apply and keep the Shift key pressed as you click it.
3. Select an option from the Match All Styles drop-down list, and then select the column(s) you want to apply the formatting to. The styling characteristics are:

- Match All Styles
- Match Font
- Match Grid/Border
- Match Background Color
- Match Conditional Styling
- Match Justification
- Match Width Attributes

**Procedure:** How to Apply and Remove a Grid in an HTML Report

1. Click the **Options** button on the Output Format toolbar.

   The Report Options dialog box opens. Ensure that HTML is selected as the report output.

2. In the Style tab, click the **Select Grid** button. The HTML Grid dialog box opens.

   **Note:**
   - If grids are on, you cannot use the Borders feature.
   - With the default StyleSheet, which is included automatically in the request, the **Select Grid** button will not be available. To make it available, delete the default StyleSheet from the request. For information about deleting the default StyleSheet from the request, see [Using the StyleSheet File Selector](#) on page 421.

3. Click the **On** or **Off** option button.

4. Click **OK**.

**Tip:** If you choose to turn grids on, you can improve the grid display in HTML reports by using internal Cascading Style Sheets.
Procedure: How to Add a Grid in a PDF Report

You can apply a grid to an entire report, a column, or another object area, such as a heading or footing.

To set a global report grid (that will apply to all objects you subsequently add to the report):

1. From the Report menu, click Styling.

   The Report Options dialog box opens at the Style tab.

   **Note:** Ensure that PDF is selected as the report output.

2. Click the Select Grid button.

   The Grid dialog box opens.

   **Note:** With the default StyleSheet, which is included automatically in the request, the Select Grid button will not be available. To make it available, delete the default StyleSheet from the request. For information about deleting the default StyleSheet from the request, see Using the StyleSheet File Selector on page 421.

   Make your grid selection:
   
   - Click the down arrow in the Grid drop-down list box and select:
     
     Horizontal & Vertical to insert lines between rows and columns.
     
     Horizontal to insert lines between rows.
     
     Vertical to insert lines between columns.
   
   - Select a line style option button (light or heavy).

     **Note:** By default, the None option button is selected. If you do not select a line style, no grid lines will be shown.

   - Click OK to close the Grid dialog box.

3. Click the down arrow in the active object area drop-down list and select:

   Report to apply a grid to the entire report.

   Data to apply a grid only to the data component of a column.

   Title to apply a grid to only the title component of a column.

   Table Heading to apply a grid only to the report heading component of a report.
Table Footing to apply a grid only to the report footing component of a report.

Heading to apply a grid only to the page heading component of a report.

Footing to apply a grid only to the page footing component of a report.

Subhead to apply a grid only to a subheading component of a report.

Subfoot to apply a grid only to a subfooting component of a report.

Subtotal to apply a grid only to a subtotal component of a report.

Across Column to apply a grid only to ACROSS values used as column titles under an ACROSS value in a report.

Across Title to apply a grid only to an ACROSS value used as a column title component of a report.

Column Totals to apply a grid only to the column total component of a report.

Row Totals (Report) to apply a grid only to the row total column component of a report.

Row Totals (Title) to apply a grid only to the row total title component of a report.

Row Totals (Data) to apply a grid only to the data in the row total column component of a report.

**Note:** If grids are on, you cannot use the Borders feature.

**To apply a grid to a column:**

1. Right-click the column and select **Options**.
   
   The Field Properties dialog box opens at the Style tab.

2. Click the down arrow in the active object area drop-down list and select:
   
   - **Column Title and Data** to apply grids to the column title and data.
   - **Column Data** to apply grids to column data.
   - **Column Title** to apply grids to column title.

3. Click the **Select Grid** button.

   The Grid dialog box opens. Make your grid selections:

   - Choose a grid type (Horizontal & Vertical, Horizontal, Vertical).
   - Choose a line style (light or heavy).
**Note:** By default, the None option button is selected. If you do not select a line style, no grid lines will be shown.

4. Click OK.

**To apply a grid to another object area:**

1. Right-click the object area and select *Options*.

   The Properties dialog box opens at the Style tab.

   **Note:** The active object area shows the object area selected. For example, Page Heading.

2. Click the Select Grid button.

3. Make your grid selections:
   - Choose a grid type (*Horizontal & Vertical*, *Horizontal*, *Vertical*).
   - Choose a line style (light or heavy).

   **Note:** By default, the None option button is selected. If you do not select a line style, no grid lines will be shown.

4. Click OK.

**Procedure:** How to Remove a Grid

1. Right-click the column and select *Options*.

   The Field Properties dialog box opens at the Style tab.

   **Note:** To remove a grid for an entire report, select the Style tab in the Report Options dialog box.

2. Click the Select Grid button.

   The Grid dialog box opens.

3. Choose *None*.

4. Click OK.
**Procedure: How to Add Borders to an HTML or PDF Report**

You can add borders to an entire report, a column, or another object area, such as a heading or footing.

**Note:** You must remove grids from the report, column, or object area before you can apply borders.

You can set borders to a report globally, so that they will apply to all objects you subsequently add to the report. To set global borders:

1. From the Report menu, click **Styling**.
   
   The Report Options dialog box opens at the Style tab.

   **Note:** Ensure that HTML or PDF is selected as the report output format.

2. Click the **Select Borders** button.
   
   The Borders dialog box opens.

   By default, the Make All Borders The Same option is selected.

3. To specify border settings for the top, bottom, left, and right borders, click the Make All Borders the Same check box to turn off that option. Make your border selections:
   
   - Click the down arrow in the Width drop-down list box and select:
     - **OFF** to turn borders off.
     - **LIGHT** to apply thin border lines.
     - **MEDIUM** to apply medium border lines.
     - **HEAVY** to apply thick border lines.
   
   - Click the down arrow in the Style drop-down list box and select a line style.
   
   - Click the down arrow in the Color drop-down list and select a color.

   After you select your border width, style, and color selections, you can see them in the Border Preview window in the Borders dialog box.

   **Note:** By default, the None option button is selected. If you do not select a border width, style, or color, no borders will be shown.

4. Click **OK**.
To apply a border to a column:

1. Right-click the column and click Options.
   The Field Properties dialog box opens at the Style tab.

2. Click the down arrow in the active object area drop-down list and select:
   - *Column Title and Data* to apply grids to the column title and data.
   - *Column Data* to apply grids to the column data.
   - *Column Title* to apply grids to the column title.

3. Click the Select Borders button.
   The Borders dialog box opens.

   By default, the Make All Borders The Same option is selected.

   To specify border settings for the top, bottom, left, and right borders, select the Make All Borders The Same check box to turn off that option.

4. Make your border selections:
   - Click the down arrow in the Width drop-down list box and select:
     - OFF to turn borders off. (This is the default.)
     - LIGHT to apply thin border lines.
     - MEDIUM to apply medium border lines.
     - HEAVY to apply thick border lines.

   - Click the down arrow in the Style drop-down list box and select a line style.

   - Click the down arrow in the Color drop-down list and select a color.

   After you select your border width, style, and color selections, you can see them in the Border Preview window in the Borders dialog box.

   **Note:** If the OFF option is selected in the Width drop-down list, no borders will be shown.

5. Click OK.

To apply a border to another object area:

1. Right-click the object area and click Options.
   The Properties dialog box opens at the Style tab.
2. Click the Select Borders button.
   The Borders dialog box opens.

3. By default, the Make All Borders The Same option is selected.
   To specify border settings for the top, bottom, left, and right borders, select the Make All Borders the Same check box to turn off that option.

4. Make your border selections:
   - Click the down arrow in the Width drop-down list box and select:
     - OFF to turn borders off. This is the default.
     - LIGHT to apply thin border lines.
     - MEDIUM to apply medium border lines.
     - HEAVY to apply thick border lines.
   - Click the down arrow in the Style drop-down list box and select a line style.
   - Click the down arrow in the Color drop-down list and select a color.

   After you select your border width, style, and color selections, you can see them in the Border Preview window in the Borders dialog box.

   **Note:** If the OFF option is selected in the Width drop-down list, no borders will be shown.

5. Click OK.

### Sizing a Grid Component With Respect to Its Container

You can use the following WebFOCUS StyleSheet setting to contain a grid component inside its container on an active dashboard. You must include this setting in the grid component (that is, in the TABLE FILE procedure for the report) inside an active dashboard that you create using COMPOUND syntax.

The StyleSheet syntax is:

```
ARREPORTSIZE={FLOWING|DIMENSION}
```

where:

**FLOWING**

Specifies that the size of the grid component (the active report) will dynamically change as needed and will override the size settings for the grid component. This is the default value.
**Note:** If values for DIMENSION are set in the TABLE FILE procedure for the report, the output formats, FLEX and APDF, will respect the size set by these values.

**DIMENSION**

Specifies that the dimensions (height and width) set for the grid component in the active dashboard will be respected. The size of the grid component will not change dynamically, but the grid will be contained inside the container when used in a COMPOUND active dashboard procedure. If the report does not fit inside the container, scroll bars will be added automatically around the report.

**Styling or Aligning an Individual Item in a Text String**

Inserting a spot marker in a text string in an object area enables you to separate the string into items that can be styled or aligned individually. You can insert a spot marker for this purpose in any object area.

**Procedure:** How to Style or Align an Individual Item in a Text String

1. Select *Show Markers* from the View menu to display spot markers.
2. Place the cursor in the position at which to insert a spot marker.
3. Right-click the object area and select *Insert Spotmarker* from the context menu.
   
   Report Painter inserts a spot marker to the right of the cursor. A spot marker looks like `<+0>`.
4. To style an individual item in a text string, highlight a portion of the text string in the object and use the Font toolbar to adjust the Font Name, Font Type, and Font Size.
5. For additional styling options, highlight the entire item, right-click, and select *Options* from the context menu.
   
   The Properties dialog box for the object opens at the Style tab, from which you can style the background color, font color, and so on.

   **Note:** You must use spot markers when changing the font color portions of text in a heading or footing. Spot markers denote the start and end of the text that is being modified.

6. To align an individual item in the text string, highlight the entire item, right-click and click *Alignment Grid*. Then right-click an area in the grid and select *Alignment Options*. Choose the desired alignment options. For more information about using the Alignment Grid, see *Aligning Fields and Text in Headings and Footings* on page 367.
**Example:** Separating Text Items For Individual Styling

In the following sample procedure, a spot marker is inserted in the page heading text to separate it into two items (Quantity Over and 400,000), which are then styled individually.

![Quantity Over <400,000]

In the following sample output, Quantity Over appears in bold, while 400,000 appears in bold italic.

![Quantity Over 400,000]

**Procedure:** How to Style an Individual Item in a Subheading or Subfooting

You may selectively style individual items in the subheading and subfooting object areas by using the Properties for Subheader (or SubFooter) dialog box. Style and Drill Down options, similar to the Field Properties dialog box, are available for subheadings and subfootings.

1. To add a subheading or subfooting to a report, select the sort field from the Report Painter window.
2. Do one of the following:
   - Click the SubHeading (or SubFooter) button on the Headings and Footings toolbar.
   - Click Subheading (or Subfooting) from the Insert menu.

A Subheading (or Subfooting) object area is added to the Report Painter window.

3. Position the cursor in the subheading (or subfooting) by clicking your left mouse button in the subheading (or subfooting) object area.
4. Type the subheading (or subfooting) text.
5. To embed field values in a subheading (or subfooting):
   
   a. Place the cursor in the subheading (or subfooting) where you want to embed the value.
   
   b. Double-click a field from the Fields list in the Object Inspector.
   
   The field is embedded in the subheading (or subfooting) object area.

6. To style an individual item in a subheading or subfooting, highlight the selected item, right-click and click Options from the context menu, as shown in the following image.

![Options Menu](image)

The Properties for Sub Header (or SubFooter) dialog box opens.
7. Use the Style, Drill Down, and Images tabs to style the individual portion of the subheading (or subfooting), as shown in the following image.

![Properties for Sub Header](image)

**Note:** If you are only using text in the subheading (or subfooting), you can format a portion of the text string by using the Font toolbar.

**Aligning Fields and Text in Headings and Footings**

The alignment grid aligns fields and text within report headings and footings with precision. You can align text and fields in all types of headings and footings (report heading/footing, page heading/footing, and subheading/subfooting).

Alignment grid is supported for reports in HTML, PDF, Excel 2000, and Excel 2007 output formats.
The alignment grid appears as a dotted grid line around each individual item in a heading or footing and shows how these items actually appear in your report output. Using the alignment grid and Alignment Properties, you can justify items, select item width, select decimal alignment, and add and remove items. Items refer to the cells in the grid.

The following image shows a portion of Report Painter with a report that has alignment grids in the Page Heading and Subheadings.

**Procedure: How to Align Items Using the Alignment Grid**

1. Click in the heading or footing where you want to add alignment.
2. Click Alignment Grid from the Properties menu. If you:
   - Have items (text or fields) in your heading or footing, a grid appears around each of the items in your heading or footing. Skip to Step 4.
   - Do not have items in your heading or footing, the Insert Alignment Grid dialog box opens.
3. Select the number of lines, the number of items per line, the default item width, and the justification or decimal alignment, and click OK.

  **Note:** You can change these properties at any time.
4. Right-click an item in the heading or footing and select from the alignment options. Options include Grid Options, Cell Options, Clear, Select All, Delete All, Insert, Delete, Alignment Properties, and Merge.

**Note:** For a complete description of alignment options, see *Alignment Grid Options* on page 372.

5. Right-click an item in the heading or footing and select *Alignment Properties*. You can set the following properties for each item in a heading or footing:

   - **Item width.** You can also adjust the item width by dragging the vertical cell wall with your mouse.
   - **Justification.**
   - **Decimal alignment.**

6. Click *OK*.

**Procedure:**  **How to Align an Embedded Field in a Heading or Footing**

To align an embedded field in a heading or a footing:

1. Double-click the embedded field in the page heading, page footing, subheading, or subfooting to highlight it.

2. Right-click the highlighted embedded field and select *Alignment Grid*.

   The alignment grid appears as a dotted grid line around each individual item in the heading or footing.

   **Note:** A tooltip appears when the mouse is hovered over the embedded value.

3. Click anywhere in the alignment grid and select *Alignment Properties* from the Properties menu.

   The Alignment Properties dialog box opens.

4. Style the embedded field with the alignment grid options. For more information, see *Alignment Grid Options* on page 372.

**Procedure:**  **How to Edit or Add Items in an Alignment Grid**

- To add or edit text in an existing item, double-click the item and type or style the text or field.
To add a field to an item, drag and drop the field from the Fields List or activate the item and double-click the field in the Fields List.

To edit the width and justification of items in a grid, right-click the item and select Alignment Properties. Adjust the properties and click OK.

Use the Undo and Redo buttons in Report Painter to undo and redo changes.

**Procedure:** How to Move or Copy Items in an Alignment Grid

You can move or copy an item using your mouse or keyboard.

**To move or copy an item using your mouse:**

1. Select the item(s) and place your mouse anywhere on the black border. The cursor changes to a four-way arrow.
2. Click and drag the items to move the selected items.
3. Hold down the Ctrl key and click and drag to copy the selected items.
4. Right-click and drag presents you with the option of moving, copying, or canceling.

**To move or copy an item using the keyboard:**

1. Select the item (you see a black border around the item or items when they are selected).
2. Copy selected items using the Ctrl+C (copy) and Ctrl+V (paste) keys on your keyboard.
3. Move items using the Ctrl+X (cut) and Ctrl+V (paste) keys on your keyboard.

**Note:** Only contiguous selections of items can be moved or copied.

**Procedure:** How to Delete Items From an Alignment Grid

To delete:

- Select the text or field and press the Delete key. Deleting text and fields in an item with the Delete key will not delete the item.
- An item or line, right-click the item or line and click Delete Item or Delete Line.
- The entire grid, right-click the grid or an item in the grid and select Delete All.
**Reference: Shortcut Keys for Alignment Grid**

The following shortcut keys are supported when using the Alignment Grid. The first column provides the action and the second column provides the key combination.

<table>
<thead>
<tr>
<th>Action</th>
<th>Key Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undo</td>
<td>Ctrl+Z</td>
</tr>
<tr>
<td>Redo</td>
<td>Ctrl+Y</td>
</tr>
<tr>
<td>Cut</td>
<td>Ctrl+X</td>
</tr>
<tr>
<td>Copy</td>
<td>Ctrl+C</td>
</tr>
<tr>
<td>Paste</td>
<td>Ctrl+V</td>
</tr>
<tr>
<td>Select All</td>
<td>Ctrl+A</td>
</tr>
</tbody>
</table>

**Reference: Usage Notes for Alignment Grid**

The following apply when using the alignment grid in Report Painter:

- Although the alignment grid is supported for reports in HTML, PDF, Excel 2000, and Excel 2007 output formats, Grid Options and Cell Options may vary, depending on the report output.

- If styling multiple items in an alignment grid:
  - Selecting multiple cells while applying styling options with the Report Painter toolbar applies only the styling you changed to the selected cells.
  - Selecting multiple cells while applying styling options with the Report Options dialog box applies the styling to all of the selected cells.
  - You cannot add a field to a group of text. Adding a field to a line automatically breaks the line and the field is added as its own item.
  - When you drop a field at the end of a line, a new item is created at the end of the line.
  - When a line becomes too wide to fit on the given page size (PDF), the line is truncated.
  - If embedding a field name from the Fields window of the Object Inspector in a heading or footing, a tooltip appears when the mouse is hovered over the embedded value in the alignment grid of the Report Painter window.
Reference: Alignment Grid Options

When the alignment grid is enabled in Report Painter, additional alignment grid options are accessible from the Properties menu or from the right-click context menu in Report Painter. The alignment grid options include Grid Options, Cell Options, Alignment Properties, and Merge options.

To enable the alignment grid, click Alignment Grid from the Properties menu or select Alignment Grid from the right-click context menu within a heading or footing. The alignment grid appears as a dotted grid line around each individual item in a heading or footing.

The following image shows the alignment grid options from the Properties menu in Report Painter.
The following image shows the same alignment grid options from the right-click context menu of a heading or footing.

![Image of alignment grid options]

The following alignment grid options are available:

**Grid Options**

Opens the Properties dialog box for the heading or footing at the Style tab.

*Note:* Although the alignment grid is supported for reports in HTML, PDF, Excel 2000, and Excel 2007 output formats, Grid Options may vary depending on the report output.

**Cell Options**

Opens the Properties dialog box for the heading or footing at the Style tab.

*Note:* Although the alignment grid is supported for reports in HTML and PDF output formats, Cell Options may vary depending on the report output.

**Clear**

Select from the Clear submenu to clear formats or contents for the item in the alignment grid.

- *Clear Formats* removes all formatting and styling for the item.
- *Clear Contents* deletes all text and fields within the item.
Aligning Fields and Text in Headings and Footings

**Select All**
Selects all items in the grid.

**Delete All**
Deletes all items and removes the alignment grid.

**Insert**
Select from the Insert submenu to insert items and lines in the alignment grid.

- *Insert Item to the Left* inserts a new item to the left of the current item.
- *Insert Item to the Right* inserts a new item to the right of the current item.
- *Insert Line Above* inserts a grid line above the current item, using the same format and number of items as the current line.
- *Insert Line Below* inserts a grid line below the current item, using the same format and number of items as the current line.

**Delete**
Select from the Delete submenu to delete items and lines in the alignment grid.

- *Delete Item* deletes the selected items.
- *Delete Line* deletes the entire line associated with the current item(s) selected.

**Alignment Properties**
Opens the Alignment Properties dialog box.
The following image shows the Alignment Properties dialog box with the default options.

![Alignment Properties dialog box](image)

**Item width**

Enter the width between the selected items. The default is one inch between items.

**Justification**

Select the justification for the alignment grid. Options are left, center, or right. Left is the default justification.

**Decimal alignment**

Decimal alignment specifies how far in from the right side of a column you want to place your decimal point. With this specification, you can locate the decimal point in the same position within a column, regardless of the number of decimal places displayed to its right. The measurement will be a portion of the width you have specified for this item.

**Note:** The Decimal alignment option is disabled when Justification is selected.

**Merge**

Merges selected horizontal items into one cell in the alignment grid.

**Alignment Grid**

Alignment grid shows or hides the grid.

**Reference:** Insert Alignment Grid Dialog Box

When the alignment grid is enabled from the Properties menu in Report Painter for an empty subheading or subfooting, the Insert Alignment Grid dialog box opens. To enable the alignment grid for an empty subheading or subfooting:
Click **Alignment Grid** from the Properties menu.

or

Click **Alignment Grid** from the right-click context menu within an empty heading or footing object.

The Insert Alignment Grid dialog box opens, as shown in the following image.

The Insert Alignment Grid dialog box options are:

**Align with Data**

The Align with Data option automatically aligns the alignment grid with the data columns in the report. This option is automatically selected for Excel 2000 and Excel 2007 output formats.

*Note:* For PDF and HTML output formats, selecting **Align with Data** disables the Number of items per line and Default item width options.

**Number of lines**

Enter the number of lines to be created for the alignment grid. The default is 3 lines.
Number of items per line

Enter the number of items, or cells, to be created for the alignment grid. The default is 4 items per line.

Default item width

Enter the default width between all cells. The default is one inch between items.

Default justification

Select the default justification for the alignment grid. Options are left, center, or right. Left is the default justification.

Decimal alignment

Decimal alignment specifies how far in from the right side of a column you want to place your decimal point. With this specification, you can locate the decimal point in the same position within a column, regardless of the number of decimal places displayed to its right. The measurement will be a portion of the width you have specified for this item.

Note: The Decimal alignment option is disabled when Default justification is selected.

- Click OK to close the Insert Alignment Grid dialog box.

The alignment grid appears as a dotted grid line within the heading or footing object. The additional alignment grid options are accessible from the Properties menu or from the right-click context menu of the heading or footing object in Report Painter.

Styling the Alignment Grid With Grid Options and Cell Options

When using a heading or footing in Report Painter and enabling the Alignment Grid, you can align your border settings to the headings and footings with Grid Options and Cell Options.

Alignment grid is supported for reports in HTML, PDF, Excel 2000, and Excel 2007 output formats and aligns fields, text, and borders within report headings and footings with precision. With Alignment Grid enabled, Grid Options and Cell Options provide further styling options for the alignment items. Items refer to the cells in the grid.

- Grid Options enable you to:
  - Align the heading and footing with data in the report.
  - Create borders for the entire alignment grid or for all cells within the grid.

- Cell Options enable you to:
  - Set borders for a selected cell in the alignment grid.
Span columns for the cell and set the align object options for the cell.

**Note:** You can align text, fields, and borders in all types of headings and footings (Report Heading and Footing, Page Heading and Footing, and Subheading and Subfooting).

**Procedure: How to Align the Heading and Footing With Data in a Report**

The Align with Data option automatically aligns the alignment grid with the data columns in a PDF or HTML report.

1. In Report Painter, create a PDF, HTML, Excel 2000, or Excel 2007 report containing a heading or footing, with text or fields, and click where you want to add alignment.

   **Note:** You can align text, fields, and borders in all types of headings and footings (Report Heading and Footing, Page Heading and Footing, and Subheading and Subfooting).

2. Click **Alignment Grid** from the Properties menu.

   **Note:** You can also select **Alignment Grid** from the right-click context menu within a heading or footing.

   The alignment grid appears as a dotted grid line around each individual item in a heading or footing and shows how these items actually appear in your report output.

3. Right-click an item in the heading or footing and select **Grid Options** from the context menu.

   The Properties dialog box opens for the heading or footing at the Style tab.

4. Select the **Align with Data** check box, as shown in the following image.
5. Click OK to close the Properties dialog box.

6. Run the report.
The following image shows a PDF report with a subheading for the *Product* column with Center Justify.

The following image shows the same PDF report with the *Align with Data* option enabled. Note how the subheading aligns with the data column.
**Procedure: How to Create Borders for the Entire Alignment Grid for a PDF Report**

To create borders for the entire alignment grid or for all the cells within the grid, enable the **Border all cells in the grid** option.

1. In Report Painter, create a report containing a heading or footing, with text or fields, and click where you want to add alignment.

   **Note:** You can align text, fields, and borders in all types of headings and footings (Report Heading and Footing, Page Heading and Footing, and Subheading and Subfooting).

2. Click **Alignment Grid** from the Properties menu.

   **Note:** You can also select **Alignment Grid** from the right-click context menu within a heading or footing.

   The alignment grid appears as a dotted grid line around each individual item in a heading or footing and shows how these items actually appear in your report output.

3. Right-click an item in the heading or footing and click **Grid Options** from the context menu.

   The Properties dialog box opens for the heading or footing at the Style tab.

4. Check **Align with Data**.

5. Click the **Select Borders** button.

   The Borders dialog box opens. By default, the Make all borders the same option is selected. Optionally, you may specify border settings for the top, bottom, left, and right borders, or keep the default settings.

6. Click the **Border all cells in the grid** check box.
Aligning Fields and Text in Headings and Footings

**Note:** This option is off by default, as shown in the following image.

This creates borders for the entire alignment grid. If *Make all borders the same* option is unchecked, the border options are applied only for the cells within the grid.

7. Optionally, select *Align borders with data* to automatically align the grid with the data columns in the PDF report. This option is off by default.

8. Click **OK** to close the Borders dialog box.

9. Click **OK** to close the Properties dialog box.


10. Run the report.
Procedure: How to Set Borders for a Selected Cell in the Alignment Grid for a PDF Report

You may set the border for a selected cell in the alignment grid with the Cell Options.

1. In Report Painter, create a PDF report containing a heading or footing, with text or fields, and click where you want to add alignment.

   **Note:** You can align text, fields, and borders in all types of headings and footings (Report Heading and Footing, Page Heading and Footing, and Subheading and Subfooting).

2. Select **Alignment Grid** from the Properties menu.

   **Note:** You can also select **Alignment Grid** from the right-click context menu within a heading or footing.

   The alignment grid appears as a dotted grid line around each individual item in a heading or footing and shows how these items actually appear in your report output.

3. Right-click an item in the heading or footing and select **Grid Options** from the context menu.

   The Properties dialog box opens for the heading or footing at the Style tab.

4. Check **Align with Data**.

5. Click **OK** to close the Properties dialog box.
6. Right-click the item in the heading or footing and select **Cell Options** from the context menu. The Properties dialog box opens for the heading or footing at the Style tab.

7. Click the **Select Borders** button.

   The Borders dialog box opens. By default, the **Make all borders the same** option is selected.

8. To specify border settings for the top, bottom, left, and right borders, click the **Make all borders the same** check box to turn off that option. Make your border selections:

   - Click the down arrow in the **Width** drop-down list box and select:
     - **OFF** to turn borders off.
     - **LIGHT** to apply thin border lines.
     - **MEDIUM** to apply medium border lines.
     - **HEAVY** to apply thick border lines.

   - Click the down arrow in the **Style** drop-down list box and select a line style.

   - Click the down arrow in the **Color** drop-down list and select a color.

   The following image shows the Borders dialog box for Cell Options for a PDF report.
9. Optionally, select *Align borders with data* to automatically align the cell with the data columns in the PDF report. This option is off by default.

10. Click OK to close the Borders dialog box.

    This creates borders for the selected cell in the alignment grid.

11. Click OK to close the Properties dialog box.

12. Run the report.

The following image shows a PDF report with a subheading for the *Product* column with border settings for the cell in the alignment grid.

---

**Procedure: How to Span Columns for the Cell in the Alignment Grid for a Report**

You may span columns and set the align object options for the selected cell in the alignment grid with the Cell Options. This option is available for a PDF or HTML report.

1. In Report Painter, create a PDF or HTML report containing a heading or footing, with text or fields, and click where you want to add alignment.

   **Note:** You can align text, fields, and borders in all types of headings and footings (Report Heading and Footing, Page Heading and Footing, and Subheading and Subfooting).

2. Select *Alignment Grid* from the Properties menu.
Note: You can also select Alignment Grid from the right-click context menu within a heading or footing.

The alignment grid appears as a dotted grid line around each individual item in a heading or footing and shows how these items actually appear in your report output.

