Report Designer

Changepoint PPM User Guide

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CHAPTER 1
Report Designer Introduction

About Report Designer

Report Designer is a fully integrated Changepoint application that you use to design custom Changepoint reports that have the following characteristics:

- In print, screen or portlet format
- For personal use, or to be shared with others
- Include data that is presented in tables or graphical charts
- Include links to other reports, URLs or Changepoint profiles
- Include interdependent relationships between table values
- Include design and run-time query filters

You access the Changepoint data through *data providers*, which contain all Changepoint database fields. Therefore you do not require an advanced knowledge of the Changepoint data structure to create reports.

Accessing Report Designer from Changepoint

1. In Changepoint Administration, click **Reporting** > **Report Designer**.

   Report Designer opens in design mode. You can start creating your report immediately.

Accessing Report Designer from the Report Designer URL

1. Start your web browser application.
2. In the Address bar, enter the Report Designer URL.
3. If the sign-in page appears:
   a. Enter your user ID and password.
   b. Click **Sign in**.
   c. To avoid having to enter your user ID every time, select the **Remember me** check box.

   Note: Not all browsers support this option.

   Report Designer opens in your web browser.

Signing out