3. Right-click an item in the heading or footing and select Cell Options from the context menu.

The Properties dialog box opens for the heading or footing at the Style tab.

4. Click the Span Columns button.

The Align Object dialog box opens.

5. To specify how many data columns the selected cell should span, enter the number of columns.

Note: The default cell spans one column.

6. Select the justification for the selected cell data.

Options are Left, Right, or Center. Left is the default justification for the span column cell data.
The following image shows the Align Object dialog box with the default selections for span column.

7. Click OK to close the Align Object dialog box.
8. Click OK to close the Properties dialog box.
9. Run the report.
Aligning Fields and Text in Headings and Footings

The following image shows a PDF report with a subheading for the *Product* column with the default span columns settings. The selected cell spans one column and is left-justified.

The following image shows the same PDF report with the align object options set to span three columns and is center-justified.
Aligning Decimals in a Multi-Line Heading or Footing

You can align decimal points when the data being displayed has varying numbers of decimal places. The ability to align heading content in a multi-line heading based on width and justification values has special benefit in reports that contain data with different numbers of decimal places. For example, if a figure is in dollars, it is formatted with a decimal point and two places for zeroes. If in Swiss Francs, it is formatted with a decimal place and four zeroes and if in Yen, the decimal is at the end with no zeroes. In addition, sometimes the currency does not vary, but the number of digits of decimal precision varies.

You can also use the Alignment Grid to align decimals in headings and footings with precision. For more information, see Aligning Fields and Text in Headings and Footings on page 367.

By aligning the decimal points in a vertical stack, you can more easily read and compare numbers.

The technique uses a width specification for the item that contains decimals, combined with a variation on standard left/right/center justification to achieve the proper decimal alignment. For more information, see Using Headings, Footings, Titles, and Labels in the Creating Reports With WebFOCUS Language manual.

**Procedure:** How to Align Decimals in a Heading or Footing

To determine the width of a heading or footing item:

1. Identify the maximum number of characters in a field. You can refer to the format specification in the Master File or in a command, such as a DEFINE to determine the number.
2. Right-click the embedded field in the page heading, page footing, subheading, or subfooting and select Alignment Grid.
   
The alignment grid appears as a dotted grid line around each individual item in the heading or footing.
3. Right-click the embedded field within the alignment grid and click Alignment Properties.
   
The Alignment Properties dialog box opens.
4. In the Item width field, enter the width between the selected items. This is the width of the maximum number of field characters you determined in step 1.
5. Specify the distance from the right end of the item for the Decimal Alignment.
   
Decimal alignment specifies how far in from the right side of a column you want to place your decimal point. With this specification, you can locate the decimal point in the same position within a column, regardless of the number of decimal places displayed to its right. The measurement will be a portion of the width you have specified for this item.
Defining a Conditional Report Style

Note: The Decimal alignment option is disabled when Justification is selected.

The measurement will be a portion of the width you have specified for this item. For more information, see Using Headings, Footings, Titles, and Labels in the Creating Reports With WebFOCUS Language manual.

6. Click OK to close the Alignment Properties dialog box.

Defining a Conditional Report Style

You can assign a conditional style to a report element. Conditional styling enables you to define conditions that determine when to apply particular fonts, point size, text style, foreground and background color, vertical or horizontal grids, and drill down procedures to your reports data when the report is run.

To apply conditional styling, first you define a global condition. Then, you apply that condition to a report element.

Example: Applying Conditional Styling to a Report

The following example highlights employee salaries in excess of $25,000.

<table>
<thead>
<tr>
<th>LAST_NAME</th>
<th>FIRST_NAME</th>
<th>SALARY</th>
<th>PCT_INC</th>
</tr>
</thead>
<tbody>
<tr>
<td>BANNING</td>
<td>JOHN</td>
<td>$29,700.00</td>
<td>.00</td>
</tr>
<tr>
<td>BLACKWOOD</td>
<td>ROSEMARIE</td>
<td>$21,780.00</td>
<td>.00</td>
</tr>
<tr>
<td>CROSS</td>
<td>BARBARA</td>
<td>$27,062.00</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$25,775.00</td>
<td>.00</td>
</tr>
<tr>
<td>IRVING</td>
<td>JOAN</td>
<td>$26,862.00</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$24,420.00</td>
<td>.00</td>
</tr>
<tr>
<td>ROMANS</td>
<td>ANTHONY</td>
<td>$21,120.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

You can also include variables that enable you to insert a new conditional value each time the report is run. If the next week you wanted to highlight all salaries that exceed $75,000, you would create a variable condition that prompts you for a number each time the report is run.
**Procedure:** How to Access the Edit Condition Dialog Box for a Column

Conditions are created, applied, and styled in the Edit Condition dialog box.

1. Right-click the column in the Report Painter window and click Options from the context menu.
   
The Field Properties dialog box opens.

2. From the Style tab, click the *Edit Conditions* button.
   
The Condition List dialog box opens.

3. Click *New*.
   
The Edit Condition dialog box opens.

**Procedure:** How to Access the Edit Condition Dialog Box for a Report

Conditions are created, applied, and styled in the Edit Condition dialog box.

1. Click *Styling* from the Report Menu.
   
The Report Options dialog box opens at the Style tab.

2. From the Style tab, click the *Edit Conditions* button.
   
The Condition List dialog box opens.

3. Click *New*.
4. The Edit Condition dialog box opens.

**Procedure:** How to Access the Edit Condition Dialog Box for an Object Area

1. Highlight an item (text or field) in an object area.
2. Right-click the item.
3. Click *Options* from the context menu.
4. From the Style tab, click the *Edit Conditions* button.
   
The Condition List dialog box opens.
5. Click *New*. 
Procedure: How to Create a Global Condition for a Report

A global condition applies to any component in a report if you choose to apply a condition. After a condition is defined, you can apply the condition to any object.

Note: You can assign styling after the condition is met. See How to Associate a Style With a Condition in an Object Area on page 400, How to Associate a Style With a Condition for a Column on page 400, or How to Associate a Style With a Condition for a Report on page 400.

Before you begin, review How to Access the Edit Condition Dialog Box for a Report on page 391.

1. Click Styling from the Report Menu. The Report Options dialog box opens at the Style tab.
2. From the Style tab, click the Edit Conditions button.

   The Condition List dialog box opens.
3. Click New.

   The Edit Condition dialog box opens.
4. Type a name for the condition or accept the default.
5. Select the field for which you want to define a condition from the Field box.
6. Select a relation from the Relations list.
7. Specify a value by doing one of the following:
   - Type a literal value in the Value box.
   - Click the Values button to display existing database values and select a value.
   - Click Another Field to display other fields in the report and select a field.
8. Click OK.

   The condition is now added to the Condition List in the Condition List dialog box, from which it can be applied to one or more columns or to an object area.

Note: To create another condition, repeat steps 4 to 10.
9. Click OK again to return to the Style tab on the Report Options dialog box.

   The default condition name (for example, COND0001) appears in the Applying to Condition field box.

   The condition you created appears in the Condition Rule box.

You can apply styling to the condition after it is met. See *How to Associate a Style With a Condition in an Object Area* on page 400, *How to Associate a Style With a Condition for a Column* on page 400, or *How to Associate a Style With a Condition for a Report* on page 400.

For related information about conditional styling of data visualization bar graphs, see *Visualizing Trends in Reports* on page 407.

**Reference:** **Condition List Dialog Box**

The Condition List dialog box has the following fields or options:

**Condition**

Lists conditions applied or available to be applied to the selected object or report.

**New**

Enables you to create a condition in the *Edit Condition Dialog Box* on page 393.

**Delete**

Deletes the selected conditions from the selected object. Select a condition from the Condition list box and press the Delete button.

**Edit**

Edits the criteria for the selected condition. The Edit Condition dialog box opens. For more information, see the *Edit Condition Dialog Box* on page 393.

**Reference:** **Edit Condition Dialog Box**

The Edit Condition dialog box has the following fields or options:

**Condition**

Displays the name of the condition being created or edited. To change the default name (for example, COND0001), highlight the text and type a new name.

**Field**

Displays a list of the columns that appear in the report.
Defining a Conditional Report Style

**Relation**
Displays a list of possible relationships between the selected report column and either a literal value or another field that it will be compared to.

**Value**
Specifies a literal value or other field to which the selected field is being compared in the When statement. The available choices depend on the option button selected under Compare Type.

**Compare Type**
Chooses the type of comparison to make to the field selected in the Field section. Select:
- **Value** to compare the selected field to a literal value. Press the **Value** button for a list of data records.
- **Another Field** to compare the selected field to another field in the data source.

**Example:** Viewing a Condition in the Condition List Dialog Box
The following image shows the Condition List dialog box displays the condition COND0001: Salary is greater than or equal to $30,000.00:

![Condition List dialog box](image)

**Example:** Creating a Report With Conditional Styling

**Tip:** For an example of conditional styling with data visualization bar graphs, see *Visualizing Trends in Reports* on page 407.
Suppose that you want to highlight certain values in a report. The following example shows how to create a report that highlights Gotham Grinds vendors who have ordered 300 or more units.

1. Open the GGORDER data source in Report Painter.
2. Double-click or drag VENDOR_NAME, PRODUCT_DESCRIPTION, and QUANTITY from the Fields tab of the Object Inspector into Report Painter.
3. Open the Edit Condition dialog box to create a condition for Ordered Units:
   a. Right-click Ordered Units in the Report Painter window and select Options from the context menu to open the Field Properties dialog box.
   b. From the Style tab, click the Edit Conditions button to open the Condition List dialog box.
   c. Click New to open the Edit Condition dialog box.
4. Create a condition and name it ordgt300.
   a. Type ordgt300 in the Condition box.
   b. Click QUANTITY from the Field list.
   c. Click Is greater than or equal to from the Relations list.
   d. Click the Values button and select 300 from the Value window.
   e. Click OK to return to the Condition List dialog box with the defined condition displayed.
   f. Click OK to return to the Style tab.
5. Add a font style to the condition.
   a. Click ordgt300 in the Applying to Condition list box to apply the styling options to this condition.
   b. In the Graphical area of the Style tab, click the Select Font button to open the Font dialog box.
   c. Click Bold from the Font Style list and select the Underline check box.
   d. Click OK to return to the Style tab.
6. Add a background color.
   a. In the Graphical area of the Style tab, go to the Background Coloring area and click the Single Color option button and then the Select Colors button.
   b. Select the color yellow in the Color dialog box. The styles you have applied appear in the Sample area.
   c. Click OK to return to the Report Painter window.
7. Run the report by clicking the Run button on the toolbar.

The report appears in the browser, as shown in the following image.

<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Product</th>
<th>Ordered Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee Connection</td>
<td>Hazelnut</td>
<td>300</td>
</tr>
<tr>
<td>Coffee Connection</td>
<td>Hazelnut</td>
<td>117</td>
</tr>
<tr>
<td>European Specialities</td>
<td>French Roast</td>
<td>126</td>
</tr>
<tr>
<td>European Specialities</td>
<td>French Roast</td>
<td>86</td>
</tr>
<tr>
<td>European Specialities</td>
<td>French Roast</td>
<td>49</td>
</tr>
<tr>
<td>NY Ceramic Supply</td>
<td>Mug</td>
<td>289</td>
</tr>
<tr>
<td>NY Ceramic Supply</td>
<td>Mug</td>
<td>231</td>
</tr>
<tr>
<td>ThermoTech, Inc</td>
<td>Thermos</td>
<td>347</td>
</tr>
<tr>
<td>Appliance Craft</td>
<td>Coffee Grinder</td>
<td>265</td>
</tr>
<tr>
<td>Appliance Craft</td>
<td>Coffee Pot</td>
<td>309</td>
</tr>
<tr>
<td>Ridgewood Bakeries</td>
<td>Scone</td>
<td>37</td>
</tr>
<tr>
<td>Ridgewood Bakeries</td>
<td>Scone</td>
<td>325</td>
</tr>
<tr>
<td>Delancey Bakeries</td>
<td>Biscotti</td>
<td>399</td>
</tr>
<tr>
<td>West Side Bakers</td>
<td>Croissant</td>
<td>93</td>
</tr>
<tr>
<td>West Side Bakers</td>
<td>Croissant</td>
<td>433</td>
</tr>
</tbody>
</table>

**Example: Creating a Condition With Variable Values**

Suppose you want a report that conditionally highlights values. The following example shows how to create a report of the total number of orders for each Gotham Grinds store and highlight those orders placed on a specific day.

1. Open the GGORDER data source in Report Painter.

2. Identify your report columns.

   a. Identify your sort columns. Click By on the Report Painter toolbar. Double-click or drag VENDOR_NAME, ORDER_DATE, and STORE_CODE from the Fields tab in the Object Inspector.

   b. Identify your detail column. Move the insertion point after the Store Code column. Click Detail on the Report Painter toolbar. Double-click or drag the QUANTITY from the Fields tab of the Object Inspector.
3. Add a page heading.
   a. Position the cursor in the page heading by clicking your left mouse button in the heading area and type the following in the heading area:
      
      Information On Orders Placed On = &date.
   b. Press the Enter key to bring your cursor to the next line.

4. Open the Edit Condition dialog box to create a condition for Vendor Name, Order Date, Store Code, and Ordered Units.
   a. Choose Styling from the Report menu.
   b. Select Data from the active object drop-down list.
   c. Click Edit Conditions and then click New on the Edit Condition dialog box to create a new condition.

5. Create a condition and name it rundate.
   a. Type rundate in the Condition box.
   b. Click ORDER_DATE from the Field list.
   c. Select Is equal to from the Relations list.
   d. Type the variable &date in the Value box.
   e. Click OK to return to the Condition List dialog box.
   f. Click OK to return to the Style tab on the Report Options dialog box.

6. Add a background color.
   a. In the Graphical area of the Style tab, go to the Background Color group box and click the Single Color option button and then the Select Colors button.
   b. Select the color Gray-25% in the Color dialog box.
   c. Click OK to return to Report Painter.
7. Click Run on the toolbar to run the report. You are prompted for a date.

1. Specify values for all parameters.
2. Select the run button to submit the request.
8. Type 01/01/96 and press Enter to run the WebFOCUS query, as shown in the following image.

<table>
<thead>
<tr>
<th>Vendor Name</th>
<th>Order Date</th>
<th>Store Code</th>
<th>Ordered Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliance Craft</td>
<td>01/01/96</td>
<td>R1019</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>309</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1020</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1040</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1041</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1044</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>303</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1088</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>246</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1100</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>217</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1109</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>285</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1200</td>
<td>315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>331</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1244</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>122</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1248</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>258</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1250</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>02/01/96</td>
<td>R1019</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R1020</td>
<td>380</td>
</tr>
</tbody>
</table>

**Associating a Style With a Condition**

The following procedures provide information on how to associate style with a condition.
**Procedure: How to Associate a Style With a Condition in an Object Area**

Before you begin, review *How to Access the Edit Condition Dialog Box for a Column* on page 391.

1. Select a defined condition from the Applying to Condition box.
2. Choose one or a combination of the following:
   - Click the Select Font button to specify conditions, such as font, font style and size, color and effects.
   - Click the Background button to select a background color.
   - Click the Select Grid button to select a line style (for PDF output formats only).
   - Click the Drill down tab to embed a procedure. For more information on drill down, see *Creating a Drill Down Procedure* on page 251.
3. Click OK. The style is associated with the condition and you return to the Report Painter window.

**Procedure: How to Associate a Style With a Condition for a Column**

Before you begin, review *How to Access the Edit Condition Dialog Box for a Column* on page 391.

1. Select a defined condition from the Applying to Condition dialog box in the Style tab.
2. In the Graphical area of the Style tab, choose one or a combination of the following:
   - Click the Select Font button to specify conditions, such as font, font style and size, color and effects.
   - Click the Select Grid button to select a line style (for PDF output formats only).
   - Click the Select Borders button to select a line style.
   - In the Background Coloring area, click the Single Color option button to select a background color.
3. Click OK. The style is associated with the condition and you return to the Report Painter window.

**Procedure: How to Associate a Style With a Condition for a Report**

Before you begin, review *How to Access the Edit Condition Dialog Box for a Report* on page 391.

1. Select a defined condition from the Applying to Condition dialog box in the Style tab.
2. In the Graphical area of the Style tab, choose one or a combination of the following:
Click the Select Font button to specify conditions, such as font, font style and size, color and effects.

Click the Select Borders button to select border styles.

Click the Select Grid button to select a line style.

Click the Visualize button if you want to select conditional styling criteria for data visualization bar graphs. For more information, see Visualizing Trends in Reports on page 407.

In the Background Coloring area, click the Single Color option button and then the Select Colors button to select a background color.

3. Click OK. The style is associated with the condition and you return to the Report Painter window.

**Procedure: How to Clear Associated Styling for a Column**

Before you begin, review How to Access the Edit Condition Dialog Box for a Column on page 391.

1. Select a defined condition from the Applying to Condition dialog box in the Style tab.
2. Click the Clear Associated Styling button.

**Note:** If you change your mind and want to keep the conditional styling, click Cancel on the Style tab. The condition will appear in the Applying to Condition dialog box the next time you access Field Properties dialog box.

**Procedure: How to Clear Associated Styling for a Report**

Before you begin, review How to Access the Edit Condition Dialog Box for a Report on page 391.

1. Select a defined condition from the Applying to Condition dialog box in the Style tab.
2. Click the Clear Associated Styling button.

**Note:** If you change your mind and want to keep the conditional styling, click Cancel on the Style tab. The condition will appear in the Applying to Condition dialog box the next time you access the Report Options dialog box.

**Editing Conditions**

The following procedures provide information on how to edit conditions.
Before you begin, review *How to Access the Edit Condition Dialog Box for a Column* on page 391 or *How to Access the Edit Condition Dialog Box for a Report* on page 391.

**Procedure: How to Edit a Condition**

1. Select a condition from the *Applying to Condition* field box on the Style tab of the Report Options dialog box.
2. Click the *Edit Conditions* button.
   
   The Condition List dialog box opens.
3. Click the *Edit* button or double-click the selected condition.
   
   The Edit Condition dialog box opens.
4. Select a field name from the Fields window.
5. Select a relation from the Relations list box.
6. Specify the value by choosing one of the following:
   - Type a literal value in the Value box.
   - Click the *Values* button to display existing database values and select a value.
   - Click *Another Field* to display other fields in the report and select a field.
7. Click *OK* to return to the Conditional List dialog box.
8. Click *OK* again to return to the Style tab in the Report Options dialog box.

**Note:** After a condition is changed, all objects that the condition is applied to will be affected.

**Procedure: How to Add a Condition to a Column**

1. Right-click the column in the Report Painter window and click *Options* from the context menu.
   
   The Field Properties dialog box opens.
2. Select a condition from the *Applying to Condition* field box.
3. Click the *Edit Conditions* button.
   
   The Condition List dialog box opens, displaying conditions for the column or object.
4. Select a condition from the Condition list box or create a new condition.
5. Click OK.

**Note:**
- A condition determines the rule for conditional styling, but not the style. Therefore, you must define the style.
- A plus sign (+) appears next to an applied condition that also has styling associated to it in the Applying to Condition field box.

**Procedure: How to Add a Condition to a Report**

1. Click *Styling* from the Report Menu. The Report Options dialog box opens at the Style tab.
2. Select a condition from the Applying to Condition field box on the Style tab of the Report Options dialog box.
3. Click the *Edit Conditions* button.
   The Condition List dialog box opens, displaying conditions for the column or object.
4. Select a condition from the Condition list.
5. Click OK.

**Note:**
- A condition determines the rule for conditional styling, but not the style. Therefore, you must define the style.
- A plus sign (+) appears next to an applied condition that also has styling associated to it in the Applying to Condition field box.

**Procedure: How to Add a Condition to an Object Area**

Before you begin, review *How to Access the Edit Condition Dialog Box for a Column* on page 391.

1. Select the object area.
2. Highlight the item you want to style, then right-click and click *Grid Options* or *Cell Options*.
   The Properties dialog box opens, displaying conditions for the column or object.
3. Select a condition from the Condition list or create a new condition.
4. Click OK.

**Note:** A condition determines the rule for conditional styling, but not the style. Therefore, you must define the style.

**Procedure:** How to Rearrange the Order of Conditions Applied in a Column

1. Right-click the column in the Report Painter window and click *Options* from the context menu. The Field Properties dialog box opens.
2. Select a condition from the Applying to Condition field box on the Style tab of the Report Options dialog box.
3. Click the *Move Condition Up* or *Move Condition Down* button.

**Note:** Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

**Procedure:** How to Rearrange the Order of Conditions Applied in a Report

1. Click *Styling* from the Report Menu. The Report Options dialog box opens at the Style tab.
2. Select a condition from the Applying to Condition field box on the Style tab of the Report Options dialog box.
3. Click the *Move Condition Up* or *Move Condition Down* button.

**Note:** Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

**Procedure:** How to Rearrange the Order of Conditions Applied in an Object Area

Before you begin, review *How to Access the Edit Condition Dialog Box for an Object Area* on page 391.

1. Open the Properties dialog box for the selected object area by right-clicking the object area and selecting *Grid Options* or *Cell Options*.
2. Select a condition from the *Applying to Condition* box, then click the *Move Condition Up* or *Move Condition Down* button.
Note: Order is significant because conditions are applied in the order listed. For example, if the first and last conditions are both true, the style in the last condition will override the style in the first.

Procedure: How to Delete a Condition From a Column

1. Right-click the column in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens.
2. Select a condition from the Applying to Condition field box on the Style tab of the Field Properties dialog box.
3. Click the Edit Conditions button. The Condition List dialog box opens.
4. Select a condition from the Condition list.
5. Click Delete. (If the condition is in use and you still want to delete it, click Yes when you are prompted.)
6. Click OK. You return to the Style tab on the Field Properties dialog box.

Note: These steps remove the condition from the selected object only. It does not delete the condition. The condition is still available to be added to other objects in the report.

Procedure: How to Delete a Condition From a Report

1. Click Styling from the Report Menu. The Report Options dialog box opens at the Style tab.
2. Select a condition from the Applying to Condition field box on the Style tab of the Field Properties dialog box.
3. Click the Edit Conditions button. The Condition List dialog box opens.
4. Select a condition from the Condition list.
5. Click Delete. (If the condition is in use and you still want to delete it, click Yes when you are prompted.)
6. Click OK. You return to the Style tab on the Field Properties dialog box.

Note: These steps remove the condition from the selected object only. It does not delete the condition. The condition is still available to be added to other objects in the report.
**Procedure:** How to Remove a Condition From an Object Area

Before you begin, review *How to Access the Edit Condition Dialog Box for an Object Area* on page 391.

1. Right-click the object area, then open the Edit Conditions dialog box.
2. Select a condition.
3. Click the *Delete* button.
4. Click *OK*.

**Note:** These steps remove the condition from the selected object only. It does not delete the condition. The condition is still available to be added to other objects in the report.

**Procedure:** How to Copy a Condition From One Column to Another

You can copy a condition from one column to another.

1. Select the column(s) that you want to apply styling to by simultaneously clicking your mouse and pressing the Shift key.
2. Select the column that contains the styling you want to apply and keep the Shift key pressed as you click it.
3. Click the *Match Conditional Styling* option from the Match All Styles drop-down list, and then select the column(s) you want to apply the formatting to.

To copy all formatting characteristics (including font, grid, background color, and conditional styling) from one column to another, click the *Match All Styles* option.

**Procedure:** How to Conditionally Execute a Drill Down Procedure

1. Right-click the column in the Report Painter window and click Options from the context menu. The Field Properties dialog box opens.
2. Click the *Drill Down* tab.
3. Click the *Edit Conditions* button. The Condition List dialog box opens.
4. Click *New*. The Edit Condition dialog box opens.
5. Select a condition from the Condition list box or create a new condition.
6. Click OK to return to the Drill Down tab.
7. Click OK to close the Field Properties dialog box and return to Report Painter.

**Visualizing Trends in Reports**

To make your HTML, PDF, and PostScript reports more powerful, you can insert visual representations of selected data directly into the report output. These visual representations are in the form of vertical or horizontal bar graphs that make relationships and trends among data more obvious.

**Associating Bar Graphs With Columns**

You can apply data visualization bar graphs to columns in a report from Report Painter, and define triggering conditions that determine when those bar graphs will be displayed and how they will look.

**Procedure: How to Apply Data Visualization Bar Graphs to a Column**

1. Open the report in Report Painter.
2. Right-click a column containing numeric data and select Visualize to open the Data Visualization dialog box.
3. Click Visualize to activate the option and invoke the bar graph when you subsequently run the report.
4. Click the drop-down box to choose a color for the bar graphs, or accept the default (black). The color you select will be applied to all bar graphs.
5. Accept the defaults for maximum length and for the width of the bar graphs, or set a custom measurement. For more information about defaults and customization options, see Data Visualization Dialog Box on page 409.

**Tip:** If you set custom measurements or color and then decide you want the default values, you can reset them by clicking the Default Values button. If you wish to apply different colors to bar graphs to reflect different conditions, click the Conditional Styling button and click New to open the Edit Condition dialog box.

6. If you are not defining conditions for data visualization bar graphs, click OK to close the Data Visualization dialog box and accept your selections.
7. Click Run.

The report opens in the browser with bar graphs inserted.
Tip: To remove data visualization bar graphs from your report, turn off the check box next to Visualize in the Data Visualization dialog box.

Example: Defining Conditions for Data Visualization Bar Graphs

You can assign a style (color) to data visualization bar graphs based on conditional statements you define. In this example, you use the DIFFERENCE column to highlight those bar graphs showing gains of $100,000 or more.

1. From the Explorer, create a procedure, then open the Define tool from the component connector toolbar.

2. Choose the GGSALES data source in the Open dialog box and click Open.

3. Name the virtual field DIFFERENCE, then click the Format button to open the Format dialog box. Accept the default format, D12.2, and click Floating dollar–M in the Edit Options box. Click OK to close the Format dialog box and return to the Define tool.

4. In the Fields List tab, double-click DOLLARS, click the minus sign (−) on the calculator, and double-click BUDDOLLARS to complete the expression.

5. Click Check to make the virtual field active, then close the Define tool and update the procedure.

6. Open Report Painter from the component connector toolbar, again choosing GGSALES as the data source in the Open dialog box.

7. Add the following columns from the Object Inspector Fields tab: CITY, BUDDOLLARS, DOLLARS, DIFFERENCE.

8. Highlight the City column and click the By button. Highlight BUDDOLLARS and click the Sum button. Notice that DOLLARS and DIFFERENCE also become Sum columns.

9. Right-click the DIFFERENCE column in Report Painter and select Visualize. The Data Visualization Conditional Styling dialog box opens.

10. Select the Visualize check box.

11. Click the Conditional Styling button. The Data Visualization Conditional Styling dialog box opens.

12. Click New to create a condition. The Edit Condition dialog box opens.

13. Select the DIFFERENCE field from the Field list.

14. Click Is greater than or equal to from the Relation list box.

15. Type the value 100000 in the Value box and click OK.

Your edited condition is added to the Condition list in the Condition List dialog box.
16. Click OK in the Condition List dialog box.

The new condition is added to the Condition list in the Data Visualization Conditional Styling dialog box.

17. Highlight the condition, select Lime from the Color list box, and click OK.

18. Click OK to close the Data Visualization dialog box.


When you run the report, your new condition takes effect, showing where the sales budget was exceeded by $100,000 or greater as a lime green bar graph, as shown in the following image. (If your report is in black and white, the lime green color appears as a lighter shade of gray.)

<table>
<thead>
<tr>
<th>City</th>
<th>Budget Dollars</th>
<th>Dollar Sales</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>$4,247,597.00</td>
<td>$4,100,107.00</td>
<td>-$147,490.00</td>
</tr>
<tr>
<td>Boston</td>
<td>$3,818,397.00</td>
<td>$3,707,986.00</td>
<td>-$110,411.00</td>
</tr>
<tr>
<td>Chicago</td>
<td>$3,866,856.00</td>
<td>$3,924,401.00</td>
<td>$57,545.00</td>
</tr>
<tr>
<td>Houston</td>
<td>$3,680,679.00</td>
<td>$3,714,978.00</td>
<td>$34,299.00</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>$3,669,484.00</td>
<td>$3,772,014.00</td>
<td>$102,530.00</td>
</tr>
<tr>
<td>Memphis</td>
<td>$3,689,979.00</td>
<td>$3,687,057.00</td>
<td>-$2,922.00</td>
</tr>
<tr>
<td>New Haven</td>
<td>$3,832,202.00</td>
<td>$3,782,049.00</td>
<td>-$50,153.00</td>
</tr>
<tr>
<td>New York</td>
<td>$3,926,333.00</td>
<td>$3,902,275.00</td>
<td>-$24,058.00</td>
</tr>
<tr>
<td>Orlando</td>
<td>$3,870,405.00</td>
<td>$3,923,215.00</td>
<td>$52,810.00</td>
</tr>
<tr>
<td>San Francisco</td>
<td>$3,916,863.00</td>
<td>$3,870,258.00</td>
<td>-$46,605.00</td>
</tr>
<tr>
<td>Seattle</td>
<td>$4,055,166.00</td>
<td>$4,010,685.00</td>
<td>-$44,481.00</td>
</tr>
<tr>
<td>St. Louis</td>
<td>$3,646,838.00</td>
<td>$3,761,286.00</td>
<td>$114,448.00</td>
</tr>
</tbody>
</table>

**Reference:** Data Visualization Dialog Box

You use the dialog box shown in the following image to define the data visualization bar graphs that appear in your report.
If you are setting conditions to control the display of bar graphs, you use the Data Visualization Conditional Styling dialog box instead of this one, as shown in the following image.

The Data Visualization dialog box contains the following fields or options:

**Visualize**
- Initiates the Data Visualization feature.

**Color**
- Specifies the color of the bar graphs. Select a color from the drop-down list. Black is used as the default color.
- The color option is the default for HTML, PDF, and PS formats.

**Pattern**
- Specifies the shading patterns for bar graphs. Select a shading pattern from the drop-down list.
- This option is only available for PDF and PS formats to make graphs in black and white reports more readable. If the report format is HTML, the Pattern option button is inactive because the shading option is only available for PDF and PS formats.
Graphlook

Specifies how the graph looks. Select a look from the drop-down list.

**Note:** Graphlook Gauge or Quality do not support negative values. Use Bar Graphs instead.

Scale

Specifies the relative bar graph scaling for multiple report columns under a common Across sort field to which you have applied data visualization.

**Note:** This option only appears when applied to the entire report.

Choose one of the following options from the Scale drop-down list:

**Uniform**

Specifies that each vertical bar graph be scaled based on the minimum and maximum values of the entire set of values compiled from each Across column to which you have applied data visualization bar graphs.

**Distinct**

Specifies that each vertical bar graph be scaled based on the distinct minimum and maximum values for each Across column to which you have applied data visualization bar graphs.

**Maximum Length:**

Specifies the length of the longest bar graph.

**Default.** The default length of 60 pixels is used for a vertical bar graph and 80 pixels for a horizontal bar graph.

**Custom.** Sets the value for displaying the vertical or horizontal bar graph for the maximum data value in the associated report column. This value must be a positive number.

This value is initially expressed in the current windows measurement units (inches, centimeters), then converted into the corresponding number of pixels.

**Width:**

Specifies the width of the bar graphs in a report.

**Default.** This value is preset based on the current font size.

**Custom.** Sets the value for displaying the width of the bar graphs in a report. This value must be a positive number.
This value is initially expressed in the current windows measurement units (inches, centimeters), then converted into the corresponding number of pixels.

**Default Values button**

Resets all defaults.

**Conditional Styling button**

Opens the Data Visualization Conditional Styling dialog box where you can define conditions and colors for bar graphs.

**Reference:** Data Visualization Conditional Styling Dialog Box

The following image shows the Data Visualization Conditional Styling dialog box, which you use to define the colors of bar graphs based on conditions you define.

**New**

Opens the Edit Condition dialog box. For instructions on how to define conditions, see Defining a Conditional Report Style on page 390.
**Note:** In Report Painter, when viewing conditions from the Data Visualization Conditional Styling dialog box, any existing conditions for the report components are not visible. The Data Visualization Conditional Styling dialog box only shows conditions for the data visualization.

**Color**

Specifies the colors of the bar graphs. Select a color from the drop down list. Black is used as the default color. You can select as many colors as you need to show different conditions.

**Pattern**

Specifies the shading patterns for bar graphs. Select a shading pattern from the drop-down list.

This option is only available for PDF and PS formats to make graphs in black and white reports more readable. If the report format is HTML, the Pattern option button is inactive because the shading option is only available for PDF and PS formats.

**Graphlook**

Specifies how the graph looks. Select a look from the drop-down list.

**Maximum Length:**

Specifies the length of the longest bar graph.

**Default**

The default length of 60 pixels is used for a vertical bar graph and 80 pixels for a horizontal bar graph.

**Custom**

Sets the value for displaying the vertical or horizontal bar graph for the maximum data value in the associated report column. This value must be a positive number.

This value is initially expressed in the current Windows measurement units (inches, centimeters), then converted into the corresponding number of pixels.

**Width:**

Specifies the width of the bar graphs in a report.

**Default**

This value is preset based on the current font size.
Custom

Sets the value for displaying the width of the bar graphs in a report. This value must be a positive number.

This value is initially expressed in the current Windows measurement units (inches, centimeters), then converted into the corresponding number of pixels.

Default Values button

Resets all defaults.

Adding an Image

You can add graphical elements, such as a corporate logo or a graph, and background patterns, such as a watermark, to your reports. You can place graphic report images on every page, and within the headings and footings of a report.

The image must exist as a separate graphic image file in the following formats for use in a report:

- For Bitmap files (.BMP), GIF files (.GIF), JPEG files (.JPEG), JPG files (.JPG), Enhanced Metafiles (.EMF), and Windows Metafiles (.WMF), Scalable Vector Graphics (.SVG).
- For HTML reports, GIF (.GIF) or JPG (.JPG).
- For PDF (or PS) and PPT reports, GIF (.GIF).

Tip: Since GIF images are supported in all report formats, using GIF images ensures that your images appear whether you display your report as HTML or PDF.

You can insert individual images in a report or reference a report field to use as the file name for the image. When referencing a report field, you must have a field in the data source whose values identify the image file names.

In both cases, the image file must be in the application path(s) or you must include the image files fully qualified path. Images used in HTML reports must reside on the web server. Images used in PDF (or PS) reports must reside on the WebFOCUS Reporting Server. You can specify a local file or identify an image elsewhere on the network using a URL.

You can also:

- Specify the position of an image in relation to the object area in which it is embedded.
- Specify its height and width (scale).
- Adjust its location in the report.
- Update the image to the latest available version.
How to Include a Single Image in a Report

1. Click **Images** from the Report menu or click the **Options** button from the Output Format toolbar and select the **Images** tab.

   The Report Options dialog box opens at the Images tab.

2. Click **File Name** and type the path of the image in the entry field. This is the default image source option.

   or

   Click **Browse** to select the image file from the Open dialog box.

3. Click **Add** to add the selected image to the list.

   The image file and its path appear in the list box.

How to Include Image(s) When the Field Record Value Is a Graphic File

1. Click **Images** from the Report menu or click the **Options** button from the Output Format toolbar and select the **Images** tab.

   The Report Options dialog box opens at the Images tab.

2. Click **Field Value** as the image source.

3. Choose a field from the drop-down box.

4. Click **Add** to add the selected field to the list.

   The field name appears in the list box.

How to Include a Graph Image

1. Click **Images** from the Report menu or click the **Options** button from the Output Format toolbar and select the **Images** tab.

   The Report Options dialog box opens at the Images tab.
Adding an Image

2. Click **Graph** as the Image Source box and type the path of the image in the entry field.

   or

   Click **Browse** to select the graph file from the Open dialog box.

   **Note:** A graph image source file is available if there is a graph file saved as an image for the procedure.

3. Click **Add** to add the graph image to the list.

   The graph file and its path appear in the list box.

**Procedure: How to Create a Pop-Up Description for an Image**

The pop-up description option enables you to provide alternative information about the image in the output, when the mouse is hovered over the image.

1. In Report Painter, click **Images** from the Report menu.

   The Report Options dialog box opens at the Images tab.

2. Select the Image Source for the image.

   The selected image source appears in the list box.

3. Type a description for the image in the **Pop-up description** field.

4. Click **Add** to add the image source and set any additional image properties.

5. Click **OK** to close the Report Options dialog box and run the report.

   When you hover the mouse over the image in the output, the pop-up description appears.

**Procedure: How to Edit the Pop-Up Description for an Image**

You may edit the pop-up description for an image through the Report Options Images tab, or with the Image Properties dialog box.

- Click **Images** from the Report menu to open the Report Options dialog box and edit the text in the pop-up description field.

- Click the **Images** tab of the Object Inspector and double-click the image to open the Image Properties dialog box. Edit the text in the pop-up description field.
**Procedure: How to Specify the Position of an Image**

1. Click *Images* from the Report menu or click the *Options* button from the Output Format toolbar and select the *Images* tab.
   
   The Report Options dialog box opens at the Images tab.

2. Select the image from the List tab.

3. Enter the desired (X,Y) coordinates in the Position fields.
   
   The position of the image is in relation to the report object in which the image is embedded (for example, Page Footer).

or

1. Click the *Images* tab located at the bottom of Report Painter.

2. Double-click the image to open the Image Properties dialog box.

3. Enter the desired (X,Y) coordinates in the Position fields.

   **Note:** Since Report Painter uses internal Cascading Style Sheets (CSS) to position images in HTML reports, ensure that Cascading Style Sheets is selected from the Features tab in the Report Options dialog box. However, this ability to position the image through CSS does not allow you to insert a line break after the image. If you want to insert a line break after an image, you must turn off the Cascading Style Sheets option. You can turn off the CSS option from the Features tab in the Report Options dialog box.

**Procedure: How to Scale the Size of an Image**

1. Click *Images* from the Report menu or click the *Options* button from the Output Format toolbar and select the *Images* tab.
   
   The Report Options dialog box opens at the Images tab.

2. Select the image from the List tab.

3. Select *Custom* as the Size option.

4. Enter the desired height (X) and width (Y) coordinates in the Size fields.
   
   By default, the image is rendered at its original size; it can then be resized. To return to the original size, click the *Default* button.

   **Note:** For HTML reports, ensure that Cascading Style Sheets is selected in the Report Options Features tab.
Adding an Image

Procedure: How to Change the Location of an Image

1. Click Images from the Report menu or click the Options button from the Output Format toolbar and click the Images tab.
   The Report Options dialog box opens at the Images tab.

2. Select the image from the List tab.

3. Select one of the locations from the Location drop-down list: Page, Background, Page Footer, Page Header.
   If you add a subfooting, subheading, subtotal, report heading, or report footing to your report, these object areas are also listed to enable you to attach an image to these locations.

4. Click OK.

Procedure: How to Preview an Image

1. Click Images from the Report menu or click the Options button from the Output Format toolbar and click the Images tab.
   The Report Options dialog box opens at the Images tab.

2. Click the Preview tab and select the image.
   The image is displayed in the right pane in the Preview tab.

Procedure: How to Update an Image in a Report

To ensure that the current version of an image is included in a report:

1. Click Images from the Report menu or click the Options button from the Output Format toolbar and click the Images tab.
   The Report Options dialog box opens at the Images tab.

2. Select the image from the List tab.

3. Select the Include as Reference check box, located in the Image properties section.

4. Click OK.

Procedure: How to Delete an Image From a Report

1. Click Images from the Report menu or click the Options button from the Output Format toolbar and click the Images tab.
   The Report Options dialog box opens at the Images tab.
2. Select the image from the List tab.
3. Click Delete.
4. Click OK.

**Example: Placing an Image in a Report**

Suppose you want to enhance the appearance of your reports by including a graphical image. The following example shows how to add the Century Corporation logo in the heading of a sales report.

1. Open the CENTORD data source in Report Painter.
2. Identify and format your report columns.

   **Tip:** From the Object Inspector, show fields using the Field Tree view.

   a. Identify your sort columns. Click **By** on the Report Painter toolbar. Double-click or drag **STATE** and **PRODNAME** from the Fields tab of the Object Inspector.

   b. Identify your sum column. Move the insertion point after the Product Name column and click **Sum** on the Report Painter toolbar. Double-click or drag **LINE_COGS** from the Fields tab of the Object Inspector.

   c. Format the Line Cost of Goods Sold column. Right-click **Line Cost of Goods Sold** in the Report Painter window and select **Format**. Ensure **Decimal** is selected in the Format Types box. Click **Floating dollar – M** from the Edit Options list. Click **OK**.

3. Add a report heading and page heading.

   a. Click **Report Heading** from the Headings and Footings toolbar to show the Report Heading object in Report Painter, if not already visible.

   b. Position the cursor in the report heading by clicking your left mouse button in the heading area. Type the following in the heading area:

      *Century Corporation Product Report*

      **Note:** If the report heading is not viewable, click **Boundaries** from the View tab of the Report Options dialog box.

   c. Highlight the report heading. Right-click, click **Justify**, and click **Center** from the context menu.

   d. Click **Page Heading** from the Headings and Footings toolbar to show the Page Heading object in Report Painter, if not already visible.
Adding an Image

4. Add the Century Corporation logo to the page heading.
   a. Place the cursor in the page heading, right-click and click Options to open the Properties for Page Header dialog box.
   b. Click the Images tab.
   c. Ensure that File Name is selected in the Source box (default). Click Browse.
   d. Browse to the C:\ibi\apps\ibinccen\images directory, select the file cc_logo.gif and open it.
   e. Click Add to save the location of the image file.
   f. Click Apply and OK to return to the Report Painter window.

5. Adjust the position of the image by how it appears in the Report Painter window. You can use the Images tab of Report Painter to view, move, and adjust the image properties.

6. Run the report.
The report appears in the browser, as shown in the following image.

![Century Corporation Product Report](image)

<table>
<thead>
<tr>
<th>State</th>
<th>Product Name</th>
<th>Line Cost Of Goods Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>150 8MM Camcorder 20 X</td>
<td>$18,000.00</td>
</tr>
<tr>
<td></td>
<td>Combo Player - 4 Hd VCR + DVD</td>
<td>$21,675.00</td>
</tr>
<tr>
<td></td>
<td>DVD Upgrade Unit for Cent. VCR</td>
<td>$10,425.00</td>
</tr>
<tr>
<td></td>
<td>R5 Micro Digital Tape Recorder</td>
<td>$97,911.00</td>
</tr>
<tr>
<td></td>
<td>ZT Digital PDA - Commercial</td>
<td>$495,231.00</td>
</tr>
<tr>
<td>AR</td>
<td>110 VHS-C Camcorder 20 X</td>
<td>$69,471.00</td>
</tr>
<tr>
<td></td>
<td>120 VHS-C Camcorder 40 X</td>
<td>$72,261.00</td>
</tr>
<tr>
<td></td>
<td>150 8MM Camcorder 20 X</td>
<td>$399,120.00</td>
</tr>
<tr>
<td></td>
<td>2 Hd VCR LCD Menu</td>
<td>$68,757.00</td>
</tr>
</tbody>
</table>

Using the StyleSheet File Selector

The StyleSheet File Selector enables you to reference or embed an external style sheet, use the default WebFOCUS StyleSheet, or apply no styling to your report. You may also save and include multiple style sheet. The StyleSheet File Selector is accessible from the Style tab of the Report Options dialog box.

The StyleSheet File Selector provides the following capabilities:

- Include a StyleSheet.
- Apply an external Cascading Style Sheet (CSS).
- Embed a StyleSheet.
- Apply the default WebFOCUS StyleSheet.
- Turn off all report styling.
- Save the modified style sheet as a new style sheet file (.sty).
To open the StyleSheet File Selector, click *Style File Selection* from the Report Options Style tab. The StyleSheet Selection dialog box appears as shown in the image below.

**Note:** The StyleSheet File Selector opens to the Include StyleSheet File section, since every procedure has existing embedded styling by default. You may click *Change Options* and choose to embed or reference an external StyleSheet, use the WebFOCUS default StyleSheet, or turn off all report styling, as described in the procedures below.
**Procedure: How to Include a StyleSheet in a Report**

Since every procedure has existing styling, the Include StyleSheet File section opens by default.

When a StyleSheet is included, part of the styling is embedded to the report. You may include StyleSheets up to an INCLUDE depth of three in your report, with the last selected StyleSheet having precedence.

1. Click *Styling* from the Report menu.
   
   The Report Options dialog box opens at the Style tab.

2. Click the *Style File Selection* button.
   
   The StyleSheet Selection dialog box opens.

3. Click the *Add new item* button, as shown in the following image.

   ![StyleSheet File Selection dialog box](image)

   The StyleSheet File Selection dialog box appears.

4. Select a StyleSheet file and click *OK*. 


**Note:** The top half of the StyleSheet File Selection dialog box shows all the StyleSheets that are available from your local path. You may browse to change the location. The bottom half of the StyleSheet File Selection dialog box shows a list of the additional StyleSheets templates that are delivered with Developer Studio, as shown in the following image.

The selected StyleSheet is added to the Include StyleSheet File section.

5. Optionally, you may select to include additional StyleSheets, up to an INCLUDE depth of three in your report.

**Note:** The last selected StyleSheet has precedence in the report. You may use the arrows to reorder the arrangement of StyleSheets.
For example, the image below shows that the *BLACKRED* StyleSheet was the last included, so that StyleSheet will take precedence in the report.

![StyleSheet Selection dialog box](image)

The following syntax will be added to the procedure for the included StyleSheets.

```plaintext
ON TABLE SET STYLE *
   INCLUDE = problue,
$      INCLUDE = citrus,
$      INCLUDE = blackred,
$      ...
```

**Note:** For details about how reports inherit StyleSheet attributes, see *WebFOCUS StyleSheet Attribute Inheritance* in the *Creating Reports With WebFOCUS Language* manual.

6. Click *Finish* to close the StyleSheet Selection dialog box.
7. Click *OK* to close the Report Options dialog box.
The selected StyleSheet is added to the list of StyleSheets that are included in the report, as shown in the following image.

8. Optionally, you may apply styling options from Report Painter and save the StyleSheet code. For more information about saving StyleSheets, see How to Save a StyleSheet on page 438.

Procedure: How to Apply an External Cascading Style Sheet (CSS)

In addition to including StyleSheets to your report, you may apply an external Cascading Style Sheet to your report. An external Cascading Style Sheet (CSS) is an extension to HTML that enables you to specify formatting for an HTML document. To link the CSS to the report, use the External Cascading Style Sheet URL field in the StyleSheet File Selector.

**Note:** An external Cascading Style Sheet is only applicable when using the HTML report output format.

1. Click Styling from the Report menu.
   The Report Options dialog box opens at the Style tab.

2. Click the Style File Selection button.
   The StyleSheet Selection dialog box opens.

3. Type a name of the customized StyleSheet (.css) in the External Cascading StyleSheet URL input field, as shown in the following image.
Note: The external CSS (Cascading StyleSheet) file should be saved in an alias on the web server.

4. Optionally, you may include StyleSheets to be added to the report.

Note: A CSS file is separate from a StyleSheet file and can exist on its own.

5. Click Finish to close the StyleSheet Selection dialog box.
6. Click OK to close the Report Options dialog box.

Procedure: How to Embed a StyleSheet in a Report

Embedding a StyleSheet stores your style information within the report, from which you can read an existing file as a starting point, start with a empty style, or leave the current StyleSheet contents without any modifications.

1. Click Styling from the Report menu.

   The Report Options dialog box opens at the Style tab.

2. Click the Style File Selection button.
The StyleSheet Selection dialog box opens.

3. Click Change Options to change the StyleSheet File Selector options.

4. Keep Normal Embedded Styling selected and click Next.

5. To read an existing file as a starting point:
Select *Initialize with the contents of a pre-existing file*, as shown in the following image.

![StyleSheet Selection dialog box](image)

You have chosen to embed your style information. You may select to initialize your embedded StyleSheet from an pre-existing file, start with a clean slate, or continue with its current contents.

- **Start fresh with an empty StyleSheet**
- **Initialize with the contents of a pre-existing file**
- **Leave current StyleSheet contents without modification**
- **Preserve referenced StyleSheets so any "INCLUDE=name" will not be deleted**

**Note:** Preserve referenced StyleSheets so any “INCLUDE=name” will not be deleted is selected by default. When a StyleSheet is included, a reference of the StyleSheet is added to the report syntax as INCLUDE=name. This reference is added to the existing style information already in the TABLE request.

- Click *Next*.

The StyleSheet Selection dialog box appears.

- Select an internal StyleSheet file to use as your starting point and click *OK*.
The selected StyleSheet file is shown as the origin embedded StyleSheet file. Optionally, you may include additional StyleSheets or add an External Cascading StyleSheet (CSS). The StyleSheet Selection dialog box is shown in the following image.

- Click **Finish** to close the StyleSheet Selection dialog box.
- Click **OK** to close the Report Options dialog box.

The selected StyleSheet code is imported into the procedure and overwrites any existing styling in the report.

6. To start with an empty style:
   - Click **Change Options** to change the StyleSheet File Selector options.
   - Keep **Normal Embedded Styling** selected and click **Next**.
Select **Start fresh with an empty StyleSheet**, as shown in the following image.

![StyleSheet Selection](Image)

You have chosen to embed your style information. You may select to initialize your embedded StyleSheet from an pre-existing file, start with a clean slate, or continue with its current contents.

- [ ] Start fresh with an empty StyleSheet
- [ ] Initialize with the contents of a pre-existing file
- [ ] Leave current StyleSheet contents without modification
- [x] Preserve referenced StyleSheets so any "INCLUDE=name" will not be deleted

___

**Note:** Preserve referenced StyleSheets so any INCLUDE=name is selected by default. When a StyleSheet is included, a reference of the StyleSheet is added to the report syntax as INCLUDE=name. This reference is added to the existing style information already in the TABLE request.

- Click **Next**.

The Include StyleSheet File section, shown in the following image, opens indicating that the origin of the embedded StyleSheet file is unknown.
Tip: You may select StyleSheet files to embed to your currently empty style.

With an embedded StyleSheet, you may further enhance the report’s styling by referencing external StyleSheets by creating an INCLUDE list.

Styling using the include list will act as a template style which can later be modified by your interaction with the Report Painter.

If you would like to change previously selected options, click the 'Change Options' button.

- Click Finish to close the StyleSheet Selection dialog box.
- Click OK to close the Report Options dialog box.

Starting with an empty style clears any styling from the report and initializes a procedure with the WebFOCUS default style code (basic styling that is used when styling is not specified).

7. To leave Report Painter generated styling untouched:
   - Click Change Options to change the StyleSheet File Selector options.
   - Keep Normal Embedded Styling selected and click Next.
Select *Leave current StyleSheet contents without modification*, as shown in the following image.

- Start fresh with an empty StyleSheet
- Initialize with the contents of a pre-existing file
- Leave current StyleSheet contents without modification
- Preserve referenced StyleSheet so any "INCLUDE=name" will not be deleted

**Note:** Preserve referenced StyleSheet so any INCLUDE=name is selected by default. When a StyleSheet is included, a reference of the StyleSheet is added to the report syntax as INCLUDE=name. This reference is added to the existing style information already in the TABLE request.

- Click Next.

The Include StyleSheet File section opens indicating that the origin of the embedded StyleSheet file is unknown.

**Tip:** You may include StyleSheet to be added to the report.

- Click Finish to close the StyleSheet Selection dialog box.
- Click OK to close the Report Options dialog box.

8. Optionally, you may apply styling options from Report Painter and save the StyleSheet code.
Procedure:  How to Apply the Default WebFOCUS StyleSheet

The WebFOCUS Default Styling section applies the default StyleSheet to your report, with no styling visible in the procedure.

**Note:** The default WebFOCUS StyleSheet disables any styling options in the report. No further styling options of any kind can be applied to the report.

1. Click **Styling** from the Report menu.
   The Report Options dialog box opens at the Style tab.
2. Click the **Style File Selection** button.
   The StyleSheet Selection dialog box opens.
3. Click **Change Options** to change the StyleSheet File Selector options.
4. Select **WebFOCUS Default Styling** and click **Finish**, as shown in the following image.

![StyleSheet Selection dialog box](image-url)
The Style tab shows that styling is disabled since you are using the WebFOCUS default stylesheet, as shown in the following image.

![Image of the Report Options dialog box with a warning that the style feature is disabled.]

**Tip:** To remove the default WebFOCUS StyleSheet and enable styling, click *Style File Selection* to open the StyleSheet File Selector and select the Normal Embedded Styling option.

5. Click OK to close the Report Options dialog box.

**Procedure:** **How to Reset the Default Report Painter Styling**

To reset the default Report Painter styling in the StyleSheet File Selector:

- Highlight the added StyleSheet files (.sty) listed in the Include StyleSheet File section and click *Delete selected items (Del)*.

![Image of the StyleSheet File Selector with highlighted and deselected files.]

Or
Select `endeft.sty` from the StyleSheet File Selection dialog box and click OK, as shown in the following image.

![StyleSheet File Selection dialog box](image)

**Note:** The top half of the StyleSheet File Selection dialog box shows all the style sheets that are available from your local path. You may browse to change the location. The bottom half of the StyleSheet File Selection dialog box shows a list of the additional StyleSheets templates that are delivered with Developer Studio.

**Procedure:** How to Turn Off All Report Styling

You may turn off all report styling in your report from the StyleSheet File Selector.

1. Click **Styling** from the Report menu.
   
   The Report Options dialog box opens at the Style tab.

2. Click the **Style File Selection** button.
The StyleSheet Selection dialog box opens.

3. Click Change Options to change the StyleSheet File Selector options.
4. Select No Styling and click Finish, as shown in the following image.

Note: This option disables all styling in your report. Any feature that uses styling will be unavailable. For example, Data Visualization, Drill Downs, and so on.
The Style tab shows that styling is turned off in your report, as shown in the following image.

Tip: To turn on styling again, click Style File Selection to open the StyleSheet File Selector and choose a styling option.

5. Click OK to close the Report Options dialog box.

Procedure: How to Save a StyleSheet

After including StyleSheets and applying styling options from Report Painter, you may save the StyleSheet as a new StyleSheet file (.sty).

1. Click Save StyleSheet from the File menu in Report Painter.

The Save As dialog box opens.
2. Type a name for the StyleSheet in the File name input field and click Save, as shown in the following image.

The .sty file is saved in the working directory. You may browse to select a different location.

**Tip:** The saved StyleSheet is available to be included in other reports from the StyleSheet File Selector, as shown in the example image below.
Note: The top half of the StyleSheet File Selection dialog box shows all the StyleSheets that are available from your local path. You may browse to change the location. The bottom half of the StyleSheet File Selection dialog box shows a list of the additional StyleSheets templates that are delivered with Developer Studio.

**Reference: Usage Notes for the StyleSheet File Selector**

The following apply when using the StyleSheet File Selector in Report Painter:

- Applying StyleSheets through the StyleSheet File Selector follows the same rules of WebFOCUS StyleSheet inheritance. For details, see *WebFOCUS StyleSheet Attribute Inheritance* in the *Creating Reports With WebFOCUS Language* manual.

- When including or referencing a StyleSheet that is not in the current application, the StyleSheet gets copied to the working directory.

  If the StyleSheet already exists in the current application, it does not get overwritten.

  To refresh an existing StyleSheet, you must copy the new StyleSheet to the working directory or remove the StyleSheet from the procedure, delete it from the working directory, and then add it back to the procedure.

- The default location for StyleSheets that are Included or referenced in Developer Studio is `(...\DevStudio\ib_html\javaassist\intl\locale\combine_templates)`, which contains a set of sample StyleSheets. You can also search other WebFOCUS or desktop locations for available StyleSheets.

- When a StyleSheet is used in the procedure and the StyleSheet File Selector is opened, it opens in the Include StyleSheet File section, enabling you to change the included StyleSheet. You may also change the StyleSheet options. This occurs even when the *Default StyleSheet* option (located on the Developer Studio Options Reporting tab) is selected to *None*.

  **Note:** If you go back and select to embed or reference a StyleSheet, or use the WebFOCUS default option, the StyleSheet that was in the report will get overwritten.

- If the report does not have any styling, the StyleSheet File Selector opens to the Change Options section. As is the case where the report code contains the command:

  ```on_table_set_style off```
Generating Format-Specific Style Blocks

You can create format-specific style blocks from Report Painter for HTML, EXCEL, PDF, AHTML, FLEX, and PPT reports.

**Note:**
- This feature only applies to StyleSheet features. Non-styling reporting options are added outside of the specific style blocks and applied based on the format you select at run time.
- If the output format is changed to anything other than User, you are prompted with an alert. If the selected format is HTML, PDF, or EXCEL and a style block for one of those formats exists, that style block is retained and the other blocks are deleted. If there is no matching style block, then the General style block is retained.
- Multiple style blocks with the same TYPE attribute can be included or embedded in a StyleSheet. Normally, the WebFOCUS inheritance rules determine which attributes take effect. However, if you are using a Cascading Style Sheet (.css file) in addition to a WebFOCUS StyleSheet, and a style block containing a CLASS attribute has the same TYPE as another style block, the CLASS attribute will be overridden and will not take effect.

**Procedure:** How to Create a Style Block

1. In Report Painter, use the drop-down list to click User from the Output Format toolbar. The General button appears on the Output Format toolbar.
2. Style your report as desired.
3. Click General and select Copy active styling to and then the format you want this style block to apply to, HTML, EXCEL, PDF, AHTML, PPT, FLEX.

**Note:** Once a style block is created, a subtab appears on the Report Options dialog box with corresponding report options available for that style block.

4. To create additional blocks for different formats, click General (note that this button may say the name of the style block applied) and click Create new empty style block and then the format.
5. To copy styling from a style block you have already created, click General (note that this button may say the name of the style block applied) and click Copy styling from and then the format.
Procedure:  How to Activate a Style Block

1. In Report Painter, use the drop-down list to click User from the Output Format toolbar.
   The General button appears on the Output Format toolbar.

2. Click General and click Activate style block, then the format you want to use.

   Note: Once a style block is activated, a subtab appears on the Report Options dialog box with corresponding report options available for that style block.

   Your style block is applied and the General button changes into a button reflecting the style you select.

Reference:  Options for Style Blocks

The following options are available for style blocks:

- **Activate style block**
  Activates a selected style block.

- **Create new empty style block**
  Enables you to create a new style block.

  *Tip:* You may use the StyleSheet File Selector to apply different StyleSheets to each style block. For more information about the StyleSheet File Selector, see *Using the StyleSheet File Selector* on page 421.

- **Copy active styling to**
  Copies the style from the current style block to another.

- **Copy styling from**
  Copies the style from the selected style block to the current style block.

- **Clear current style block**
  Removes all formatting from the style block.

- **Delete current style block**
  Removes the current style block from the report. The styling that is applied to the report remains.
Using Excel Templates

Report Painter provides Microsoft® Excel templates that are populated with data from WebFOCUS.

With this feature, you can integrate WebFOCUS with complex Excel workbooks that may contain macros, graphs, or Visual Basic applications. You can also supply ad hoc and end users with more advanced Excel functionality, such as filters, subtotals, page and print settings, and so on. This feature also provides you with more advanced styling options for Excel-based reports.

**Note:** You must have Excel 2002 or higher to use this feature.

**Procedure:** How to Create an Excel Template for Project-Based Development

1. Add a blank worksheet to a workbook in Microsoft Excel. This blank worksheet will contain the WebFOCUS report.
2. Save the workbook as a Web archive (.mht extension) file on your WebFOCUS Reporting Server application directory.
3. Create your WebFOCUS procedure in the Projects area of Developer Studio.
5. Ensure that **Excel 2007 (XSLX)**, **Excel 2000 (EXL2K)**, **Excel 2007 Formula (XLSX FORMULA)**, **Excel 2000 Formula (EXL2K FORMULA)**, **Excel 2000 PivotTable (EXL2K PIVOT)**, **Excel 97 (EXL97)**, or **User (Excel)** is selected as the output format.
6. Click **Use template** to activate the Excel template options.

![Excel Template Options](image)

7. Select the template file (Workbook Name) and the Worksheet to populate. The Worksheet to populate is the number of the worksheet in the workbook. For example, if you have five worksheets in your workbook and you designated the first worksheet for the WebFOCUS report, then you would enter 1.
Note:

- In order for your workbook to appear in the Workbook Name drop-down list, it must be in your WebFOCUS Reporting Server application directory.
- If you use the Excel 2007 output format, you will be able to choose templates with the .xltx, .xlsx, .xltm, and .xlsm formats. For all other Excel output formats, you will only be able to use templates with the .xltx format.

8. Click OK in the Report Options dialog box.
9. Save and run your report.

Reference: Notes on Saving an Excel File as a Web Archive

Excel saves template files that contain only a single worksheet in its standard HTML file format rather than a Web archive (even if you select the .mht format in the Save-As dialog box, and it saves the file with a suffix of .mht). To ensure that you get a true Web archive file, your workbook must have at least two sheets, each of which contains content. The content can be a single blank in a single cell.

If your template file is not a true Web archive file, you receive the following message:

(FOC3290) EXL2K: Template file is not a valid WebArchive file

To verify that an .mht file is a valid Web archive, open the file in Notepad. The second line of the file should read:

X-Document-Type: Workbook

A non-Web archive file says Worksheet instead of Workbook.

Using Excel Named Ranges in WebFOCUS Applications

An Excel Named Range is a name assigned to a specific group of cells within an Excel worksheet that can be easily referenced by WebFOCUS applications. Generating Named Ranges is facilitated by the WebFOCUS StyleSheet language.

The use of Excel Named Ranges provides many benefits including the following:

- Provides advantages over static cell references including the ability of named range data areas to expand to include new data added during scheduled workbook updates.
- Enables easy setup of Excel worksheets, created by WebFOCUS applications, as an ODBC (Open Database Connectivity) data source.
Provides accurate, consistent data feeds to advanced Excel worksheet applications, which eliminates manual activities that tend to result in errors.

Simplifies the process of referencing data in multiple worksheets. This is especially useful when named ranges are added to the output of an Excel Template report.

Excel Named Ranges can be created in Developer Studio by assigning a range name to data output in Excel format. The Excel 2000 (EXL2K) and the Excel 2000 Formula (EXL2K FORMULA) report output formats are supported. You may also use the Named Range feature on an Excel Template.

**Procedure: How to Use Excel Named Ranges**

1. In Report Painter, confirm that Excel 2000 (EXL2K) or Excel 2000 Formula (EXL2K FORMULA) is selected as the output format on the Report Options dialog box.

2. Click the worksheet option, *Define a range name for the data*, on the Format tab of the Report Options dialog box, and type in a name.

   **Note:** The name should not contain any spaces and there is a 256 character limit for named ranges.

3. Click the *Display repeated sort values* option on the Output tab of the Report Options dialog box to prevent discontinuous data in a report. This is recommended for use with Named Ranges.

4. Click *OK* and run the report.

   Note that you will have to select the named range from the *Name Box* drop-down list.

**Example: Using Excel Named Ranges**

The following example creates one report, in one worksheet of an Excel workbook. The tabular output is assigned an Excel Named Range, defined as RegionalSales that begins at cell A1 and continues to cell E4318.
These steps create the output in this example:

1. Open the GGSALES data source in Report Painter.

2. Identify and format your report columns.
   a. Identify your sort columns. Click By on the Report Painter toolbar and double-click or drag REGION and DOLLARS from the Fields tab of the Object Inspector.
   b. Identify your detail columns. Move the insertion point after the Dollar Sales column. Click Detail on the Report Painter toolbar and double-click or drag PRODUCT, DATE, and UNITS from the Fields tab of the Object Inspector.

3. Confirm and set up the Excel report output format.
   a. Click Output from the Report menu and ensure that Excel 2000 (EXL2K) is selected as the report output.
   b. Click the Display repeated sort values option to prevent discontinuous data in a report.

4. Define an Excel Named Range.
   a. Click the worksheet option Define a range name for the data, on the Format tab of the Report Options dialog box.
   b. Type RegionalSales in the Define a range name input field.

5. Click OK to close the Report Options dialog box.

6. Run the report and view select the named range from the Name Box drop-down list.

Reference: Support for Excel Named Ranges

The following items are not supported when using Excel Named Ranges:

- Excel Named Ranges are not supported with any report that produces discontinuous data (such as SubHeading and SubFooting), or uses columnar references that span multiple columns, which include Across, Recap, Recompute, Subtotal, and Subtotal on all outer sort fields.

- When creating Compound Excel reports (multiple TABLE requests output to the same Excel workbook), each report must have a unique range name.
Generating Overflow Sheets for an Excel 2000 Report

Creating a report with the Excel 2000 format generates a fully styled Excel report in your browser, enabling you to render most StyleSheet report options. By default, when you choose Excel 2000 as your output format, the report opens in an Excel 2000 worksheet, identified in a tab at the bottom of the spreadsheet as Sheet 1, Sheet2, and so on. You can control where the overflow rows of data break in the Excel worksheet by using the Generate overflow sheets option. The default is 65,000 rows of data before an overflow sheet is generated.

Generate overflow sheets is available as a worksheet option on the Format tab of the Report Options dialog box, when Excel 2000 (EXL2K) is selected as the output format in Report Painter.

**Note:** Selecting the Generate overflow sheets option adds the SET LINES syntax to your report.

**Procedure:** How to Generate Overflow Sheets for an Excel 2000 Report

1. In Report Painter, confirm that Excel 2000 (EXL2K) is selected as the output format in the Report Options dialog box.
2. Click the worksheet option Generate overflow sheets on the Format tab of the Report Options dialog box, and type the rows per sheet.

**Note:** The default rows per sheet is 65,000. This indicates that overflow sheets are generated after 65,000 rows of data.
3. Click OK to close the Report Options dialog box and run the report.

In the following example, the Excel worksheet starts to generate the overflow data after 2500 rows on Sheet 2, as indicated from the rows per sheet set on the Format tab.

![Excel worksheet with overflow data generation](image)

**Note:** The first two rows of the Excel report are heading and column title rows.

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**Using PowerPoint Output Format and PowerPoint Templates**

You may select PowerPoint as an output format in Developer Studio which enables you to:

- Create single reports in PowerPoint format.
  
  Selecting PowerPoint as the output format creates a PowerPoint document with a single slide that includes the report.

- Add multiple graphs and images to a PowerPoint presentation.
  
  The PowerPoint output format can contain a variety of graphs positioned anywhere on a slide to create a visual layout.

- Use a PowerPoint template.
A PowerPoint report can be placed inside of an existing PowerPoint presentation. This enables you to populate existing presentations with preset Slide Masters, styling, and other business content. PowerPoint templates are stored on the server with a .MHT extension and can be distributed automatically with ReportCaster.

- View and Edit the PowerPoint Output

Choosing the PowerPoint output format enables quick editing and customization of your report in Microsoft PowerPoint.

**Procedure: How to Use PowerPoint as the Report Output Format in Report Painter**


   The Report Options dialog box opens at the Output tab.

2. From the Select Format drop-down list, click *PowerPoint* as the output format for the report.

3. Click *OK* to close the Report Options dialog box.

   **Note:** You may also select *PowerPoint* from the Output Format toolbar.

4. Save and run your report.
A PowerPoint output slide, that includes the report, is created, as shown in the following image.

5. To reposition the report output on the PowerPoint slide, use the Page Margins options, located on the Format tab of the Report Options dialog box, which is shown in the following image. Increasing the top margin will move the output down on the slide, and increasing the left margin will move it to the right.

6. Save and run the report again to see any adjustments.
Procedure: How to Add Images to Your PowerPoint Report

You can add images, such as logos or backgrounds, to your PowerPoint report. To successfully import an image into a PowerPoint report, the image must be either a GIF or JPEG file type. Other file types are not supported in the PowerPoint output format. Images must be located on the WebFOCUS Reporting Server application directory.

**Note:** The PowerPoint output format cannot generate a Uniform Resource Locator (URL) that references an image.

   The Report Options dialog box opens at the Images tab.
2. Select the File Name option button (default) in the Image Source box and type the path of the image file in the entry field.
   or
   Click *Browse* to select the image file from the Open dialog box.
3. Click *Add* to add the image file to the list box.
4. Click *OK* to add the image to the report.

**Tip:** You can easily add images to your PowerPoint output by placing the image in the Slide Master of a PowerPoint template. The template file can be utilized by all users and eliminates the need to add image files to the Reporting Server. For more information about PowerPoint templates, see *How to Use a PowerPoint Template in Report Painter* on page 455.

Procedure: How to Add Graphs to Your PowerPoint Report in Report Painter

Adding a graph to PowerPoint works in the same manner as adding a static image file. The graph is rendered as a static image, held or saved on the Reporting Server, and then embedded into a report. There is no limit to the number of graphs you can add to a single PowerPoint report and the graphs can be positioned anywhere in the output.

1. From the Procedure Viewer, create a Graph.
   InfoAssist opens.
2. Create the graph or graphs you want added to your PowerPoint report.
3. From the Format tab, click *File* and click *Select a location and format*.
   The Select a location and format dialog box opens.
4. Name the graph or graphs and select either GIF or JPEG as the output Format type.

**Note:** To successfully import a graph into a report, you must select either GIF or JPEG as your graph output format. All other graph output formats are not supported in PowerPoint.

5. Save the graph and close the InfoAssist.

6. Following the graph in the same procedure, create a report with Report Painter, as shown in the following image.

7. Click *Images* from the Report menu.

   The Report Options dialog box opens at the Images tab.
8. Select the Graph option button in the Image Source box and type the path of the image in the entry field, as shown in the following image.

or

Click Browse to select the graph HOLD file from the Open dialog box.

![Report Options dialog box with graph HOLD file selected](image)

**Note:** When a graph HOLD file is saved in a procedure, Report Painter detects this HOLD file and automatically lists it in the Images tab (when the Graph Image Source option is selected). The graph must precede the report.

9. Click Add to add the graph to the list box.

10. Click OK to add the graph to the report.

The graph is represented with a graphical image and can now be sized and positioned.
11. Click the Image view to size and position the graph, as shown in the following image.

12. Save and run the document.

The following image shows the document in PowerPoint output format.

Tip: To create a presentation that contains only graphs, make the report invisible. To do this, create a very simple request with an invisible BY field and a read/record limit of one.
Procedure: How to Use a PowerPoint Template in Report Painter

Reports and graphs can be embedded into an existing PowerPoint template. The output is placed on a specified slide which can be anywhere in the presentation.

**Note:** A PowerPoint template must contain at least one slide for the report to populate, but can have as many additional slides as you want.

1. Create and save a PowerPoint template:
   a. Add a blank slide to a document in Microsoft PowerPoint. This blank slide will be a placeholder for the WebFOCUS report.
      
      **Note:** This slide will be completely replaced when you execute the report, so any objects added to this slide will be lost when the report is executed.

      **Tip:** Objects added to the PowerPoint Slide Master will remain intact.

      The following image is an example of the template in PowerPoint showing the slide master.

      ![PowerPoint Slide Master Example](image_url)

   b. Save the document as a Web archive (.MHT extension) on your WebFOCUS Reporting Server application directory.
   The Report Options dialog box opens at the Output tab.

3. Use the drop-down list to click PowerPoint as the selected output format.

4. Click the Format tab of the Report Options dialog box.

5. Select the Use template check box.
   The drop-down list populates with the available PowerPoint templates to choose from.

   **Note:** In order for your PowerPoint template to appear in the drop-down list, it must be saved in your WebFOCUS Reporting Server application directory. This list displays all .MHT files in the server path.

6. Select a slide to populate.
   The slide number is the number of the slide in the document. For example, if you have five slides in your document and you designated the second slide for the WebFOCUS report, then you would enter 2, as shown in the following image.

7. Click Apply, and then OK in the Report Options dialog box.

8. Save and run your report.
The report and graph is embedded in the selected PowerPoint template on the selected slide, as shown in the following image.

Tip: PowerPoint templates can be utilized by multiple users and automatically distributed with ReportCaster. This ensures that all reports are consistent and show the standard styling, logo, and so on, for your organization.

Creating, Viewing, and Editing PowerPoint Output

When browsing or viewing PowerPoint files from the Internet Explorer web browser, a PowerPoint presentation will normally open within the web browser. However, you can change this by customizing the PPT file type properties in Windows. If you uncheck the Browse in same window property, PowerPoint will open in a new window separately from the browser. If you uncheck this option and a PowerPoint report is executed by WebFOCUS, the report opens in slide show mode and cannot be edited.
The following image is an example of a PowerPoint output in slide show mode.

To view and edit your PowerPoint output, change your settings so that PowerPoint documents open in the same window.

**Procedure:** How to Change the Output Options for PowerPoint Documents

1. From Windows Explorer, click *Folder Options* from the Tools menu.
2. Click the File Types tab and select *PPT (Microsoft PowerPoint Presentation)*.
3. Click *Advanced* from the Details for PPT extension section.
   
   The Edit File Type dialog box opens.
4. Click *Open* from the Actions list.
5. Select the *Browse in same window* check box, as shown in the following image.

6. Click OK to close the Edit File Type dialog box.

7. Click Close to close the Folder Options dialog box.


   The PowerPoint output appears in the same window.
9. Right-click and select *Edit Slides*, as shown in the following image.

PowerPoint opens in a web browser with full editing capabilities, as shown in the following image.
**Reference:** Redirection With PowerPoint Output

Redirection is turned off by default for the PowerPoint format. This can keep the output from updating when trying to re-execute a PowerPoint report and targeting the same output frame.

For example, if using the autoprompt facility with PowerPoint output, the target frame may not update when changing parameter values and running the report. For more information about Changing Redirection Settings, see the *WebFOCUS Security and Administration* manual.

**Setting Up the Report Page**

You can set the page margins, mailing label types, and control page numbering in your reports from the Report Options dialog box.

The following page characteristic options are available from the Output tab of the Report Options dialog box:

- **Page Numbering.** Sets the page numbering controls for the report.
- **Measurement units.** Indicates the unit of measurement for page margins (inches or centimeters).

The following page characteristic options are available from the Format tab of the Report Options dialog box:

- **Page Margins.** Displays values that indicate the top, left, bottom, and right margins of the report page.
- **Virtual Screen Size.** Enables customization of the screen size for the report area that displays on screen (for HTML output).
- **Mailing Labels.** Opens the Mailing Labels Options dialog box where you can define the label dimensions. For details, see *Creating Mailing Labels* on page 462.

**Procedure:** How to Control Page Numbering in Report Output

1. Click *Output* from the Report menu.
   
   The Report Options dialog box opens.

2. In the Page numbering box, select one of the following:
   
   - **ON** to number the pages and display the page number on the upper-left corner of the page.
   - **OFF** to suppress page numbering.
OFF without lead space to suppress page numbering and the two leading blank lines normally on each page.

Use Current FOCUS setting to number the page according to the values assigned to the PAGE-NUM Set parameter.

For information on Set parameters, see the Developing Reporting Applications manual.

**Procedure: How to Set Up an HTML Report With On Demand Paging**

You can paginate HTML reports using On Demand Paging, a feature that causes the web server to send an HTML report to your browser one page at a time. On Demand Paging is available for HTML Web Document (HTML) and HTML Table (HTMTABLE) Styled report formats.

This feature requires that the report be run remotely against the WebFOCUS Reporting Server.

When this feature is in effect, your browser displays a Viewer Control Panel that enables you to navigate to the next or previous page, all pages, or to a specific page.

1. Click Format from the Report menu.
   
The Report Options dialog box opens.

2. Ensure that HTML Web Document (HTML) or HTML Table (HTMTABLE) is selected as the Output Format, then select the On Demand Paging check box on the Features tab.

When you run the report, it appears in your browser along with the Viewer Control Panel. For details, see Navigating Through Multi-page Web Reports, located in the Creating Reporting Applications With Developer Studio manual.

**Creating Mailing Labels**

Report Painter enables you to create and to print mailing labels by using the Label Options, available from the Format tab of the Report Options dialog box.

**Note:** You may create mailing labels for Portable Document Format (PDF) or Postscript (PS) Styled report formats.

**Procedure: How to Create Mailing Labels**


2. Click either Portable Document Format (PDF) or Postscript (PS) as the selected output format.
3. Click the **Label Options** button from the Format tab. The Mailing Label Options dialog box opens.

   **Note:** The Label Options button only appears for PDF and PS Styled report formats.

4. Select the Label type and define the Label options. For:
   - A Custom label, define the Label options and choose *Print order*.
   - All other present label types, the Label options are predefined, choose *Print order*.

5. Click *OK* to close the Mailing Labels Options dialog box.

6. Click *OK* to close the Report Options dialog box and return to Report Painter.

7. In Report Painter, add the fields you want to sort by.

8. Assign a page break to the sort field so that each record is printed on a separate label, and hide the sort field so that it does not appear on the page.
   - Right-click the **By** sort field and click *Options*. The Field Properties dialog box opens. Click the **Sort** tab and select *On* from the **Page Break** drop-down list in the Actions area. Click *OK* to return to the Report Painter window.
   - Right-click the **BY** sort field and select *On* from the **Invisible** context menu.

   - Click *Output* from the Report menu to open the Report Options dialog box.
   - In the Page numbering area, select *OFF without lead space* to suppress page numbering and the two leading blank lines that normally appear on each page. Click *OK* to return to the Report Painter window.

10. Create the label as a page heading.
    - Position the cursor in the page heading by clicking your left mouse button in the heading area.
    - Double-click or drag an address field from the Fields tab of the Object Inspector. Press the Enter key to bring your cursor to the next line. Continue until you have all your address fields in the Page Heading.

    **Note:** If Page Headings are not visible, ensure that *Boundaries* is selected on the View tab of the Report Options dialog box.

11. Click *Run* to view the mailing labels. The labels will print exactly as they appear in the report output.
Example: Creating Mailing Labels

Suppose you want to create mailing labels to distribute a report by postal mail. The following example shows how to create mailing labels for the Gotham Grinds store managers.

1. Open the GGSTORES data source in Report Painter.
2. Click Format from the Report menu to open the Report Options dialog box.
3. Click Portable Document Format (PDF) as the selected output format.
4. Click the Label Options button from the Format tab. The Mailing Label Options dialog box opens.
5. Click Custom Label from the Label Type drop-down list.
6. Type the following label options in the corresponding sections of the Mailing Label Options dialog box:

   **Label layout**
   - Columns: 2
   - Rows: 10

   **Label dimensions**
   - Width: 4.0
   - Height: 1.0

   **Label spacing**
   - Horizontal: 0.188
   - Vertical: 0.0

7. Click OK to close the Mailing Labels Options dialog box.
8. Click OK to close the Report Options dialog box and return to Report Painter.
9. Add your sort column. Click the By button on the Report Painter toolbar and double-click or drag STORE_CODE from the Fields tab of the Object Inspector.
10. Assign a page break and hide the sort field.
   a. Right-click Store ID in the Report Painter window and click Options. Click the Sort tab and select On from the Page Break drop-down list in the Actions area. Click OK to return to the Report Painter window.
   b. Right-click Store ID in the Report Painter window and select On from the Invisible context menu.
11. Suppress page numbering.
a. Click Output from the Report menu to open the Report Options dialog box.

b. From the Page numbering drop-down list, select OFF without lead space to suppress page numbering and the two leading blank lines normally on each page. Click OK to return to the Report Painter window.

12. Create the label as a page heading.

a. Position the cursor in the page heading by anywhere in the heading area. Type the following in the heading area:

   Attn:

   **Note:** If Page Headings are not visible, ensure that Boundaries is selected on the View tab of the Report Options dialog box.

b. Press the space bar to leave a blank space after it.

c. Double-click or drag ADDRESS1 from the Fields tab of the Object Inspector. Position the cursor after ADDRESS 1 and press the Enter key to bring your cursor to the next line.

d. Double-click or drag STORE_NAME from the Fields tab of the Object Inspector. Position the cursor after STORE_NAME and press the Enter key to bring your cursor to the next line.

e. Double-click or drag ADDRESS2 from the Fields tab of the Object Inspector. Position the cursor after ADDRESS 2 and press the Enter key to bring your cursor to the next line.

f. Double-click or drag CITY from the Fields tab of the Object Inspector. Position the cursor after CITY and insert a comma and a space. Then double-click or drag STATE. Position the cursor after STATE, add two spaces and double-click or drag ZIP.
13. Click Run to view the mailing labels. The labels will print exactly as they appear in the report output, as shown in the following image.

Reference: Mailing Label Options Dialog Box

The Mailing Label Options dialog box is shown in the following image.

Label Type

- None. Removes all label settings in the Cascading Style Sheet.
- Custom label. Enables you to specify custom label settings.
All other preset label types automatically load the appropriate settings into the Cascading Style Sheet.

**Label layout**
Sets the number of rows and columns for the labels.

**Label dimensions**
Determines the height and width of each label.

**Label spacing**
Determines the amount of spacing between each label (in the current units of measure).

**Print order**
Determines whether the data output flows down a column or across a row.

- **Down.** Labels are printed top-to-bottom and moves left-to-right until each column is filled.
- **Across.** Labels are printed left-to-right and then moves down until all rows are complete.

### Styling Different Elements of a Tabular Active Technologies Report

This topic describes how to use Report Painter format options to style the following elements of a tabular active report:

- Pop-up menu of a column.
- Status/navigation bar at the top of the tabular report. This bar displays the number of records (rows) that have been retrieved. It also enables you to navigate among report pages.

Another way to achieve the same styling result is to include WebFOCUS StyleSheet code in the tabular report procedure, as described in *Styling the Pop-up Menu and Status/Navigation Bar Using WebFOCUS Code* on page 471.
Procedure: How to Style the Pop-up Menu and Status/Navigation Bar of a Tabular Active Technologies Report

This procedure describes how to style the pop-up menu and status/navigation bar of a tabular report. It supplies sample values, but you can substitute your own values to achieve the desired result.

1. Open the active report in Report Painter.
2. Select the Report menu option, followed by Format.
   
   The Report Options dialog box opens. HTML active report (AHTML) is selected as the output format.

3. In the Menu options section, open the Background color palette under Menu color.
4. On the color palette, click **Custom**.

5. Type either the HSL (hue, saturation, luminosity) values, or the RGB (red, green, blue) values, as follows.
   - For HSL, type 146, 120, 172.
   - For RGB, type 147, 172, 219.
   - Click **OK** to close the Color dialog box.

6. Change the menu Hover color to dark gray (50%).

7. Change the menu Border color to light gray (25%).

8. Change the menu font Text color to white.

9. Change the menu font Hover color to dark gray (80%).

10. In the Pagination options section, set the Text color to white.

11. For the Background color, click **Custom**. Type either the HSL values or the RGB values, as follows.
    - For HSL, type 146, 120, 172.
    - For RGB, type 147, 172, 219.
    - Click **OK** to close the Color dialog box.

12. For the Justification under Pagination options, select **Top Center** from the drop-down list.
The following image shows the Report Options dialog box, with the selected sample values.

13. Click OK to close the Report Options dialog box.
14. Run the active report to display the newly styled pop-up menu and status/navigation bar.
Styling the Pop-up Menu and Status/Navigation Bar Using WebFOCUS Code

You can add the following StyleSheet code to the end of the tabular report procedure instead of performing the steps in *How to Style the Pop-up Menu and Status/Navigation Bar of a Tabular Active Technologies Report* on page 468. The code produces the same styling result that the steps produce.

```
TYPE=REPORT,
   OBJECT=MENU,
   COLOR='WHITE',
   HOVER-COLOR=RGB(51 51 51),
   BACKCOLOR=RGB(147 172 219),
   HOVER-BACKCOLOR='GRAY',
   BORDER-COLOR='SILVER',
$
```

```
TYPE=REPORT,
   OBJECT=STATUS-AREA,
   JUSTIFY=CENTER,
   PAGE-LOCATION=TOP,
   COLOR='WHITE',
   BACKCOLOR=RGB(147 172 219),
$
```
When you create a report, you are not restricted to the fields that exist in your data source. If you can generate the information you want from the existing data, you can create a temporary field to evaluate and display it. A temporary field takes up no storage space in the data source since it is created only when needed.

**Note:** The concept of creating temporary fields is described in *Creating Temporary Fields*, in the *Creating Reporting Applications With Developer Studio* manual. This topic describes how to create temporary fields with Report Painter.

### In this chapter:
- Creating a Calculated Value With Report Painter
- Creating User Defined Functions
- Creating Expressions for Temporary Fields
- Calculating Trends and Predicting Values With Forecast
- Calculating Trends and Predicting Values With Multivariate REGRESS

#### Creating a Calculated Value With Report Painter

A calculated value is a temporary field that is evaluated after all the data that meets the selection criteria is retrieved, sorted, and summed. Calculated values are available only for the specified report request.

Use the Computes tab to create a calculated value. You can access the Computes tab only when you are creating reports in Report Painter.

**Procedure: How to Create a Calculated Value**

In Report Painter:

1. Click *Computes* from the Report menu or click the *Compute* icon located on the Setup toolbar.
   
   The Report Options dialog box opens at the Computes tab.

2. Type the field name in the Field input box.
Enter the desired expression in the expression box.

4. Click OK.

**Procedure: How to Assign an Alphanumeric Format With the Computes Tab**

1. From the Report Options Computes tab, click the Format button.
   The Format dialog box opens.

2. Click Alphanumeric as the Format Type.
   The default length is 20. It appears in the Length input area.

3. To assign a different length, specify a number between 1 and 4096 in the Length input area.

4. Click OK.
   The Format dialog box closes.

For more information on field formats, see *Format Dialog Box* on page 475.

**Procedure: How to Assign a Numeric Format With the Computes Tab**

1. From the Report Options Computes tab, click the Format button.
   The Format dialog box opens.

2. Select one of the option buttons in the Format Types section.
   The default length appears in the Length input area. The Decimal input area shows the number of decimal places for Floating Point, Decimal, and Packed.

3. To assign a different length, specify a number between 1 and 9 for Floating Point, between 1 and 11 for an Integer, between 1 and 20 for Decimal, or between 1 and 33 for Packed in the Length input area.

4. To assign a different number of decimal places for Floating Point, Decimal, or Packed, specify the desired number in the Decimal input area.

5. If you wish to include numeric display options, select the desired options in the Edit Options list box.

6. Click OK.
   The Format dialog box closes.

For more information on field formats, see *Format Dialog Box* on page 475.
**Reference: Format Dialog Box**

The Format dialog box enables you to define the format of the output to be generated by a calculation.

**Note:** The Format button is available in the Compute, Define, and RECAP dialog boxes to define field formats for temporary fields and subtotal calculations. Click the *Format* button to open the Format dialog box.


**Tip:** You can also access the Format dialog box from the context or Properties menu for a selected field in the Report Painter window to change a field format.
The Format dialog box is shown in the following image.

The Format dialog box has the following fields and options:

**Format Types**

Specifies the format of the current field. The field type can be alphanumeric, numeric, or date/time.
**Date/Time**

Opens the Date and Time Formats dialog box, where you can assign date and time formats, and apply date and time display options.

For more information, see *Assigning Date/Time Formats* on page 478.

**Length**

Specifies the length, in characters, of a field. Enter a number in the *Length* box, or click the arrow buttons to specify a number.

<table>
<thead>
<tr>
<th>Field Format</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alphanumeric</td>
<td>1-4096 (default, 20)</td>
</tr>
<tr>
<td>Floating Point</td>
<td>1-9 (default, 7.2)</td>
</tr>
<tr>
<td>Integer</td>
<td>1-11 (default, 5)</td>
</tr>
<tr>
<td>VarChar</td>
<td>1-4096 (default, 20)</td>
</tr>
<tr>
<td>Decimal</td>
<td>20.18 (default, 12.2)</td>
</tr>
<tr>
<td>Packed</td>
<td>33.31 (default, 12.2)</td>
</tr>
<tr>
<td>Dynamic</td>
<td>Select a Format Field.</td>
</tr>
</tbody>
</table>

**Note:** For numeric fields, include the decimal place in the length.

**Decimal**

Specifies the number of decimal places to the right of the decimal point in a Decimal, Packed Decimal, or Floating Point field.

**Add minus sign if value is negative**

Check this option to display a minus sign to the right of negative numeric data.

**Edit Options**

Adds display options to numeric field formats to control how the field will appear on reports.
Assigning Date/Time Formats

You can assign the Date/Time format to a field from the Define, Compute, and Recap tools with the Date and Time Formats dialog box. You may also apply the Date/Time (DT) expression in a Where, Compute, and Define tool as a value or a function. This section describes how to assign the Date/Time format, value, and function with these graphical tools.

Tip: You can also insert the current date into an object area in the Report Painter window.

The following image is an example of the Report Painter with sample data for a Date and Time field.
**Reference:** Date and Time Formats Dialog Box

Access the Date and Time Formats dialog box by clicking the Date/Time button in the Format dialog box, available from the Define, Compute, and Recap tools. The Date and Time Formats dialog box is shown in the following image.

![Date and Time Formats Dialog Box](image)

**Note:** The Date and Time Formats dialog box enforces valid Date-only and DateTime format combinations, based on the input entered and the field selected. Some options may not be available for your selections.

**Field Format**

Displays the type of field being created or edited.

- **Date.** Assigns a Date format that represents a date or date component and enables the Date-only options.
- **DateTime.** Assigns a DateTime format that represents a date and time, or date and time component, and enables the Date and Time options.
**Note:** When creating a new field, both formats are enabled, allowing you to create either type of field format. When editing an existing field, only one field format is enabled, enforcing a visual indication of what type of field is being edited and indicating the applicable options.

**Format String**

Displays the current format string in FOCUS syntax, updated as changes are made in the dialog.

**Sample Data**

Displays a sample date and/or time value based on the current date/time and current format string.

**Date Options**

**Format**

Lists all the valid date combinations for Year, Month, Day, and so on. The options vary depending on the field format selected.

**Note:** The default date format is None, from which you can select a Day name option (for a Date field format), or a Time format option (for a DateTime field format).

**Century**

Opens the Century/Base dialog box, which enables you to set Century and Base options added for Y2K.

- Century value assigns the two-digit century value to control the century values of a field.
- Base year assigns the two-digit base year to control the century values of a field.

**Month Name**

Displays the month name instead of a number for the field. The options vary depending on the field format selected.

**Day Name**

Displays the day name with the date using translate options. The options vary depending on the field format and the Month Name selected.

**Note:** This option appears as Day when the DateTime field format is selected. The options are Default (2-digit) or Zero suppression (zero-suppressed) number for a Day.
Prefix

When the Date field format is selected, the Prefix option controls if the name appears before (default) or after the other date options.

**Note:** Prefix is only available when a Day Name is selected.

Separator

Displays the separator used in numeric dates.

- Default applies slashes (/) as the separator.
- Blank applies blank spaces as the separator.
- None applies no separators.
- Dash (--) applies dashes (-) as the separator.
- Period (.) applies periods (.) as the separator.
- Comma applies commas (,) as the separator.

**Note:** The comma separator option is available for DateTime field formats, in which a month or day is followed by a year, and a Month Name is translated to a short or full name.

- T applies the letter “T” as the separator.

**Note:** The T separator option is available for DateTime field formats (which is the U separator in the Master File), and enables recognition and output of the ISO standard format, where T is the delimiter between date and time.

For more information about describing a Date-Time field in a Master File, see the *Describing Data With WebFOCUS Language* manual.

Time Options

Format

Lists all the valid time combinations for hour, minute, seconds, and so on, for a DateTime field format. The options vary depending on whether the DateTime format contains date options versus time-only options.

For more information about time formats, see the *Using Functions* manual.
Zero Suppression

Applies a zero-suppressed number, when the time format is hour or minute. Zero suppressed is indicated by default, for example, when AM/PM options are selected.

**Note:** Zero Suppression is only enabled for Time-only formats.

24-hour

Represent the 24-hour time format.

12-hour

Represents the 12-hour time format.

Suffix

Options vary depending on the time hour selected.

- For 24-hour formats, the options are None or Z suffix.

  **Note:** Z suffix enables recognition and output of the ISO standard formats by using Z at the end of universal times, and acceptance of inputs with time zone information.

- For 12-hour formats, the options are shown as AM or PM values, depending on the time of day.

**Procedure:** How to Assign a Date/Time Format to a Field

1. Select the date field in the Report Painter window that you want to change.
2. Right-click and click *Format* from the context menu.
   or
   Click *Format* from the Properties menu.

   The Format dialog box opens.
3. Click the *Date/Time* button on the Format dialog box.

   The Date and Time Formats dialog box opens.
4. Use the Format drop-down list to change the Date format.

  **Note:** The Date and Time Formats dialog box enforces valid Date-only and DateTime format combinations, based on the input entered and the field selected. Some options may not be available for your selections.
5. Optionally, select the Date or DateTime options for the field.
   For details about the available options, see *Date and Time Formats Dialog Box* on page 479.

6. Click OK to close the Date and Time Formats dialog box.
7. Click OK to close the Formats dialog box.

**Procedure:** How to Assign a Date/Time Format With the Define Tool

In the Define tool window:

1. Click the **Format** button.
   
   The Format dialog box opens.

2. Click the **Date/Time** button from the Format Type section.
   
   The Date and Time Formats dialog box opens.

3. Select **Date** as the Field Format.
   
   The Date section options are enabled.

   **Note:** The Date and Time Formats dialog box enforces valid Date-only and DateTime format combinations, based on the input entered and the field selected. Some options may not be available for your selections.

4. Select a date format from the Format drop-down list.
   
   When a date format is selected, the Format String and Sample Date are displayed for the format selected.

5. Optionally, you may select the Month Name, Day Name, Prefix, and Separator options.
6. Click OK.
   
   The Date and Time Formats dialog box closes. The selected format appears in the Date/Time Format section of the Format dialog box.

7. Click OK to close the Format dialog box.

   **Note:** Administrators and developers should note that date options set in a virtual field will override date options set in the Master File or with a SET command.

**Procedure:** How to Assign a Date/Time Format With the Computes Tab

1. From the Report Options Computes tab, click the **Format** button.
The Format dialog box opens.

2. Click the Date/Time button in the Format Types section.
   The Date and Time Formats dialog box opens.

3. Select a Field Format, either Date or DateTime.

   **Note:** The Date and Time Formats dialog box enforces valid Date-only and DateTime format combinations, based on the input entered and the field selected. Some options may not be available for your selections.

4. Select a date format from the Format drop-down list.
   When a date format is selected, the Format String and Sample Data are displayed for the format selected.

5. Optionally, you may select the Month Name, Day Name, Prefix, and Separator options for the Date field.
   If the field format is DateTime, you may select the Month Name, Day, Separator, Time Format, and Time Options.
   For details about the options in the Date and Time Formats dialog box, see Assigning Date/Time Formats on page 478.

6. Click OK to close the Date and Time Formats dialog box. The selected format appears in the Format box.

7. Click OK to close the Format dialog box and return to the Computes tab.

   **Note:** Administrators and developers should note that date options set in a COMPUTE field override date options set in the Master File or SET command.

**Procedure:** How to Apply the Date/Time (DT) Function in Graphical Tools

In addition to assigning the Date/Time field format, you may also apply the Date/Time (DT) function to be used in a Compute, Define, and Where expression. The Functions button, available from the Compute, Define, and Where tools, opens the Function Arguments dialog box, from which you can apply the DT function.

1. In Report Painter, open the Compute, Define, or Where tool:
   - Click the Define icon from the Setup toolbar, or click Define from the Report menu.
   - Click the Computes icon from the Setup toolbar, or click Computes from the Report menu.
Click the *Where* button from the *Where/If* drop-down menu. The selected graphical tool opens.

2. Click the *Functions* button. The Function Arguments dialog box opens.

3. Select *Date and Time* as the category.

4. Select *DT* as the function. The Function Arguments dialog box shows the date_time_string field and is shown in the following image.

For details about all of the available Date and Time functions, see *Date and Time Functions* in the *Using Functions* manual.

5. Click the *Generate a date_time string* button, located next to the date_time_string field. The Date Time Setup dialog box opens.

6. Select the Date Time option.
The options include *Date and Time*, *Date Only*, and *Time Only*. The dialog box options vary depending on the Date Time option selected.

7. Select the *Date* drop-down list to open the calendar and select a date. The *Date* option is available when *Date and Time*, or *Date Only*, is selected.

8. Select the *Time* option from the drop-down list, and enter the *Hour*, *Minute*, and *Seconds*. Time options are available when *Date and Time*, or *Time Only*, is selected.

The `date_time_string` is shown on the bottom of the Date Time Setup dialog box as you select the options. The following image is an example of the Date Time Setup dialog box.

9. Click *OK* to close the Date Time Setup dialog box. The `date_time_string` is shown in the Function Arguments dialog box.

10. Click *OK* to close the Function Arguments dialog box.

11. Click *OK* to close the graphical tool.
The graphical tool shows the DT function in the expression. The following image is an example of the Where tool with a DT function.

Procedure: How to Apply the Date/Time (DT) Value in an Expression

There are multiple ways to apply the Date/Time (DT) value in an expression. The Expression Builder, available from the Where tool, opens the Value Builder dialog box, from which you apply the DT value. You can also type the DT value in the Compute and Define tools.

1. To manually type a Date/Time (DT) value in the Compute and Define expression:
   a. In Report Painter, open the Compute or Define tool:
      - Select the Define button from the Setup toolbar, or click Define from the Report menu.
      - Select the Computes icon from the Setup toolbar, or click Computes from the Report menu.

      The selected graphical tool opens.
b. In the expression window, manually type the Date/Time (DT) value. For example:

\[
\text{WHERE TESTDT EQ DT(2009-02-06 12:00:00AM)}
\]

2. To apply the Date/Time (DT) value in the Where tool:

a. Click the Where button from the Where/If drop-down menu.

The Expression Builder opens.

b. Double-click a Date/Time field name from the list on the left side of the window to add it to the Column to filter column.

- Click the down arrow in the Logical Relations column to select a relation from the drop-down list.
- Click the down arrow in the Compare Type column and click Value from the drop-down list.
- Double-click the Compare Value column.

The Multiple Value Builder dialog box opens.

Note: From the Multiple Value Builder dialog box, you can search the database for an actual Date/Time value, or create the new Date/Time value with the Date Time Setup dialog box.

c. To search the database for an actual Date/Time value:

- Click the Select a field ellipsis in the Data Context area to select the Date/Time field from the Value Retrieval list.

- The Value Retrieval list provides a list of available fields in your data source. Double-click a field, click Get Data, or click OK to close the Value Retrieval field list and return to the Multiple Value Builder dialog box. The available values are listed.
- Double-click values to add them to the Values List.
The following image shows the Multiple Value Builder dialog box with Date/Time values retrieved from the data source.

\[ \text{Image of Multiple Value Builder dialog box} \]

**d.** To create the new Date/Time value with the Date Time Setup dialog box:

- Click the **Add new item** icon to open the Date Time Setup dialog box.

- Click the **Date Time** option.
  
  Options are **Date and Time**, **Date Only**, and **Time Only**. The dialog box options vary depending on the Date Time option selected.

- Select the Date drop-down list to open the calendar and select a date.
  
  The Date option is available when Date and Time, or Date Only, is selected.

- Select **Time** from the drop-down list, and enter the Hour, Minute, and Seconds.
  
  Time options are available when Date and Time, or Time Only, is selected.
The date_time_string is shown on the bottom of the Date Time Setup dialog box as you select the options. The following image is an example of the Date Time Setup dialog box.

- Click **OK** to close the Date Time Setup dialog box.
The following images shows the Multiple Value Builder dialog box with Date/Time value retrieved from the Date Time Setup dialog box.

![Multiple Value Builder dialog box]

**e.** Click OK to close the Multiple Value Builder dialog box and return to the Expression Builder.

The Date/Time (DT) value appears in the Compare Value field of the Expression Builder.

**f.** Click OK to close the Expression Builder.

The Date/Time (DT) value appears in the expression window.

3. Click OK to close the graphical tool and apply the Date/Time (DT) value to the field.

**Displaying Calculated Values**

You can view calculated values directly in the Computes tab.

**Procedure: How to Display Calculated Values**

In the Computes tab, click the down arrow at the right of the Field combo box, and select the desired field.

The corresponding information appears in the Field combo box, the Format box, and the expression box.

**Procedure: How to Delete a Calculated Value**

1. Click the down arrow at the right of the Field combo box.
This action displays a drop-down list that shows all the calculated values for this report.

2. Choose the desired field.

   This action displays the corresponding information in the Field combo box, the Format box, and the expression box.

3. Click the Delete button.

   The field is no longer available.

Using Master File Computed Fields

Computed fields that are created in the Master File are available in the field lists of Report Painter. This kind of computed field is identified by being listed in the Master File Computed Field folder of the field list and is differentiated from the Defined fields and the other Computed fields.

You can use a computed field:

- **As a BY sort field.** The BY sort is automatically converted to a TOTAL field since calculated values are calculated after data has been sorted and aggregated, but before the report is displayed. Since sorting (BY) has already been done, the phrase BY TOTAL is used to indicate that this sort is performed after any BY sorting. This applies to calculated values in the Master File and temporary calculated values.

- **In a WHERE TOTAL statement.** When you use calculated values for selection criteria, the WHERE is automatically converted to WHERE TOTAL. This occurs because the WHERE TOTAL is added after the data is retrieved and sorted, but before the report is finalized. This applies to selection criteria created with calculated values in the Master File and temporary calculated values.

- **As a SUM or DETAIL field.**

- **In a page heading or footing.** When you include a computed field in a page heading/footing, the field must exist in the report as either a BY sort field or a SUM/DETAIL field. If you add a computed field to a page heading/footing and the field does not already exist in the report, then it is automatically added to the report.

Computed fields in the Master File appear in all field lists in Report Painter except for the field lists in the Define Tool and the Join Tool.

**Reference:** Support for Computed Fields in the Master File in Report Painter

The following items are not supported when using Master File computed fields in Report Painter:

- Prefix operators.
- Across sort fields.
- Join statements or Defined fields.

**Reference:** **Calculated Value (Computed Field) Dependencies in Report Painter**

These dependencies apply to computed fields in the Master File.

When you include a computed field in selection criteria or in a page heading/footing, the field must exist in the report as either a BY sort field or a SUM/DETAIL field. If you create selection criteria with a computed field or add a computed field to a page heading/footing and the field does not already exist in the report, then it is automatically added to the report. The visible option is automatically deselected in the Field Properties General tab so that the computed field does not appear in the report output.

**Using Master File Filters in Report Painter**

Filters cannot be used in reports as regular fields and they cannot be dragged to a report, including Headings or Footings. However, if Filters are added to the report by manually editing the code, they appear as regular columns in Report Painter and return values of 0 (False) or 1 (True) at run time.

**Procedure:** **How to Add a WHERE Statement Using a Filter Field in Report Painter**

1. From the Object Inspector in Developer Studio, select the Filter field from the field list.
2. Right-click and click *Add filter to report* from the context menu, as shown in the following image.
The following image shows that the Filter icon changes to indicate that the Filter is being used in the report request.

3. To remove the WHERE statement for the Filter field, right-click the Filter and click Remove filter from report from the context menu, as shown in the following image.

Note: If multiple entries are added for this Filter, they all get removed.

Note: If the Filter applied gets modified through the Expression Builder, or by manually changing the code to generate a complex statement, it no longer appears in the Field Tree as an applied Filter and it is not able to be removed from the context menu. This applies to any code that is different from the default code.

Creating User Defined Functions

You are able to create your own functions by using the Define Function Wizard. The Define Function Wizard assists in the creation of a user function. The created functions can later be retrieved through the Function Arguments dialog box using the Retrieve User Functions button. Click Retrieve User Functions so that your created functions will be available for use.

Procedure: How to Create a User Defined Function

To create a user defined function:
1. Create a new procedure.
   The Add Procedure dialog box opens.

2. Name the procedure and click Define Function from the Create With drop-down menu, as shown in the following image.

   ![Add Procedure dialog box](image)

   **Note:** You can also select Define Function from the component connector, however, the user functions created through this method will only be applicable to that specific procedure. User Functions created through the Add Procedure dialog box will be available for use by all procedures within the APP PATH.
The Define Function Wizard opens, as shown in the following image.

3. Click Next.

The Name part of the Define Function Wizard is displayed, as shown in the following image.
4. Enter a name and description for the function and click Next.

The Parameters section of the Define Function Wizard is displayed, as shown in the following image.

5. Click the Add new item button to add new parameters to the function.

You can rename the parameters by double-clicking on the name column. For each parameter, clicking the ellipsis button in the Format column will open the Format dialog box, allowing you to edit the format of that parameter. Double-clicking in the Description column for each parameter will allow you to edit the description for parameter.

6. Click Next.
The Defined Fields section of the Define Function Wizard is displayed. One defined field (with the same name as your function) is already entered, as shown in the following image.

A function is comprised of expressions that returns a value to the caller of the function.

7. Click the *Add new item* button if you want to add more defined fields.

You can rename the fields by double-clicking on the name column. For each field, clicking the ellipsis button in the Format column will open the Format dialog box, allowing you to edit the format of that field. Clicking the ellipsis button in the Expression column will open a dialog where you can edit what the function will do.
**Note:** The last defined field must have the same name as the function. This is why one defined field is already entered with the same name as the function. If multiple expressions are present, then the defined field with the same name as the function must be in the last position, as shown in the following image. If no defined field has the same name as the function or if the defined field is not in the last position, you will be unable to progress to the next window.

8. Click Next.
The Complete the Define Function Wizard window is displayed. The function, as well as its parameters and logic, are displayed before completion, as shown in the following image.

9. Click Finish to create the function.

The Define Function Wizard opens to a new window, as shown in the following image.

If there are no more functions you want to create, clicking OK will close the Wizard with all functions created.
10. If you want to create more functions, click *New* to bring up the Define Function Wizard again, allowing you to create another function.

This can be done as many times as needed, allowing you to create multiple functions in the procedure, without having to exit and repeat certain steps.

Select a function and click *Edit* to open the Define Function Wizard. Here you can change any part of the already created function by going through each window.

Select a function and click *Delete* to delete the function.

**Procedure: How to Retrieve a User Defined Function**

1. Create a procedure and user defined function to be used later by a report.

2. Create a report that will utilize the function you created.

3. Click the *Define* button, as shown in the following image.

![Define Button](image)

The Define tool opens.

4. Click the *Functions* button.

The Function Arguments dialog box opens.

**Note:** The Function Arguments dialog box can also be accessed from the Report Options Compute tab and the Expression Builder.
5. Click the *Retrieve User Functions* button, as shown in the following image.
The functions you created using the Define Function Wizard are available for use, as shown in the following image.

Once the user functions have been loaded, the Retrieve User Functions button becomes the Refresh User Functions button. Click this button to refresh your user functions and show any new user functions that have been added.

Creating Expressions for Temporary Fields

When you create a temporary field for a report (with the Define tool or the Report Options Computes tab) or in a Master File (with the Synonym Editor), you must specify how to derive the new field value by writing an expression.

For more information, see the Describing Data With Graphical Tools manual.
**Procedure:** How to Specify a Field in an Expression With the Define Tool

In the Define tool window, double-click the desired field in the Fields window. The field name is added to the expression box.

**Note:** The format of the field you specify in an expression must be consistent with the format of the temporary field you are creating. For example, if you are creating an alphanumeric temporary field, the fields you use in the expression must also be alphanumeric.

**Procedure:** How to Use a Function in an Expression With the Define Tool

In the Define tool window:

1. Click the **Functions** button. The Function Arguments dialog box opens.

2. A list of predefined functions are grouped into categories. Select a category from the drop-down list.

   **Note:** A list of predefined functions are grouped into categories that include Character, Data Source and Decoding, Date and Time, Format Conversion, Numeric, and System. Each of the available functions is a program that returns a value. See the *Using Functions* manual for complete information on functions. There is also a list of user defined functions available. For more information on user defined functions, see *Using User Defined Functions* on page 323.

3. Select a function.
4. Enter any other criteria for the function, such as the value, length, format, and so on.
5. Click OK. The function and placeholders for its arguments are added to the expression.
6. Repeat steps 3 through 6 for each argument.

**Procedure:** How to Specify a Field in an Expression With the Computes Tab

In the Report Options Computes tab, click the **Fields** button and double-click the desired field. The field name is added to the expression box.

**Note:** The format of the field you specify in an expression must be consistent with the format of the temporary field you are creating. For example, if you are creating an alphanumeric temporary field, the fields you use in the expression must also be alphanumeric.
Procedure: How to Specify Missing Value Attributes Using the Computes Tab

1. Open the Computes tab by performing one of the following actions.
   - In Report Painter, click Computes from the Report menu.
   - or
   - Select the Compute icon from the Setup toolbar.
   - or
   - Right-click anywhere in the Fields tab of the Object Inspector and click New Compute Virtual Field.

   The Report Options dialog box opens at the Computes tab.

2. Create a Computes expression.

3. Click the Options button and select the Override missing values handling check box to specify how the missing value attributes are handled.

4. Click OK to close the Options dialog box.

For more information about Missing Field Values, see MISSING Attribute in a DEFINE or COMPUTE Command in the Handling Records With Missing Field Values chapter of the Creating Reports With WebFOCUS Language manual.
Procedure: How to Use a Function in an Expression With the Computes Tab

1. In the Report Options Computes tab, click the Functions button.
   
   The Function Arguments dialog box opens. Each of the available functions is a program that returns a value. For a list of functions, see the Using Functions manual.

2. Select a category from the drop-down list. The available categories are All, Character, Data Source and Decoding, Date and Time, Format Conversion, Numeric, and System.

3. Select a function.

4. Enter any other criteria for the function, such as the value, length, format, and so on.

5. Click OK. The function and placeholders for its arguments are added to the expression.

6. Repeat steps 3 through 6 for each argument.

Example: Decoding Values With a Function

The DECODE function assigns values based on the coded value of an input field. DECODE is useful for giving a more meaningful value to a coded value in a field.

Note: You can use the DECODE function by supplying values directly in the function or by reading values from a separate file.

For example, using information in the sample data source EMPLOYEE, use the DECODE function to assign a department code based on the current jobcode of the employee. Specifically, assign the department code of MANAGER to all the managerial jobcodes. Assign the department code of ADMINISTRATIVE to all the administrative jobcodes, and the department code of SYSTEMS for all the programming jobcodes. DECODE expands (decodes) these values to ensure correct interpretation on a report.

1. Create the report:
   
   q Open the employee.mas data source in Report Painter.
   q Select LAST_NAME as the By sort field.
   q Select CURR_JOBCODE and JOB_DESC as Detail sort fields.

2. Click Computes from the Report menu, or click the Compute icon from the Setup toolbar.
   
   The Report Options dialog box opens at the Computes tab.

3. Type DEPT_CODE as the Field name for the Compute.

4. Type A15 as the Format for the field.
5. Click the *Functions* button.

The Function Arguments dialog box opens. Each of the available functions is a program that returns a value. For a list of functions, see the *Using Functions* manual.

6. Click *Data Source and Decoding* from the Select a category drop-down list.

7. Click *DECODE* from the Select a Function list.

The DECODE options appear. You may supply values in the function or read values from a file.

8. To supply values in the function:
   - Click *Supply Values in the Function* as the DECODE option. This is the default option.
   - Click *CURR_JOBCODE* as the fieldname.
   - Type a list of the actual jobcode values and the display value for the jobcode. For example, type:
     - *A07* as the actual_value, and *ADMINISTRATIVE* as the display_value.
     - *A17* as the actual_value, and *MANAGER* as the display_value.
     - *B02* as the actual_value, and *SYSTEMS* as the display_value.
     - *B03* as the actual_value, and *SYSTEMS* as the display_value.
     - *B04* as the actual_value, and *SYSTEMS* as the display_value.
     - *B14* as the actual_value, and *ADMINISTRATIVE* as the display_value.
   - Optionally, enter the default value.

**Note:** Default is the value assigned if the code is not found. If you omit a default value, DECODE assigns a blank or zero to non-matching codes.
The following image shows the Function Arguments dialog box with these options.

- Click **OK** to close the Function Arguments dialog box.

9. To read values from a file:
   - Click **Read Values from a File** as the DECODE option.
   - Click **CURR_JOBCODE** as the fieldname.
   - Enter the **ddname** for the file.

A logical name or a shorthand name that points to the physical file containing the decoded values is a ddname. You may create a ddname name with the Allocation Wizard. For details, see the *Developing Reporting Applications* manual.
1. Optionally, enter the default value.

Default is the value assigned if the code is not found. If you omit a default value, DECODE assigns a blank or zero to non-matching codes.

The following image shows the Function Arguments dialog box with these options.

![Function Arguments dialog box](image)

- **ddname**
  - A logical name or a shorthand name that points to the physical file containing the decoded values.

2. Click OK to close the Function Arguments dialog box.

The function and placeholders for its arguments are added to the expression in the Computes tab.

3. Click OK to close the Report Options dialog box.

The Compute field is added to Report Painter.

4. Run the report.
The report, in the following image, shows the decoded department code values assigned to the current jobcodes in the data source.
Reference: Report Options Computes Tab

The Report Options Computes Tab is shown in the following image.

The Computes tab includes the following fields and options for creating expressions.

**Field Box**

Displays the name of the calculated value. Assign a field name to the value you wish to calculate.

When editing a calculated value, click the down arrow on the Field combo box, and select the field you wish to edit. When you select a field, the corresponding information appears in the Format box, and the expression box. You can edit the information, eliminate the field, or run it.
Creating Expressions for Temporary Fields

**Format Box**
Displays the field type, field length, and display options. The field type can be alphanumeric, numeric, or date/time.

**Format Button**
Opens the Format dialog box, where you can assign format information to the calculated value.

**Expression Box**
Displays the expression used to evaluate the field.
Type the expression, or use the Fields list, Calculator, and Functions list to help you create the expression.

**Calculator**
Provides numbers and operators that you can use to create numeric, alphanumeric, and conditional expressions. Click the desired number or operator to add it to the expression box.

- To enclose a value in parentheses, click the ( ) key in the calculator. Parentheses affect the order in which the specified operations are performed.
- To enclose a value in single quotation marks, click the ‘ ‘ key in the calculator. Use single quotation marks to enclose alphanumeric and date literals.
- To convert entries in the expression box to uppercase, click the U key in the calculator. Note that field names are case-sensitive.

**New Button**
Clears the entry box, including the Field combo box and the corresponding expression. It also returns the format to the default value D12.2, and places the cursor in the Field combo box so you can begin to create a new field. The New button becomes available for use once a name for the expression is entered in the Field box. Once a name is entered and you click the New button, the previous expression is saved and can be retrieved by selecting that expression from the Field drop-down list.

**Delete Button**
Deletes the current expression and clears the tab.
Functions Button

Opens the Function Arguments dialog box, which lists all available built-in functions. A list of predefined functions are grouped into categories that include Character, Data Source and Decoding, Date and Time, Format Conversion, Numeric, and System. Each of the available functions is a program that returns a value. There is also a list of all available user defined functions. For more information on user defined functions, see Using User Defined Functions on page 323.

Double-click the desired function to add it to the expression box. Then, in the expression box, highlight each argument and substitute the value or field name you wish to use. For details, see the Using Functions manual.

Fields Button

Opens the Insert Field window. The Field tab lists all fields in the data source. The Column tab lists all fields being used in the report. If there are no fields being used, the Column tab will display all fields in the data source. Click Insert while a field is highlighted to insert that field into the expression.

Options Button

Opens the Options window, which enables you to establish how to interpret and represent missing values for the virtual field.

OK Button

Checks the syntax for your calculated value and displays a warning message. You cannot exit until the errors are fixed. When the syntax is correct and you click OK, the Computes tab closes. You can continue building your report.
Define Tool

The following image shows the Define tool.

The Define tool has the following fields or options:

Field

Displays the name of the temporary field.

To create a field, type the name that you want to use in the Field text box.

To edit a field, select the field. When you select a field, the corresponding information appears in the Format box, and the expression box. You can edit the information, eliminate the field, or run it.

Add

When selected, it indicates that the current temporary field definitions should be added to the list of temporary fields previously defined for the same data source.

If this button is not selected, the current set of temporary fields replaces those previously defined for the same data source.
In Application View, this action marks all definitions created during the current use of the Define tool to be added to other virtual fields defined for the same data source during earlier use of the tool.

**Note:** You can define and execute several virtual fields during a single use of the Define tool. However, unless you select Add, running the current list will erase other virtual fields created outside of the Master File for the same data source. Virtual fields created in the Master File remain in effect.

**Clear**
When selected, it clears any current temporary field definitions you previously added to the list of temporary fields.

**Format button**
Opens the Format dialog box, where you assign a format to the temporary field.

**Format box**
Displays the field type, field length, and display options. The field type can be alphanumeric, numeric, or date/time.

**Options button**
Opens the Options window, which enables you to establish a segment location for a temporary field in the associated Master File, and/or assign attributes to set how missing values in the virtual field are handled.

**Expressions box**
Displays the expression used to evaluate the field.

Type the expression or use the Fields list, calculator, and functions list to help you create the expression.

**Calculator buttons**
Provide numbers and operators that you can use to create numeric, alphanumeric, Boolean, and conditional expressions.

Click the desired number or operator to add it to the expression box.

- To enclose a value in parentheses, click the ( ) key in the calculator. Parentheses affect the order in which the specified operations are performed.
- To enclose a value in single quotation marks, click the ' ' key in the calculator. Use single quotation marks to enclose alphanumeric and date literals.
Creating Expressions for Temporary Fields

- To convert entries in the expression box to uppercase, click the U key in the calculator. Note that field names are case-sensitive.

**Check**
Displays the Define phrase in code, and specifies any errors.

**New**
Clears the entry fields of the tools, including the Field text box and the corresponding expression. It also returns the format to the default value D12.2, and places the cursor in the Field text box so you can begin to create a new field.

**Delete**
Deletes the temporary field identified in the Field text box. The field is no longer available.

**Functions**
Opens the Function Arguments dialog box, which lists all available built-in functions. (A function is a program that returns a value.)

Double-click the desired function to add it to the expression box. Then, in the expression box, highlight each argument and substitute the value or field name you wish to use. For details, see the Using Functions manual.

**Defined Fields**
Lists the names of the temporary fields already associated in the Master File.

**Fields List**
Lists the fields defined in the Master File.

**Example:**  
**Creating a Virtual Field**

Using information in the sample data source EMPLOYEE, the following example shows how to create a virtual field, INCREASE, to calculate the annual salary increase each employee will receive. This example assumes that you have already created a procedure with which you want to use this virtual field.

1. Open a procedure in which you want to create a virtual field.
2. Select the EMPLOYEE Master File and click Open.
3. Open the Define tool from the component connector toolbar.
4. Type INCREASE in the Field input box.
5. Click the Format button.
The Format dialog box opens.

6. Confirm that the Decimal option button is selected under Format Types.

7. Click the down arrow in the Length input area to specify the field length. Leave the number 2 in the Decimal field.

8. Select the Floating dollar--M option in the Edit Options list box.

9. Click OK to make the changes and return to the previous dialog box.

10. Click the Fields List tab, then double-click CURR_SAL.

11. Enter the following by typing or using the number and operator buttons in the Expressions window:

   \[ \text{CURR\_SAL} \times .05 \]

   The expression for the Define field now appears as CURR_SAL * .05.

12. Click OK.

You can then select the new field, INCREASE, in the Fields window of the reporting tools.

**Using the Expression Builder**

The Expression Builder enables you to create expressions quickly by selecting fields, relations, operators, and values from lists. You can base selection criteria on a specified value, a variable value, or a field value.

You can access the Expression Builder by clicking Where, If, or Where Total from the Where/If drop-down menu, as shown in the following image.
The Expression Builder dialog box is shown in the following image.

The Expression Builder is divided into four sections. The Data section is located in the upper-left of the Expression Builder. The Criteria section is located to the lower-left of the Expression Builder. The Advanced section is located in the lower-right of the Expression Builder. The Expression Grid is located to the upper-right of the Expression Builder.

The Data section displays a list of all fields in the data source. Double-click or drag the field into the Expression Grid to build an expression using the options provided. You can also drag fields to the Criteria section and the Advanced section, once it is enabled.
The Criteria section displays which expression you are working on, as well as which expressions, of the same type, you have already created. If you double-click a field and it is added to the Expression Grid, the field will be shown in the Criteria section. Alternatively you can drag a field into the Criteria section begin working on a new expression. Dragging more than one field into the Criteria section allows you to create multiple of whatever type of statement you selected (Where, If, or Where Total). For example, if you clicked Where to open the Expression Builder, then dragging more than one field into the Criteria section will create multiple Where expressions. Selecting an expression in the Criteria section will show you the details of that expression in the Expression Grid and/or the Advanced section. The following image shows the Criteria section with multiple Where expressions.

![Criteria Section Example]

**Note:** The type of expression you are creating is shown next to the Criteria section. For example, in the image above, a Where expression is being created. Therefore (WHERE) is displayed next to Criteria. If you were creating an If expression, that section would say (IF). If you were creating a Where Total expression, that section would say (WHERE TOTAL).
The Advanced section is where, instead of creating an expression using the Expression Grid, you are creating it using syntax. This is for if you do not want to use the Expression Grid to create an expression. The Advanced check box is only available to be checked once a field is in the Criteria or Expression Grid. Once the Advanced check box is checked, the Advanced section, the Function button, and the Variable button are available for use. The following image shows the Advanced section with the Advanced check box checked and an expression entered.

The Expression Grid is where you build an expression using the drop-down options available. You can add more fields to the Expression Grid to make a more complex expression by using OR and AND. These options are explained in the Basic Expression Builder Dialog Box on page 530. An image of the Expression Grid with an expression created is shown in the following image.
**Reference: Expression Builder Dialog Box**

The Expression Builder dialog box, which is shown in the following image, has the following sections/options:

### Data section
Displays a list of all of the fields in the data source. Double-click or drag a field to add it to the Expression Grid.

### Expression Grid
Create an expression by using the drop-downs in correlation with a field.

You can delete expressions from the Expression Grid using the Delete key or right-click Delete option when either the And/Or or Column to filter columns are selected. If you use the Delete key or right-click Delete option on any other column, it will only delete that column option.

You can only delete entire expressions, using the Expression Grid, when there are multiple expressions present. If you want to delete a single expression, you must do it from the Criteria section.

### And/Or
Displays the keyword used in the expression listed in the Expression list box. You must select more than one field for the expression to activate this option.
Parentheses

Allows you to add either one, two, or three parentheses before and after an expression.

Column to filter

The field you clicked or dragged in from the Data section. This field can be changed after being added by clicking the drop-down list and selecting a different field.

Logical Relation

Displays a list of possible relations between the selected data source field and the value, parameter, or other field that WebFOCUS will compare it to. Select a relation to activate the Compare Type column.

The following relations are available from the drop-down list:

- equals
- does not equal
- is greater than
- is greater than or equal to
- is less than
- is less than or equal to
- is
- is not
- contains
- does not contain
- matches the pattern
- does not match the pattern
- is like
- is not like
- is missing
- is not missing
- includes
- excludes
is from

is not from

is in literal list

is not in literal list

is in external file of literals

is not in external file of literals

none

**Note:** The *is* and *is not* relations are only available for an IF statement. The *matches the pattern, does not match the pattern, is like, is not like, is in literal list, is not in literal list, is in external file of literals, and is not in external file of literals* relations are only available for a WHERE statement.

**Compare Type**

Indicates the nature of the comparison you wish to make to the field selected in the field section.

The following is a list of the available Compare Types and a brief description of what each is:

- **Value** is a set value the user creates, using the Multiple or Single Value Builder, in the Compare Value section.

- **Field** is a selected field the user specifies, using the Multiple or Single Value Builder, from the Compare Value section.

- **Parameter** is a parameter created by the user, using the Variable Editor, in the Compare Value section.

- **Parameter (Dynamic)** is a parameter option that allows a user to multiselect values using a button. This option automatically generates the required syntax so that the Variable Editor does not need to be invoked.

- **Parameter (Static)** is a parameter option that presents a value list to select from. This option automatically generates the required syntax so that the Variable Editor does not need to be invoked.

- **Parameter (Simple)** is a parameter option that prompts the user to enter a value. This option automatically generates the required syntax so that the Variable Editor does not need to be invoked.
Function is a function created by the user, from the Compare Value section, using the Function Arguments dialog box. For more information, see the Using Functions manual or click the Help button from the Function Arguments dialog box.

Import Values is a list of values, created by the user, using the Multiple or Single Value Builder, in the Compare Value section.

**Note:** The external file should be a text file with new line delimiters.

Other allows you to enter your own expression.

**Note:** After choosing Other and double-clicking on Compare Value to enter a value, you will be prompted with the following warning message.

If using a literal value, it must be enclosed in single quotes. Please use "Compare Type" "Value" instead for quotes to be added automatically.

You can choose to not show this message again by selecting the option at the bottom of the warning window.

**Compare Value**

Specifies the literal value, parameter, or other field to which the selected field is compared.
The choices available here are dependent on the selection you make in the Compare Type column.

**Criteria**

The Criteria section shows the different expressions you created. Select an expression in the Criteria section to show the expression details in the Expression Grid and/or the Advanced section.

**Advanced check box**

This option can only be checked if there is an expression in the Criteria or Expression Grid section. This option will enable you to use the Advanced section, the Function button, and the Variable button.

**Advanced section**

In this section you can type an expression out rather than using the Expression Grid.

**Function**

Only available when Advanced is checked. Opens the Functions Arguments dialog box to assist in the creation of an expression that is being made with the Advanced section.

**Variable**

Only available when Advanced is checked. Opens the Functions Arguments dialog box to assist in the creation of an expression that is being made with the Advanced section.

**Delete**

Deletes an expression.

**Up**

Moves an expression up one.

**Down**

Moves an expression down one.

**Procedure: How to Display Records Based on Specified Values**

In the Expression Builder dialog box:

1. Select a field name from the Data section.
   The field is added to the Expression Grid.

2. Select a relation from the Logical Relation column.

3. In the Compare Type column, click *Value*. 
4. Double-click the *Compare Value* column. The Multiple Value Builder dialog box opens.
5. Click the *Select a field* button and select a value from the list.
6. Double-click the value to add the value to the list.
   
   **Note:** Repeat this process to add other values to the list.

7. Click *OK*.
   The values are shown in the Compare Value column.

*Procedure:* How to Display Records Based on a Variable Value

In the Expression Builder dialog box:

1. Select a field name from the Data section.
   The field is added to the Expression Grid.

2. Select a relation from the Logical Relations column.
3. In the Compare Type column, click *Parameter (Dynamic)*.
   This creates a Multiselect OR parameter. If you want to make a single select parameter, double-click the Compare Value column to open the Variable Editor and change the Variable Type to *Single Select*.

*Procedure:* How to Display Records Based on Field Values

In the Expression Builder dialog box:

1. Select a field name from the Data section.
2. Select a relation from the Logical Relations column.
3. In the Compare Type column, click *Field*.
4. Double-click on Compare Value to open the Single Value Builder.
5. Double-click a field from the Data Source section to move it to the Value List.
6. Click *OK* to close the Single Value Builder. The field is added to the Compare Value column.
**Procedure:** How to Display Records Based on Imported Values From an External File

In the Expression Builder dialog box:

1. Select a field name from the field list.
   The field is added to the Expression Grid.
2. Select a relation from the Logical Relation column.
3. Click *Import Values* from the Compare Type list options.
4. Double-click the Compare Value column.
   The Multiple Value Builder opens.

**Note:** A Single or Multiple Value Builder opens, based on your Logical Relation selection. In the Multiple Value Builder, you may select more than one value. In the Single Value Builder, only one value may be selected.

5. Click the *Select File* button to import values from an external file.
6. Select a text file from your local machine and click *Open* from the Open dialog box, which is shown in the following image.

![Multiple Value Builder](image)

**Note:** The external file should be a text file with new line delimiters.

The imported values are loaded into the Data Source area of the Multiple Value Builder.
7. Double-click an imported value to add it to the Values List. The Multiple Value Builder dialog box is shown in the following image.

![Multiple Value Builder Image](image)

8. Click OK to close the Multiple Value Builder dialog box and return to the Expression Builder. The imported values are added to the Compare Value area.

**Procedure: How to Select Multiple Values and Fields**

In the Expression Builder dialog box, you can select multiple values or fields to be used for record selection criteria by selecting options in the And/Or column. The And/Or column is only available if you have more than one Column to Filter.

1. Select more than one field name from the fields window and drag them to the Expression Grid.

   **Note:** *And* is already selected for you for every Column to Filter.

2. Click the down arrow in the And/Or column. Select one of the following:

   **And**
   
   To start a new expression that will be combined with the previous expression by the keyword AND.

   **Or**
   
   To start a new expression that will be combined with the previous expression by the keyword OR.

3. Select remaining criteria from the other columns in the Expression Builder to complete the expression.
4. Click OK.

**Note:** When the keyword *And* is used, WebFOCUS only selects data that meet both conditions. When the keyword *Or* is used, WebFOCUS selects data that meet either condition.

**Using the Basic Expression Builder**

The Basic Expression Builder enables you to create expressions quickly by selecting fields, relations, operators, and values from lists. You can base selection criteria on a specified value, a variable value, or a field value.

You can access the Basic Expression Builder by clicking the Assist button within the WHEN dialog, as shown in the following image.

![Basic Expression Builder Image](image)

**Note:** The Basic Expression Builder can also be invoked through a Where based Join.
**Reference:** Basic Expression Builder Dialog Box

The Expression Builder dialog box has the following fields or options:

### Field

Displays a list of all of the fields in the data source. Double-click a field to add it to the Column to filter column.

### And/Or

Displays the keyword used in the expression listed in the Expression list box. You must select more than one field to activate this option.

### Logical Relation

Displays a list of possible relations between the selected data source field and the value, parameter, or other field that WebFOCUS will compare it to. Select a relation to activate the Compare Type column.

### Compare Type

Indicates the nature of the comparison you wish to make to the field selected in the field section.

### Value

Double-click the Compare Value column to launch the Multiple Value Builder dialog box. Click the Select a field ellipsis button to select a value or multiple values to compare the selected field to a literal value.

### Field

Click the down arrow in the Compare Value column to select another field in the data source to compare it to the selected field.
**Parameter**

Double-click the *Compare Value* column to launch the Variable Editor. The Variable Editor enables you to create variable fields and define lists of acceptable values.

**Function**

Double-click the *Compare Value* column to launch the Function Arguments dialog box. This tool lists functions that you can use to calculate the value of a field in an expression (a function is a program that returns a value). For more information, see the *Using Functions* manual or click the *Help* button from the Function Arguments dialog box.

**Import Values**

Double-click the *Compare Value* column to launch the Multiple (or Single) Values dialog box. Click the *Select File* ellipsis button to import values from a local external file. The imported value(s) provide a query limit for the selected data.

**Note:** The external file should be a text file with new line delimiters.

**Other**

Double-click the *<Please Specify>* text in the Compare Value column and overwrite it with a new expression.

**Compare Value**

Specifies the literal value, parameter, or other field to which the selected field is compared.

The choices available here are dependent on the selection you make in the Compare Type column.

See the procedures in this topic for details.

**Note:** You can add opening and closing parentheses after you select other criteria for your expression. To add opening parentheses, click the down arrow in the column to the right of the And/Or column. To add closing parentheses, click the down arrow in the column to the right of the Compare Value column.

**Calculating Trends and Predicting Values With Forecast**

You can calculate trends in numeric data and predict values beyond the range of those stored in the data source by using the Forecast feature.
The calculations you can make to identify trends and forecast values are:

- **Simple moving average.** Calculates a series of arithmetic means using a specified number of values from a field. For details, see *Using a Simple Moving Average* on page 535.

- **Exponential moving average.** Calculates a weighted average between the previously calculated value of the average and the next data point. There are three methods for using an exponential moving average:
  - **Single exponential smoothing.** Calculates an average that allows you to choose weights to apply to newer and older values. For details, see *Using Single Exponential Smoothing* on page 540.
  - **Double exponential smoothing.** Accounts for the tendency of data to either increase or decrease over time without repeating. For details, see *Using Double Exponential Smoothing* on page 544.
  - **Triple exponential smoothing.** Accounts for the tendency of data to repeat itself in intervals over time. For details, see *Using Triple Exponential Smoothing* on page 549.

- **Linear regression analysis.** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

When predicting values in addition to calculating trends, Forecast continues the same calculations beyond the data points by using the generated trend values as new data points. For the linear regression technique, the calculated regression equation is used to derive trend and predicted values.

Forecast performs the calculations based on the data provided, but decisions about their use and reliability are the responsibility of the user. Therefore, Forecast predictions are not always reliable, and many factors determine how accurate a prediction will be.
Forecast Processing

You invoke Forecast processing by including Forecast in a Recap expression. In this command, you specify the parameters needed for generating estimated values, including the field to use in the calculations, the type of calculation to use, and the number of predictions to generate. The Recap field that contains the result of Forecast can be a new field (non-recursive) or the same field used in the Forecast calculations (recursive):

- In a recursive Forecast, the Recap field that contains the results is also the field used to generate the Forecast calculations. In this case, the original field is not printed even if it was referenced in the display command, and the Recap column contains the original field values followed by the number of predicted values specified in the Forecast syntax. No trend values display in the report. However, the original column is stored in an output file unless you set HOLDLIST to PRINTONLY.

- In a non-recursive Forecast, a new field contains the results of Forecast calculations. The new field is displayed in the report along with the original field when it is referenced in the display command. The new field contains trend values and forecast values when specified.

Forecast operates on the last Across field in the request. If the request does not contain an Across field, it operates on the last By field. The Forecast calculations start over when the highest-level sort field changes its value. In a request with multiple display commands, Forecast operates on the last Across field (or if there are no Across fields, the last By field) of the last display command. When using an Across field with Forecast, the field must be a summary field.

Note: Although you pass parameters to Forecast using an argument list in parentheses, Forecast is not a function. It can coexist with a function of the same name, as long as the function is not specified in a Recap expression.

Reference: Usage Notes for Forecast

- The sort field used for Forecast must be in a numeric or date format.

- When using simple moving average and exponential moving average methods, data values should be spaced evenly in order to get meaningful results.

- When using a Recap expression with Forecast, the expression can contain only the Forecast expression. Forecast does not recognize any syntax after the closing semicolon (;). To specify options such as AS or IN:

- In a non-recursive Forecast request, use an empty Compute expression prior to the Recap expression.
In a recursive Forecast request, specify the options when the field is first referenced in the report request.

The use of column notation is not supported in a request that includes Forecast. The process of generating the Forecast values creates extra columns that are not printed in the report output. The number and placement of these additional columns varies depending on the specific request.

A request can contain up to seven non-Forecast Recap expressions and up to seven additional Forecast Recap expressions.

The left side of a Recap expression used for Forecast supports the CURR attribute for creating a currency-denominated field.

Recursive and non-recursive REGRESS are not supported in the same request when the display command is SUM, ADD, or WRITE.

Missing values are not supported with REGRESS.

If you use the ESTRECORDS parameter to enable the external sort to estimate better the amount of sort work space needed, you must take into account that Forecast with predictions creates additional records in the output.

In a styled report, you can assign specific attributes to values predicted by Forecast with the StyleSheet attribute WHEN=FORECAST. For example, to make the predicted values display with the color red, use the following syntax in the TABLE request:

```
ON TABLE SET STYLE
*TYPE=DATA, COLUMN=MYFORECASTSORTFIELD, WHEN=FORECAST, COLOR=RED, $ENDSTYLE
```

**Reference:** Forecast Limits

The following are not supported with Forecast (within a Recap expression):

- Sorting on dates in any of the smart date formats (based on YYMD).
- BY TOTAL command.
- MORE, MATCH, FOR, and OVER phrases.
- SUMMARIZE and RECOMPUTE are not supported for the same sort field used for FORECAST.
- MISSING attribute.
Using a Simple Moving Average

A simple moving average is a series of arithmetic means calculated with a specified number of values from a field. Each new mean in the series is calculated by dropping the first value used in the prior calculation, and adding the next data value to the calculation.

Simple moving averages are sometimes used to analyze trends in stock prices over time. In this scenario, the average is calculated using a specified number of periods of stock prices. A disadvantage to this indicator is that because it drops the oldest values from the calculation as it moves on, it loses its memory over time. Also, mean values are distorted by extreme highs and lows, since this method gives equal weight to each point.

Predicted values beyond the range of the data values are calculated using a moving average that treats the calculated trend values as new data points.

The first complete moving average occurs at the $n^{th}$ data point because the calculation requires $n$ values. This is called the lag. The moving average values for the lag rows are calculated as follows: the first value in the moving average column is equal to the first data value, the second value in the moving average column is the average of the first two data values, and so on until the $n^{th}$ row, at which point there are enough values to calculate the moving average with the number of values specified.

Procedure: How to Calculate a Simple Moving Average

1. With the By or Across field you want to use for your calculations, click Forecast.
   The Forecast dialog box opens.

2. If you want to change the name of the output field that displays the Forecasted values, edit the default name that exists in the Field Name field.

3. Click Moving Average from the Step 1: Choose a Method drop-down list.

4. Select an input measure field from the Step 2: Choose a Measure drop-down list.
   If you select the same field as the By or Across field, this field will not appear in the output even if it is included in a display command.

5. Select the increment number to count each instance of the By or Across field from the Step 3: Choose The Interval menu.

6. Select the number of predictions to be calculated for the Forecast field from the Step 4: Choose Number of Predictions menu.

7. Select the number of values to average from the Step 5: Choose Number Of Values to Average menu.
8. Optionally, change the default field format by clicking the Change Format button and selecting a different format from the Format dialog box.

9. Click OK.

**Reference:** Forecast Dialog Box - Moving Average

The Forecast dialog box is shown in the following image.

The Forecast dialog box contains the following fields or options.

**Field Setup**

**Field Name**
Is the Forecast field name.

**Current Format**
Displays the format of the Forecast.

**Change Format**
Opens the Format dialog box.
Forecast Function Setup

**Step 1: Choose a Method**
Is the Forecast method to use to predict values. The options are:

- **Double Exponential Average.** Accounts for the tendency of data to either increase or decrease over time without repeating.

- **Exponential Average.** Calculates a weighted average between the previously calculated value of the average and the next data point.

- **Linear Regression.** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

- **Moving Average.** Calculates a series of arithmetic means using a specified number of values from a field.

- **Multivariate Regression.** Predicts two or more dependent variables using one independent variable.

- **Triple Exponential Average.** Accounts for the tendency of data to repeat itself in intervals over time.

**Step 2: Choose a Measure**
Is the field to be used to calculate the Forecast field.

**Step 3: Choose The Interval**
Is the increment by which to count instances of the By or Across field.

**Step 4: Choose Number of Predictions**
Is the number of predictions to be calculated.

**Step 5: Choose Number Of Values to Average**
Is the number of values to use to calculate the average used to predict values.

**Current Forecast**
Displays the code created by the Forecast dialog box.

**Example:** **Calculating a Simple Moving Average**
Create a new procedure, open with Report Painter, and open the centord.mas file.

1. Select Report at the top of the Report Painter window, then select Define from the drop-down list.

   The Define dialog box opens.

2. Enter PERIOD in the Field input area, type I2 (Integer format) in the Format input area, then double-click MONTH in the Fields List to add it to the area below PERIOD, then click OK.
3. Add the *PERIOD*, *REGION*, *QUANTITY*, and *LINE_COGS* fields to the report.
4. Select the *PERIOD* field and click the *By* button.
5. Select the *QUANTITY* field and click the *Sum* button.
6. Click the *Where* button from the *Where/If* button.
   
   The Expression Builder opens.
7. Select *REGION* from the *Data* section.
8. Enter *REGION EQ 'WEST'* Advanced section, and click *OK*.
9. Click the *Forecast* button.
   
   The Forecast dialog box opens.
10. In the Field Name field, enter *MOVING_AVE*.
11. Select *Moving Average* from the Step 1: Choose a Method drop-down list.
12. Select *LINE_COGS* from the Step 2: Choose a Measure drop-down list.
13. Specify 1 in the Step 3: Choose The Interval menu.
14. Specify 3 in the Step 4: Choose Number of Predictions menu.
15. Specify 3 in the Step 5: Choose Number of Values to Average menu.
16. Click *OK*.

17. Run the report.
In the report, the number of generated values to use for the moving average is 3, and there are no REGION, QUANTITY, or LINE_COGS values for the generated PERIOD and MOVING_AVE fields.

Each MOVING_AVE field is computed by adding the three previous LINE_COGS values together and dividing the total by three. When moving into the future, where a LINE_COGS value is not available, the value of the last calculated MOVING_AVE is substituted for the missing LINE_COGS value. The calculations of the generated moving averages are explained here:

- The twelfth MOVING_AVE value (3,579,303.67) is equal to the average of the LINE_COGS values for PERIODs 10, 11, and 12. The calculation is (3,786,505.00 + 4,427,791.00 + 2,523,615.00)/3.

- The thirteenth MOVING_AVE value (3,510,236.56) is equal to the average of the LINE_COGS values for PERIODs 11, 12, and 13 (where the twelfth MOVING_AVE value is substituted for the zero LINE_COGS value for PERIOD 13). The calculation is (4,427,791.00 + 2,523,615.00 + 3,579,303.67)/3.
The fourteenth MOVING AVE value (3,204,385.07) is equal to the average of the LINE_COGS values for PERIODs 12, 13, and 14 (where the twelfth and thirteenth MOVING_AVE values are substituted for the zero LINE_COGS values for PERIODs 13 and 14). The calculation is (2,523,615.00 + 3,579,303.67 + 3,510,236.56)/3.

The fifteenth MOVING AVE value (3,431,308.43) is equal to the average of the LINE_COGS values for PERIODs 13, 14, and 15 (where the thirteenth and fourteenth MOVING_AVE values are substituted for the zero LINE_COGS values for PERIODs 14 and 15). The calculation is (3,579,303.67 + 3,510,236.56 + 3,204,385.07)/3.

Using Single Exponential Smoothing

The single exponential smoothing method calculates an average that allows you to choose weights to apply to newer and older values.

The following formula determines the weight given to the newest value.

\[ k = \frac{2}{1+n} \]

where:

- \( k \) is the newest value.
- \( n \) is an integer greater than one. Increasing \( n \) increases the weight assigned to the earlier observations (or data instances), as compared to the later ones.

The next calculation of the exponential moving average (EMA) value is derived by the following formula:

\[ EMA = (EMA \times (1-k)) + (datavalue \times k) \]

This means that the newest value from the data source is multiplied by the factor \( k \) and the current moving average is multiplied by the factor \( (1-k) \). These quantities are then summed to generate the new EMA.

**Note:** When the data values are exhausted, the last data value in the sort group is used as the next data value.

**Procedure:** How to Calculate a Single Exponential Smoothing Average

1. With the By or Across field you want to use for your calculations, click Forecast. The Forecast dialog box opens.
2. If you want to change the name of the output field that displays the Forecasted values, edit the default name that exists in the Field Name field.

3. Select Exponential Average from the Step 1: Choose a Method drop-down list.

4. Select an input field from the Step 2: Choose a Measure drop-down list.
   
   If you select the same field as the By or Across field, this field will not appear even if it is included in a display command.

5. Select the increment to count each instance of the By or Across field from the Step 3: Choose The Interval menu.

6. Select the number of predictions to be calculated for the Forecast field from the Step 4: Choose Number of Predictions menu.

7. Select the number of values to average from the Step 5: Choose Number Of Values to Average menu.

8. Optionally, change the default field format by clicking the Change Format button and selecting a different format from the Format dialog box.

9. Click OK.

Reference: Forecast Dialog Box - Exponential Average

The Forecast dialog box is shown in the following image.
Calculating Trends and Predicting Values With Forecast

The Forecast dialog box contains the following fields or options.

**Field Setup**

**Field Name**
Is the Forecast field name.

**Current Format**
Displays the Forecast format.

**Change Format**
Opens the Format dialog box.

**Forecast Functions Setup**

**Step 1: Choose a Method**
Is the Forecast method to use to predict values. The options are:

- **Double Exponential Average.** Accounts for the tendency of data to either increase or decrease over time without repeating.

- **Exponential Average.** Calculates a weighted average between the previously calculated value of the average and the next data point.

- **Linear Regression.** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

- **Moving Average.** Calculates a series of arithmetic means using a specified number of values from a field.

- **Multivariate Regression.** Predicts two or more dependent variables using one independent variable.

- **Triple Exponential Average.** Accounts for the tendency of data to repeat itself in intervals over time.

**Step 2: Choose a Measure**
Is the field to be used to calculate the Forecast field.

**Step 3: Choose The Interval**
Is the increment by which to count instances of the By or Across field.

**Step 4: Choose Number of Predictions**
Is the number of predictions to be calculated.

**Step 5: Choose Number Of Values to Average**
Is the number of values to use to calculate the average that is used to predict values.

**Current Forecast**
Displays the code created by the Forecast dialog box.
**Example:** Calculating a Single Exponential Smoothing Average

Create a new procedure, open with Report Painter, and open the centord.mas file.

1. Click *Report* at the top of the Report Painter window, then click *Define* from the drop-down list.

   The Define dialog box opens.

2. Enter *PERIOD* in the Field input area, type *I2* (Integer format) in the Format input area, then double-click *MONTH* in the Fields List to add it to the area below *PERIOD*, then click *OK*.

3. Add the *PERIOD*, *REGION*, *QUANTITY*, and *LINE_COGS* fields to the report.

4. Select the *PERIOD* field and click the *By* button.

5. Select the *QUANTITY* field and click the *Sum* button.

6. Click the *Where* button from the Where/If drop-down menu.

   The Expression Builder opens.

7. Select *REGION* from the Data section.

8. Enter `REGION EQ 'WEST'` in the Advanced section, and click *OK*.

9. Click the *Forecast* button.

   The Forecast dialog box opens.

10. In the Field Name field, enter *EXP_AVE*.

11. Click *Exponential Average* from the Step 1: Choose a Method drop-down list.

12. Select *LINE_COGS* from the Step 2: Choose a Measure drop-down list.

13. Specify 1 in the Step 3: Choose The Interval menu.

14. Specify 3 in the Step 4: Choose Number of Predictions menu.

15. Specify 3 in the Step 5: Choose Number Of Values to Average menu.

16. Click *OK*.

17. Run the report.

When the report is run, the forecasted single exponential values will appear in the *EXP_AVE* column.
In the report, the number of values used for each single exponential average is 3, and there are no REGION, QUANTITY, or LINE_COGS values for the generated PERIOD and EXP_AVE fields.

### Using Double Exponential Smoothing

Double exponential smoothing produces an exponential moving average that takes into account the tendency of data to either increase or decrease over time without repeating. This is accomplished by using two equations with two constants.

- The first equation accounts for the current time period and is a weighted average of the current data value and the prior average, with an added component \( b \) that represents the trend for the previous period. The weight constant is \( k \):
  \[
  \text{DOUBLEXP}(t) = k \times \text{datavalue}(t) + (1-k) \times ((\text{DOUBLEXP}(t-1) + b(t-1))
  \]

- The second equation is the calculated trend value, and is a weighted average of the difference between the current and previous average and the trend for the previous time period. \( b(t) \) represents the average trend. The weight constant is \( g \):
  \[
  b(t) = g \times (\text{DOUBLEXP}(t)-\text{DOUBLEXP}(t-1)) + (1 - g) \times (b(t-1))
  \]
These two equations are solved to derive the smoothed average. The first smoothed average is set to the first data value. The first trend component is set to zero. For choosing the two constants, the best results are usually obtained by minimizing the mean-squared error (MSE) between the data values and the calculated averages. You may need to use nonlinear optimization techniques to find the optimal constants.

The equation used for forecasting beyond the data points with double exponential smoothing is

\[ \text{forecast}(t+m) = \text{DOUBLEEXP}(t) + m \times b(t) \]

where:

\[ m \]

Is the number of time periods ahead for the forecast.

**Procedure:** How to Calculate a Double Exponential Smoothing Average

1. With the By or Across field you want to use for your calculations, click Forecast.
   The Forecast dialog box opens.

2. If you want to change the name of the output field that displays the Forecasted values, edit the default name that exists in the Field Name field.

3. Select **Double Exponential Average** from the Step 1: Choose a Method drop-down list.

4. Select an input field from the Step 2: Choose a Measure drop-down list.
   If you select the same field as the By or Across field, this field will not appear even if it is included in a display command.

5. Select the increment to count each instance of the By or Across field from the Step 3: Choose The Interval menu.

6. Select the number of predictions to be calculated for the Forecast field from the Step 4: Choose Number of Predictions menu.

7. Select the number of values to average from the Step 5: Choose Number Of Values to Average menu.

8. Select the number to use to calculate the weights for each term in the trend from the Step 6: Choose The Number of Values For Each Trend menu.

9. Optionally, change the default field format by clicking the **Change Format** button and selecting a different format from the Format dialog box.

10. Click OK.
Reference: Forecast Dialog Box - Double Exponential Average

The Forecast dialog box contains the following fields or options:

**Field Setup**

**Field Name**

Is the Forecast field name.

**Current Format**

Displays the Forecast format.

**Change Format**

Opens the Format dialog box.

**Forecast Functions Setup**

**Step 1: Choose a Method**

Is the Forecast method to use to predict values. The options are:

- **Double Exponential Average**. Accounts for the tendency of data to either increase or decrease over time without repeating.

- **Exponential Average**. Calculates a weighted average between the previously calculated value of the average and the next data point.
**Linear Regression.** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

**Moving Average.** Calculates a series of arithmetic means using a specified number of values from a field.

**Multivariate Regression.** Predicts two or more dependent variables using one independent variable.

**Triple Exponential Average.** Accounts for the tendency of data to repeat itself in intervals over time.

**Step 2: Choose a Measure**
Is the field to be used to calculate the Forecast field.

**Step 3: Choose The Interval**
Is the increment by which to count instances of the By or Across field.

**Step 4: Choose Number of Predictions**
Is the number of predictions to be calculated.

**Step 5: Choose Number Of Values to Average**
Is the number of values to use to calculate the average used to predict values.

**Step 6: Choose The Number of Values For Each Trend**
Is the number used to calculate the weights for each term in the trend.

**Example:** **Calculating a Double Exponential Smoothing Average**

Create a new procedure, open with Report Painter, and open the centord.mas file.

1. Click Report at the top of the Report Painter window, then click Define from the drop-down list.
   
   The Define dialog box opens.

2. Enter PERIOD in the Field input area, type I2 (Integer format) in the Format input area, then double-click MONTH in the Fields List to add it to the area below PERIOD, then click OK.

3. Add the PERIOD, REGION, QUANTITY, and LINE_COGS fields to the report.

4. Select the PERIOD field and click the By button.

5. Select the QUANTITY field and click the Sum button.

6. Click the Where button from the Where/If drop-down menu.
   
   The Expression Builder opens.

7. Select REGION from the Data section.

8. Enter REGION EQ 'WEST' in the Advanced section, and click OK.
9. Click the *Forecast* button.

   The Forecast dialog box opens.

10. In Field Name field, enter *DBL_EXP_AVE*.

11. Click *Double Exponential Average* from the Step 1: Choose a Method drop-down list.

12. Select *LINE_COGS* from the Step 2: Choose a Measure drop-down list.

13. Specify 1 in the Step 3: Choose The Interval menu.

14. Specify 3 in the Step 4: Choose Number of Predictions menu.

15. Specify 3 in the Step 5: Choose Number Of Values To Average menu.

16. Specify 2 in the Step 6: Choose The Number of Values For Each Trend menu.

17. Click OK.

18. Run the report.

When the report is run, the forecasted double exponential values will appear in the DBL_EXP_AVE column.

The output is shown in the following image.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>Region:</th>
<th>Quantity</th>
<th>Cost of Goods Sold</th>
<th>DBL_EXP_AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WEST</td>
<td>22,019</td>
<td>4,775,124.00</td>
<td>4,775,124.00</td>
</tr>
<tr>
<td>2</td>
<td>WEST</td>
<td>56,145</td>
<td>12,886,242.00</td>
<td>10,422,391.00</td>
</tr>
<tr>
<td>3</td>
<td>WEST</td>
<td>56,141</td>
<td>12,419,981.00</td>
<td>13,834,177.67</td>
</tr>
<tr>
<td>4</td>
<td>WEST</td>
<td>25,084</td>
<td>5,343,540.00</td>
<td>11,530,451.61</td>
</tr>
<tr>
<td>5</td>
<td>WEST</td>
<td>34,649</td>
<td>7,423,392.00</td>
<td>9,356,210.71</td>
</tr>
<tr>
<td>6</td>
<td>WEST</td>
<td>29,519</td>
<td>6,704,778.00</td>
<td>7,265,510.36</td>
</tr>
<tr>
<td>7</td>
<td>WEST</td>
<td>22,457</td>
<td>5,081,523.00</td>
<td>5,221,621.90</td>
</tr>
<tr>
<td>8</td>
<td>WEST</td>
<td>28,543</td>
<td>6,037,447.00</td>
<td>4,630,940.03</td>
</tr>
<tr>
<td>9</td>
<td>WEST</td>
<td>1,141</td>
<td>239,494.00</td>
<td>1,905,458.26</td>
</tr>
<tr>
<td>10</td>
<td>WEST</td>
<td>16,895</td>
<td>3,786,505.00</td>
<td>1,760,901.45</td>
</tr>
<tr>
<td>11</td>
<td>WEST</td>
<td>20,619</td>
<td>4,427,791.00</td>
<td>2,684,467.23</td>
</tr>
<tr>
<td>12</td>
<td>WEST</td>
<td>12,461</td>
<td>2,523,615.00</td>
<td>2,775,270.04</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>2,949,957.87</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>3,124,645.70</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>3,299,333.53</td>
</tr>
</tbody>
</table>
In the report, the number of values used for each double exponential average is 3, and there are no REGION, QUANTITY, or LINE_COGS values for the generated PERIOD and DBL_EXP_AVE fields.

**Using Triple Exponential Smoothing**

Triple exponential smoothing produces an exponential moving average that takes into account the tendency of data to repeat itself in intervals over time. For example, sales data that is growing and in which 25% of sales always occur during December contains both trend and seasonality. Triple exponential smoothing takes both the trend and seasonality into account by using three equations with three constants.

For triple exponential smoothing you, need to know the number of data points in each time period (designated as L in the following equations). To account for the seasonality, a seasonal index is calculated. The data is divided by the prior season index and then used in calculating the smoothed average.

- The first equation accounts for the current time period, and is a weighted average of the current data value divided by the seasonal factor and the prior average adjusted for the trend for the previous period. The weight constant is k:

\[ \text{SEASONAL}(t) = k \times \left( \frac{\text{datavalue}(t)}{I(t-L)} \right) + (1-k) \times \left( \text{SEASONAL}(t-1) + b(t-1) \right) \]

- The second equation is the calculated trend value, and is a weighted average of the difference between the current and previous average and the trend for the previous time period. \( b(t) \) represents the average trend. The weight constant is g:

\[ b(t) = g \times \left( \text{SEASONAL}(t) - \text{SEASONAL}(t-1) \right) + (1-g) \times \left( b(t-1) \right) \]

- The third equation is the calculated seasonal index, and is a weighted average of the current data value divided by the current average and the seasonal index for the previous season. \( I(t) \) represents the average seasonal coefficient. The weight constant is p:

\[ I(t) = p \times \left( \frac{\text{datavalue}(t)}{\text{SEASONAL}(t)} \right) + (1-p) \times I(t-L) \]

These equations are solved to derive the triple smoothed average. The first smoothed average is set to the first data value. Initial values for the seasonality factors are calculated based on the maximum number of full periods of data in the data source, while the initial trend is calculated based on two periods of data. These values are calculated with the following steps:

1. The initial trend factor is calculated by the following formula:

\[ b(0) = \left( \frac{1}{L} \right) \left( \frac{(y(L+1)-y(1))}{L} + \frac{(y(L+2)-y(2))}{L} + \ldots + \frac{(y(2L)-y(L))}{L} \right) \]
2. The calculation of the initial seasonality factor is based on the average of the data values within each period, \( A(j) (1 \leq j \leq N): \)

\[
A(j) = \frac{y((j-1)L+1) + y((j-1)L+2) + \ldots + y(jL)}{L}
\]

3. Then, the initial periodicity factor is given by the following formula, where \( N \) is the number of full periods available in the data, \( L \) is the number of points per period and \( n \) is a point within the period \( (1 \leq n \leq L): \)

\[
I(n) = \frac{y(n)/A(1) + y(L+n)/A(2) + \ldots + y((N-1)L+n)/A(N)}{N}
\]

The three constants must be chosen carefully. The best results are usually obtained by choosing the constants to minimize the mean-squared error (MSE) between the data values and the calculated averages. Varying the values of \( npoint1 \) and \( npoint2 \) affect the results, and some values may produce a better approximation. To search for a better approximation, you may want to find values that minimize the MSE.

The equation used to forecast beyond the last data point with triple exponential smoothing is:

\[
\text{forecast}(t+m) = \frac{\text{SEASONAL}(t) + m \times b(t)}{I(t-L+\text{MOD}(m/L))}
\]

where:

\( m \)

Is the number of periods ahead for the forecast.

**Procedure: How to Calculate a Triple Exponential Smoothing Average**

1. With the By or Across field you want to use for your calculations, click **Forecast**. The Forecast dialog box opens.

2. If you want to change the name of the output field that displays the Forecasted values, edit the default name that exists in the Field Name field.

3. Click **Triple Exponential Average** from the Step 1: Choose a Method drop-down list.

4. Select an input field from the Step 2: Choose a Measure drop-down list.
   
   If you select the same field as the By or Across field, this field will not appear even if it is included in a display command.

5. Select the increment to count each instance of the By or Across field from the Step 3: Choose The Interval menu.

6. Select the number of predictions to be calculated for the Forecast field from the Step 4: Choose Number of Predictions menu.

7. Select the number of data points for a period from the Step 5: Choose The Number of Points Per Period menu.
8. Select the number of values to average from the Step 6: Choose Number Of Values to Average menu.

9. Select the number to use to calculate the weights for each term in the trend from the Step 7: Choose The Number of Values For Each Trend menu.

10. Select the number to use to calculate the weights for each term in the trend from the Step 8: Choose The Number of Values For Seasonal Adjustment menu.

11. Optionally, change the default field format by clicking the Change Format button and selecting a different format from the Format dialog box.

12. Click OK.

**Reference:** Forecast Dialog Box - Triple Exponential Average

The Forecast dialog box is shown in the following image.

![Forecast Dialog Box](image)

The Forecast dialog box contains the following fields or options:

**Field Setup**

**Field Name**
Is the Forecast field name.

```plaintext
ON MONTH RECAP COST/D12.2 = FORECAST(COST,1,1,'SEASONAL',1,1,1,1);
```
Current Format
Displays the Forecast format.

Change Format
Opens the Format dialog box.

Forecast Functions Setup

Step 1: Choose a Method
Is the Forecast method to use to predict values. The options are:

Double Exponential Average. Accounts for the tendency of data to either increase or decrease over time without repeating.

Exponential Average. Calculates a weighted average between the previously calculated value of the average and the next data point.

Linear Regression. Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

Moving Average. Calculates a series of arithmetic means using a specified number of values from a field.

Multivariate Regression. Predicts two or more dependent variables using one independent variable.

Triple Exponential Average. Accounts for the tendency of data to repeat itself in intervals over time.

Step 2: Choose a Measure
Is the field to be used to calculate the Forecast field.

Step 3: Choose The Interval
Is the increment by which to count instances of the By or Across field.

Step 4: Choose Number of Predictions
Is the number of predictions to be calculated.

Step 5: Choose The Number of Points Per Period
Is the number of data points in a period.

Step 6: Choose Number Of Values to Average
Is the number of values to use to calculate the average used to predict values.

Step 7: Choose The Number of Values For Each Trend
Is the number used to calculate the weights for each term in the trend. This value is available only for Double Exponential Average and Triple Exponential Average.

Step 8: Choose The Number of Values For Seasonal Adjustment
Is the number used to calculate the weights for each term in the seasonal adjustment.
Current Forecast
Displays the code created by the Forecast dialog box.

Example: Calculating a Triple Exponential Smoothing Average
Create a new procedure, open with Report Painter, and open the centord.mas file.

1. Click Report at the top of the Report Painter window, then click Define from the drop-down list.
   The Define dialog box opens.
2. Enter PERIOD in the Field input area, type I2 (Integer format) in the Format input area, then double-click MONTH in the Fields List to add it to the area below PERIOD, then click OK.
3. Add the PERIOD, REGION, QUANTITY, and LINE_COGS fields to the report.
4. Select the PERIOD field and click the By button.
5. Select the QUANTITY field and click the Sum button.
6. Click the Where button from the Where/If drop-down menu.
   The Expression Builder opens.
7. Select REGION from the Data section.
8. Enter REGION EQ 'WEST' in the Advanced section, and click OK.
9. Click the Forecast button.
   The Forecast dialog box opens.
10. In the Field Name field, enter TRPL_EXP_AVE.
11. Click Triple Exponential Average from the Step 1: Choose a Method drop-down list.
12. Select LINE_COGS from the Step 2: Choose a Measure drop-down list.
13. Specify 1 in the Step 3: Choose The Interval menu.
14. Specify 3 in the Step 4: Choose Number of Predictions menu.
15. Specify 3 in the Step 5: Choose The Number of Points Per Period menu.
16. Specify 3 in the Step 6: Choose Number Of Values to Average menu.
17. Specify 3 in the Step 7: Choose The Number of Values for Each Trend menu.
18. Specify 3 in the Step 8: Choose The Number of Values for Seasonal Adjustment menu.
19. Click OK.
20. Run the report.
When the report is run, the forecasted triple exponential values will appear in the TRPL_EXP_AVE column.

The output is shown in the following image.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>Region</th>
<th>Quantity</th>
<th>Line Cost Of Goods Sold</th>
<th>TRPL_EXP_AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WEST</td>
<td>22,019</td>
<td>4,775,124.00</td>
<td>4,775,124.00</td>
</tr>
<tr>
<td>2</td>
<td>WEST</td>
<td>56,145</td>
<td>12,886,242.00</td>
<td>6,697,360.88</td>
</tr>
<tr>
<td>3</td>
<td>WEST</td>
<td>56,141</td>
<td>12,419,981.00</td>
<td>11,705,688.23</td>
</tr>
<tr>
<td>4</td>
<td>WEST</td>
<td>25,084</td>
<td>5,343,540.00</td>
<td>10,086,624.06</td>
</tr>
<tr>
<td>5</td>
<td>WEST</td>
<td>34,649</td>
<td>7,423,392.00</td>
<td>8,133,349.70</td>
</tr>
<tr>
<td>6</td>
<td>WEST</td>
<td>29,519</td>
<td>6,704,778.00</td>
<td>8,123,327.83</td>
</tr>
<tr>
<td>7</td>
<td>WEST</td>
<td>22,457</td>
<td>5,081,523.00</td>
<td>7,375,241.25</td>
</tr>
<tr>
<td>8</td>
<td>WEST</td>
<td>28,543</td>
<td>6,037,447.00</td>
<td>6,120,732.19</td>
</tr>
<tr>
<td>9</td>
<td>WEST</td>
<td>1,141</td>
<td>239,494.00</td>
<td>2,759,361.16</td>
</tr>
<tr>
<td>10</td>
<td>WEST</td>
<td>16,895</td>
<td>3,786,505.00</td>
<td>2,986,783.65</td>
</tr>
<tr>
<td>11</td>
<td>WEST</td>
<td>20,619</td>
<td>4,427,791.00</td>
<td>3,125,215.41</td>
</tr>
<tr>
<td>12</td>
<td>WEST</td>
<td>12,461</td>
<td>2,523,615.00</td>
<td>4,228,507.33</td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>0</td>
<td>4,521,477.16</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>0</td>
<td>6,074,477.39</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>0</td>
<td>2,732,736.52</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>0</td>
<td>0</td>
<td>5,553,162.34</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>0</td>
<td>0</td>
<td>7,362,549.09</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>0</td>
<td>0</td>
<td>3,273,949.63</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>0</td>
<td>6,584,847.51</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>8,650,620.79</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>0</td>
<td>3,815,162.75</td>
<td></td>
</tr>
</tbody>
</table>

In the report, the number of values used for each triple exponential average is 3, and there are no REGION, QUANTITY, or LINE_COGS values for the generated PERIOD and TRPL_EXP_AVE fields.
Using a Linear Regression Equation

The Linear Regression Equation estimates values by assuming that the dependent variable (the new calculated values) and the independent variable (the sort field values) are related by a function that represents a straight line:

\[ y = mx + b \]

where:

- \( y \) is the dependent variable.
- \( x \) is the independent variable.
- \( m \) is the slope of the line.
- \( b \) is the y-intercept.

REGRESS uses a technique called Ordinary Least Squares to calculate values for \( m \) and \( b \) that minimize the sum of the squared differences between the data and the resulting line.

The following formulas show how \( m \) and \( b \) are calculated.

\[
m = \frac{\left( \sum xy - \left( \sum x \right) \left( \sum y \right)/n \right)}{\left( \sum x^2 - \left( \sum x \right)^2/n \right)}
\]

\[
b = \left( \sum y \right)/n - (m \cdot \left( \sum x \right)/n)
\]

where:

- \( n \) is the number of data points.
- \( y \) is the data values (dependent variables).
- \( x \) is the sort field values (independent variables).

Trend values, as well as predicted values, are calculated using the regression line equation.
**Procedure: How to Calculate a Linear Regression Value**

1. With the By or Across field you want to use for your calculations, click *Forecast*.
   The Forecast dialog box opens.

2. If you want to change the name of the output field that displays the Forecasted values, edit the default name that exists in the Field Name field.

3. Click *Linear Regression* from the Step 1: Choose a Method drop-down list.

4. Select an input field from the Step 2: Choose a Measure drop-down list.
   If you select the same field as the By or Across field, this field will not appear even if it is included in a display command.

5. Select the increment number to count each instance of the By or Across field from the Step 3: Choose The Interval menu.

6. Select the number of predictions to be calculated for the Forecast field from the Step 4: Choose Number of Predictions menu.

7. Optionally, change the default field format by clicking the *Change Format* button and selecting a different format from the Format dialog box.

8. Click *OK*.
**Reference: Forecast Dialog Box - Linear Regression**

The Forecast dialog box is shown in the following image.

![Forecast Dialog Box](image)

The Forecast dialog box contains the following fields or options:

**Field Setup**

**Field Name**
- Is the Forecast field name.

**Current Format**
- Displays the Forecast format.

**Change Format**
- Opens the Format dialog box.

**Forecast Functions Setup**

**Step 1: Choose a Method**
- Is the Forecast method to use to predict values. The options are:

  **Double Exponential Average.** Accounts for the tendency of data to either increase or decrease over time without repeating.
**Exponential Average.** Calculates a weighted average between the previously calculated value of the average and the next data point.

**Linear Regression.** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

**Moving Average.** Calculates a series of arithmetic means using a specified number of values from a field.

**Multivariate Regression.** Predicts two or more dependent variables using one independent variable.

**Triple Exponential Average.** Accounts for the tendency of data to repeat itself in intervals over time.

**Step 2: Choose a Measure**
Is the field to be used to calculate the Forecast field.

**Step 3: Choose The Interval**
Is the increment by which to count instances of the By or Across field.

**Step 4: Choose Number of Predictions**
Is the number of predictions to be calculated.

**Current Forecast**
Displays the code created by the Forecast dialog box.

**Example: Calculating a Linear Regression Value**
Create a new procedure, open with Report Painter, and open the centord.mas file.

1. Click **Report** at the top of the Report Painter window, then click **Define** from the drop-down list.
   
   The Define dialog box opens.

2. Enter **PERIOD** in the Field input area, type **I2** (Integer format) in the Format input area, then double-click **MONTH** in the Fields List to add it to the input area below PERIOD, then click **OK**.
   
   The Define dialog box closes and you return back to Report Painter.

3. Add the **PERIOD**, **REGION**, **QUANTITY**, and **LINE_COGS** fields to the report.

4. Select the **PERIOD** field and click the **By** button.

5. Select the **QUANTITY** field and click the **Sum** button.

6. Click the **Where** button from the Where/If drop-down menu.
   
   The Expression Builder opens.
7. Select REGION from the Data section.
8. Enter REGION EQ 'WEST' in the Advanced section, and click OK.
9. Click the Forecast button.

The Forecast dialog box opens.

10. In the Field Name field, enter LINEAR_REG.
11. Select Linear Regression from the Step 1: Choose a Method drop-down list.
12. Select LINE_COGS from the Step 2: Choose a Measure drop-down list.
13. Specify 1 in the Step 3: Choose The Interval Menu.
14. Specify 3 in the Step 4: Choose Number of Predictions menu.
15. Click OK.
16. Run the report.

When the report is run, the forecasted linear regression values will appear in the LINEAR_REG column.

The output is shown in the following image.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>Region</th>
<th>Quantity</th>
<th>Goods Sold</th>
<th>LINEAR REG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WEST</td>
<td>22,019</td>
<td>4,775,124.00</td>
<td>9,675,176.58</td>
</tr>
<tr>
<td>2</td>
<td>WEST</td>
<td>56,145</td>
<td>12,886,242.00</td>
<td>9,001,651.02</td>
</tr>
<tr>
<td>3</td>
<td>WEST</td>
<td>56,141</td>
<td>12,419,981.00</td>
<td>8,328,125.46</td>
</tr>
<tr>
<td>4</td>
<td>WEST</td>
<td>25,084</td>
<td>5,343,540.00</td>
<td>7,654,599.90</td>
</tr>
<tr>
<td>5</td>
<td>WEST</td>
<td>34,649</td>
<td>7,423,392.00</td>
<td>6,981,074.34</td>
</tr>
<tr>
<td>6</td>
<td>WEST</td>
<td>29,519</td>
<td>6,704,778.00</td>
<td>6,307,548.78</td>
</tr>
<tr>
<td>7</td>
<td>WEST</td>
<td>22,457</td>
<td>5,081,523.00</td>
<td>5,634,023.22</td>
</tr>
<tr>
<td>8</td>
<td>WEST</td>
<td>28,543</td>
<td>6,037,447.00</td>
<td>4,960,497.66</td>
</tr>
<tr>
<td>9</td>
<td>WEST</td>
<td>1,141</td>
<td>239,494.00</td>
<td>4,286,972.10</td>
</tr>
<tr>
<td>10</td>
<td>WEST</td>
<td>16,895</td>
<td>3,786,505.00</td>
<td>3,613,446.54</td>
</tr>
<tr>
<td>11</td>
<td>WEST</td>
<td>20,619</td>
<td>4,427,791.00</td>
<td>2,939,920.98</td>
</tr>
<tr>
<td>12</td>
<td>WEST</td>
<td>12,461</td>
<td>2,523,615.00</td>
<td>2,266,395.42</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>0</td>
<td>.00</td>
<td>1,592,869.86</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>0</td>
<td>.00</td>
<td>919,344.30</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>0</td>
<td>.00</td>
<td>245,818.74</td>
</tr>
</tbody>
</table>

In the report, the number of values used for each linear regression value is 3, and there are no REGION, QUANTITY, or LINE_COGS values for the generated PERIOD and LINEAR_REG fields.
Forecast Reporting Techniques

You can use Forecast multiple times in one request. However, all Forecast requests must specify the same sort field, interval, and number of predictions. The only things that can change are the Recap field, method, field used to calculate the Forecast values, and number of points to average. If you change any of the other parameters, the new parameters are ignored.

If you want to move a Forecast column in the report output, use an empty Compute expression for the Forecast field as a placeholder. The data type (I, F, P, D) must be the same in the Compute expression and the Recap expression.

To make the report output easier to interpret, you can create a field that indicates whether the Forecast value in each row is a predicted value. To do this, define a virtual field whose value is a constant other than zero. Rows in the report output that represent actual records in the data source will appear with this constant. Rows that represent predicted values will display zero. You can also propagate this field to a HOLD file.

Example: Generating Multiple Forecast Columns in a Request

This example calculates moving averages and exponential averages for both the DOLLARS and BUDDOLLARS fields in the GGSALES data source. The sort field, interval, and number of predictions are the same for all of the calculations.

```
DEFINE FILE GGSALES
  SDATE/YYM = DATE;
  SYEAR/Y = SDATE;
  SMONTH/M = SDATE;
  PERIOD/I2 = SMONTH;
END

TABLE FILE GGSALES
  SUM DOLLARS AS 'DOLLARS' BUDDOLLARS AS 'BUDGET'
  BY CATEGORY NOPRINT BY PERIOD AS 'PER'
  WHERE SYEAR EQ 97 AND CATEGORY EQ 'Coffee'
  ON PERIOD RECAP DOLMOVAVE/D10.1 = FORECAST(DOLLARS,1,0,'MOVAVE',3);
  ON PERIOD RECAP DOLEXPAVE/D10.1 = FORECAST(DOLLARS,1,0,'EXPAVE',4);
  ON PERIOD RECAP BUDMOVAVE/D10.1 = FORECAST(BUDDOLLARS,1,0,'MOVAVE',3);
  ON PERIOD RECAP BUDEXPAVE/D10.1 = FORECAST(BUDDOLLARS,1,0,'EXPAVE',4);
END
```
The output is shown in the following image.

<table>
<thead>
<tr>
<th>PER</th>
<th>DOLLARS</th>
<th>BUDGET</th>
<th>DOLMOVAVE</th>
<th>DOELEXPAVE</th>
<th>BUDMOVAVE</th>
<th>BUDEXPAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>801,123</td>
<td>801,375</td>
<td>801,123.0</td>
<td>801,123.0</td>
<td>801,375.0</td>
<td>801,375.0</td>
</tr>
<tr>
<td>2</td>
<td>682,340</td>
<td>725,117</td>
<td>741,731.5</td>
<td>753,609.8</td>
<td>763,246.0</td>
<td>770,871.8</td>
</tr>
<tr>
<td>3</td>
<td>765,078</td>
<td>810,367</td>
<td>749,513.7</td>
<td>758,197.1</td>
<td>778,953.0</td>
<td>786,669.9</td>
</tr>
<tr>
<td>4</td>
<td>691,274</td>
<td>717,688</td>
<td>712,897.3</td>
<td>731,427.8</td>
<td>751,057.3</td>
<td>759,077.1</td>
</tr>
<tr>
<td>5</td>
<td>720,444</td>
<td>739,999</td>
<td>725,598.7</td>
<td>727,034.3</td>
<td>756,018.0</td>
<td>751,445.9</td>
</tr>
<tr>
<td>6</td>
<td>742,457</td>
<td>742,586</td>
<td>718,058.3</td>
<td>733,203.4</td>
<td>733,424.3</td>
<td>747,901.9</td>
</tr>
<tr>
<td>7</td>
<td>747,253</td>
<td>773,136</td>
<td>736,718.0</td>
<td>738,823.2</td>
<td>751,907.0</td>
<td>757,995.6</td>
</tr>
<tr>
<td>8</td>
<td>655,896</td>
<td>685,170</td>
<td>715,202.0</td>
<td>705,652.3</td>
<td>733,630.7</td>
<td>728,865.3</td>
</tr>
<tr>
<td>9</td>
<td>730,317</td>
<td>753,760</td>
<td>711,155.3</td>
<td>715,518.2</td>
<td>737,355.3</td>
<td>738,823.2</td>
</tr>
<tr>
<td>10</td>
<td>724,412</td>
<td>709,397</td>
<td>703,541.7</td>
<td>719,075.7</td>
<td>716,109.0</td>
<td>727,052.7</td>
</tr>
<tr>
<td>11</td>
<td>620,264</td>
<td>630,452</td>
<td>691,664.3</td>
<td>679,551.0</td>
<td>697,869.7</td>
<td>688,412.4</td>
</tr>
<tr>
<td>12</td>
<td>762,328</td>
<td>718,837</td>
<td>702,334.7</td>
<td>712,661.8</td>
<td>686,228.7</td>
<td>700,582.3</td>
</tr>
</tbody>
</table>

**Example:** Moving the FORECAST Column

The following example places the DOLLARS field after the MOVAVE field by using an empty COMPUTE command as a placeholder for the MOVAVE field. Both the COMPUTE command and the RECAP command specify formats for MOVAVE (of the same data type), but the format of the RECAP command takes precedence.

```plaintext
DEFINE FILE GGSALES
  SDATE/YYM = DATE;
  SYEAR/Y = SDATE;
  SMONTH/M = SDATE;
  PERIOD/I2 = SMONTH;
END
TABLE FILE GGSALES
  SUM   UNITS
  COMPUTE MOVAVE/D10.2 = ;
  DOLLARS
    BY CATEGORY BY PERIOD
    WHERE SYEAR EQ 97 AND CATEGORY EQ 'Coffee'
    ON PERIOD RECAP MOVAVE/D10.1= FORECAST(DOLLARS,1,3,'MOVAVE',3);
END
```

Creating Reports With Report Painter
Calculating Trends and Predicting Values With Forecast

The output is shown in the following image.

<table>
<thead>
<tr>
<th>Category</th>
<th>PERIOD</th>
<th>Unit</th>
<th>Sales</th>
<th>MOVAVE</th>
<th>Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td></td>
<td></td>
<td>Coffee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>61666</td>
<td>801,123.0</td>
<td>682340</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>54870</td>
<td>741,731.5</td>
<td>766078</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>57050</td>
<td>712,897.3</td>
<td>691274</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>59229</td>
<td>725,598.7</td>
<td>720444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>58466</td>
<td>718,058.3</td>
<td>747253</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>54633</td>
<td>715,202.0</td>
<td>655896</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>57829</td>
<td>711,155.3</td>
<td>730317</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>57012</td>
<td>703,541.7</td>
<td>724412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>51110</td>
<td>691,664.3</td>
<td>620264</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>58981</td>
<td>702,334.7</td>
<td>762328</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0</td>
<td>694,975.6</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>0</td>
<td>719,879.4</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>0</td>
<td>705,729.9</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example: Distinguishing Data Rows From Predicted Rows

In the following example, the DATA_ROW virtual field has the value 1 for each row in the data source. It has the value zero for the predicted rows. The PREDICT field is calculated as YES for predicted rows, and NO for rows containing data.

```plaintext
DEFINE FILE CAR
DATA_ROW/I1 = 1;
END
TABLE FILE CAR
   PRINT DATA_ROW
   COMPUTE PREDICT/A3 = IF DATA_ROW EQ 1 THEN 'NO' ELSE 'YES' ;
   MPG
   BY DEALER_COST
   WHERE MPG GE 20
   ON DEALER_COST RECAP FORMPG/D12.2=FORECAST(MPG,1000,3,'REGRESS');
   ON DEALER_COST RECAP MPG =FORECAST(MPG,1000,3,'REGRESS');
END
```

The output is:

<table>
<thead>
<tr>
<th>DEALER_COST</th>
<th>DATA_ROW</th>
<th>PREDICT</th>
<th>MPG</th>
<th>FORMPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,886</td>
<td>1</td>
<td>NO</td>
<td>27.00</td>
<td>25.65</td>
</tr>
<tr>
<td>4,292</td>
<td>1</td>
<td>NO</td>
<td>25.00</td>
<td>23.91</td>
</tr>
<tr>
<td>4,631</td>
<td>1</td>
<td>NO</td>
<td>21.00</td>
<td>23.49</td>
</tr>
<tr>
<td>4,915</td>
<td>1</td>
<td>NO</td>
<td>21.00</td>
<td>23.14</td>
</tr>
<tr>
<td>5,063</td>
<td>1</td>
<td>NO</td>
<td>23.00</td>
<td>22.95</td>
</tr>
<tr>
<td>5,660</td>
<td>1</td>
<td>NO</td>
<td>21.00</td>
<td>22.21</td>
</tr>
<tr>
<td>5,800</td>
<td>1</td>
<td>NO</td>
<td>24.20</td>
<td>22.04</td>
</tr>
<tr>
<td>6,000</td>
<td>1</td>
<td>NO</td>
<td>24.20</td>
<td>21.79</td>
</tr>
<tr>
<td>7,000</td>
<td>0</td>
<td>YES</td>
<td>20.56</td>
<td>20.56</td>
</tr>
<tr>
<td>8,000</td>
<td>0</td>
<td>YES</td>
<td>19.32</td>
<td>19.32</td>
</tr>
<tr>
<td>9,000</td>
<td>0</td>
<td>YES</td>
<td>18.08</td>
<td>18.08</td>
</tr>
</tbody>
</table>
Calculating Trends and Predicting Values With Multivariate REGRESS

You can calculate trends and predict values with multivariate regression. This method derives a linear equation that best fits a set of numeric data points, and uses this equation to create a new column in the report output. The equation can be based on one to three independent variables.

This method estimates values by assuming that the dependent variable (y, the new calculated values) and the independent variables (x1, x2, x3) are related by the following linear equation:

\[ y = a_1 x_1 + a_2 x_2 + a_3 x_3 + b \]

When there is one independent variable, the equation represents a straight line. This produces the same values as FORECAST using the REGRESS method. When there are two independent variables, the equation represents a plane, and with three independent variables, it represents a hyperplane. You should use this technique when you have reason to believe that the dependent variable can be approximated by a linear combination of the independent variables.

REGRESS uses a technique called Ordinary Least Squares to calculate values for the coefficients \(a_1, a_2, a_3,\) and \(b\) that minimize the sum of the squared differences between the data and the resulting line, plane, or hyperplane.

Procedure: How to Create a Multivariate Linear Regression Column Using Report Painter

1. In the Report Painter main window, select a numeric BY field.
2. Click the Forecast button.
3. From the Step 1: Choose a Method drop-down list, select the Multivariate Regression option.
4. From the Step 2: Choose the First Independent Variable drop-down list, select a variable. You have the option to choose additional independent variables in Step 3 and Step 4.
5. From the Step 5: Choose the Dependent Variable drop-down list, select a dependent variable.
6. Click OK.

Syntax: How to Create a Multivariate Linear Regression Column Using WF Language

\[ \text{ON } \{\text{sortfield}\} \text{ RECAP } y[/fmt] = \text{REGRESS}(n, x_1, [x_2, [x_3]]) z); \]

where:

- \text{sortfield}

  Is a field in the data source. It cannot be the same field as any of the parameters to REGRESS. A new linear regression equation is derived each time the sort field value changes.
\( y \)
Is the new numeric column calculated by applying the regression equation. You cannot DEFINE or COMPUTE a field with this name.

\( fmt \)
Is the display format for \( y \). If it is omitted, the default format is D12.2.

\( n \)
Is a whole number from 1 to 3 indicating the number of independent variables.

\( x_1, x_2, x_3 \)
Are the field names to be used as the independent variables. All of these variables must be numeric and be independent of each other.

\( z \)
Is an existing numeric field that is assumed to be approximately linearly dependent on the independent variables and is used to derive the regression equation.

**Reference:** Usage Notes for REGRESS

- The (By) sort field used with REGRESS must be in a numeric or date format.
- REGRESS cannot operate on an ACROSS field.
- If any of the independent variables are also sort fields, they cannot be referenced in the request prior to the REGRESS sort field.
- FORECAST and REGRESS cannot be used in the same request, and only one REGRESS is supported in a request. Non-REGRESS RECAP commands are supported.
- The RECAP command used with REGRESS can contain only the REGRESS syntax. REGRESS does not recognize any syntax after the closing semicolon (;).
- Although you pass parameters to REGRESS using an argument list in parentheses, REGRESS is not a function. It can coexist with a user-written subroutine of the same name, as long as the user-written subroutine is not specified in a RECAP command.
- BY TOTAL is not supported.
- MORE, MATCH, FOR, and OVER are not supported.
- The process of generating the REGRESS values creates extra columns that are not printed in the report output. The number and placement of these additional columns varies depending on the specific request. Therefore, use of column notation is not supported in a request that includes REGRESS.
- SUMMARIZE and RECOMPUTE are not supported for the same sort field used for REGRESS.
- REGRESS is not supported for the FOCUS GRAPH facility.
- The left side of a RECAP command used for REGRESS supports the CURR attribute for creating a currency-denominated field.
- Fields with missing values cannot be used in the regression.
- Larger amounts of data produce more useful results.

**Example:** Creating a Multivariate Linear Regression Column

The following example uses the GGSALES data source to calculate an estimated DOLLARS column. The BUDUNITS, UNITS, and BUDDOLLARS fields are the independent variables. The DOLLARS field provides the actual values to be estimated.

1. Create a new procedure and open the ggsales.mas file in Report Painter.
2. Click **Report** at the top of the Report Painter window, then click **Define** from the drop-down list.
   - The Define dialog box opens.
3. Enter MONTH in the Field input area, type M (a date format) in the Format input area, then double-click DATE in the Fields List to add it to the area below PERIOD, then click **New**.
4. Enter PERIOD in the Field input area, type I2 (Integer format) in the Format input area, then type MONTH in the area below PERIOD, then click **OK**.
   - The Define dialog box closes and you return back to Report Painter.
5. Add the PERIOD, BUDUNITS, UNITS, BUDDOLLARS, and DOLLARS fields to the report.
6. Select the PERIOD field, and click the **By** button.
7. Click the Where button from the Where/If drop-down menu.
   - The Expression Builder opens.
8. Select CATEGORY from the Data section.
9. Enter CATEGORY EQ 'Coffee' in the Advanced section, and click **New**.
10. Select REGION from the Data section.
11. Enter REGION EQ 'West' in the Expression field, and click **New**.
12. Enter UNITS GT 1600 AND UNITS LT 1700 in the Expression field, and click **OK**.
13. Click the **Forecast** button.
   - The Forecast window opens.
14. In the Field Name field, enter \textit{EST\_DOLLARS}.

15. From the Step 1: Choose a Method drop-down list, select \textit{Multivariate Regression}.

16. From the Step 2: Choose the First Independent Variable drop-down list, select \textit{BUDUNITS}.

17. From the Step 3: Choose Another Independent Variable drop-down list, select \textit{UNITS}.

18. From the Step 4: Choose Another Independent Variable drop-down list, select \textit{BUDDOLLARS}.

19. From the Step 5: Choose the Dependent Variable drop-down list, select \textit{DOLLARS}.

20. Click OK.
When the report is run, the multivariate regression values appear in the EST_DOLLARS column. The output is shown in the following image.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>Budget Units</th>
<th>Unit Sales</th>
<th>Budget Dollars</th>
<th>Dollar Sales</th>
<th>EST DOLLARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1665</td>
<td>1678</td>
<td>21645</td>
<td>23492</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1725</td>
<td>1669</td>
<td>22425</td>
<td>21897</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1613</td>
<td>1685</td>
<td>22582</td>
<td>18535</td>
<td>19065</td>
</tr>
<tr>
<td></td>
<td>1568</td>
<td>1682</td>
<td>23520</td>
<td>25230</td>
<td>19089</td>
</tr>
<tr>
<td></td>
<td>1847</td>
<td>1668</td>
<td>18470</td>
<td>25020</td>
<td>19725</td>
</tr>
<tr>
<td>3</td>
<td>1646</td>
<td>1656</td>
<td>23044</td>
<td>19872</td>
<td>19871</td>
</tr>
<tr>
<td></td>
<td>1759</td>
<td>1615</td>
<td>17590</td>
<td>17765</td>
<td>17765</td>
</tr>
<tr>
<td></td>
<td>1498</td>
<td>1637</td>
<td>16478</td>
<td>21281</td>
<td>21280</td>
</tr>
<tr>
<td></td>
<td>1653</td>
<td>1694</td>
<td>21489</td>
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<td>1457</td>
<td>1671</td>
<td>21855</td>
<td>20052</td>
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<td>5</td>
<td>1662</td>
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<td>24930</td>
<td>18414</td>
<td>0</td>
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<tr>
<td>6</td>
<td>1825</td>
<td>1695</td>
<td>23725</td>
<td>25425</td>
<td>32228</td>
</tr>
<tr>
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<td>1870</td>
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<td>24310</td>
<td>24300</td>
<td>30866</td>
</tr>
<tr>
<td></td>
<td>1712</td>
<td>1640</td>
<td>22256</td>
<td>16400</td>
<td>31859</td>
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<tr>
<td></td>
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<td>24705</td>
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<td>19920</td>
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<td>23005</td>
</tr>
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<td>25005</td>
</tr>
<tr>
<td></td>
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<td>20532</td>
<td>22722</td>
<td>22722</td>
</tr>
<tr>
<td></td>
<td>1701</td>
<td>1626</td>
<td>18711</td>
<td>21138</td>
<td>21138</td>
</tr>
<tr>
<td></td>
<td>1473</td>
<td>1616</td>
<td>14730</td>
<td>16160</td>
<td>16160</td>
</tr>
<tr>
<td>11</td>
<td>1403</td>
<td>1601</td>
<td>21045</td>
<td>17611</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>1796</td>
<td>1696</td>
<td>17960</td>
<td>25440</td>
<td>0</td>
</tr>
</tbody>
</table>

TABLE FILE GGSALES
PRINT BUDUNITS UNITS BUDDOLLARS DOLLARS
ON TABLE RECAP ESTDOLLARS/F8 = REGRESS(3,BUDUNITS, UNITS, BUDDOLLARS, DOLLARS);
WHERE CATEGORY EQ 'Coffee'
WHERE REGION EQ 'West'
WHERE UNITS GT 1600 AND UNITS LT 1700
END
<table>
<thead>
<tr>
<th><strong>Term</strong></th>
<th><strong>Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>active report</td>
<td>An active report is a self-contained report that is designated for offline analysis. It contains all of the data and JavaScript within the output file.</td>
</tr>
<tr>
<td>accordion report</td>
<td>Provides a way to control the amount of sorted data that appears on an HTML report page. You can produce reports with expandable views of data for each vertical sort field. When an accordion report first appears, only data values of the first (highest-level) vertical sort field are shown. All other data is hidden. You can manually expand your view to expose data values of lower-level sort fields.</td>
</tr>
<tr>
<td>ACROSS field</td>
<td>Horizontally sorts and groups data in a report by the values in the selected field. You can sort a report by more than one field.</td>
</tr>
<tr>
<td>BY field</td>
<td>Vertically sorts and groups data in a report by the values in the selected field. You can sort a report by more than one field.</td>
</tr>
<tr>
<td>compound document</td>
<td>Inserts a copy of your report into Document Composer.</td>
</tr>
<tr>
<td>data field</td>
<td>Displays the individual values of the selected fields when the report is executed.</td>
</tr>
<tr>
<td>data file</td>
<td>See Master File.</td>
</tr>
<tr>
<td>Document Composer</td>
<td>A Developer Studio tool. Document Composer allows you to coordinate and distribute layouts made up of multiple reports and graphs in a single document. For more information, see the Creating Compound Reports With Document Composer manual.</td>
</tr>
<tr>
<td><strong>Term</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>drill-down procedure</td>
<td>Enables you to add one or more layers of detail to a report by embedding procedures into the report. A drill-down procedure can be an executable object (report or graph), a URL, a Maintain case, or a Maintain procedure.</td>
</tr>
<tr>
<td>Expression Builder</td>
<td>Allows you to create expressions quickly by selecting fields, relations, operators, and values from lists. You can base selection criteria on a specified value, a variable value, or a field value. To access the Expression Builder, click Where, If, or Where Total from the Where/If drop-down menu.</td>
</tr>
<tr>
<td>field</td>
<td>A set of data pertaining to a specific topic. For example, the SEATS field, within the CAR Master File, contains data for the number of seats in each car.</td>
</tr>
<tr>
<td>Field Properties dialog box</td>
<td>This dialog box contains numerous tabs used to accomplish a wide range of tasks relating to the field selected. The options available to you differ depending on the type of field selected. To access this dialog box, right-click a field.</td>
</tr>
<tr>
<td>FOR field</td>
<td>The FOR field enables you to structure financial reports row-by-row in the Financial Report Painter.</td>
</tr>
<tr>
<td>Guided Report</td>
<td>A Guided Report is a highly parameterized report that allows you to select fields and options that participate in a report at run time. Fields and options that have been added to the Guided Report are displayed in controls and are available for selection. Selecting fields from controls and running the report will display the data that correlates to the field values.</td>
</tr>
<tr>
<td><strong>HTML Composer</strong></td>
<td>A Developer Studio tool. Used to create HTML pages.</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>IF expression</strong></td>
<td>An IF expression enables you to perform Boolean tests (TRUE/FALSE), as well as the same tests you can perform with a WHERE statement.</td>
</tr>
<tr>
<td><strong>Master File</strong></td>
<td>A Master File describes the data source from which you are reporting. The Master File is a map of the data source and all of the fields. By looking at the Master File, you can determine what fields are in the data source, what they are named, and how they are formatted. You can also determine how the fields in the data source relate to each other.</td>
</tr>
<tr>
<td><strong>Object Inspector</strong></td>
<td>A panel located, by default, on the left side of the Report Painter. It allows a user to add fields to a report, create sort groups, and view column, report, and image properties. The Object Inspector has tabs that you can toggle between: Where/If, Properties, Fields, Sort Groups, Setup, Pivot, and Images.</td>
</tr>
<tr>
<td><strong>page footing</strong></td>
<td>Text that appears at the bottom of every page.</td>
</tr>
<tr>
<td><strong>page heading</strong></td>
<td>Text that appears at the top of every page.</td>
</tr>
<tr>
<td><strong>parameter group</strong></td>
<td>A parameterized group of data that is used to customize selections based on the user selection. For example, you can parameterize a column of data so that when it is used in conjunction with HTML Composer maps, it only allows people to use specific data relevant to their location.</td>
</tr>
<tr>
<td><strong>Precision report</strong></td>
<td>A tool accessed through Report Painter. Precision reports enable you to create perfectly aligned output for a preprinted form, such as a Bill of Sale or Shipping invoice. The Precision Report tool enables you to build an exact layout for a form by embedding data in headings and text objects, managing images, and drawing objects to fit specific positions.</td>
</tr>
</tbody>
</table>
**procedure**

A series of components that can be executed one after another. For example, a procedure can consist of a Join, Set, and report.

**Report Options dialog box**

This dialog box contains numerous tabs used to accomplish a wide range of tasks relating to your report. The options available differ depending on the output format selected. You can access this dialog box by clicking the Options button on the Report Painter toolbar.

**Retrieval Limits dialog box**

A dialog box where you can set how much data is displayed or previewed. It is accessed from the Where/If/Where Total drop-down menu.

**SUM field**

A field that provides a total of all values for the selected numeric field when the report is executed.

**universal concatenation**

Allows you to retrieve data from unlike data sources in a single request. All data, regardless of source, appears to come from a single file. The Universal Concatenation dialog box, available from Report Painter, applies the MORE command to your procedure. You can concatenate all types of data sources, provided they share corresponding fields with the same format. You can use WHERE and IF selection tests in conjunction with MORE.

**WHERE expression**

A WHERE expression enables you to display only those field values that meet your needs.

**WHERE TOTAL expression**

A WHERE TOTAL expression enables you to select records based on the aggregate value of a field. For example, on the sum of field values, or on the average of field values.
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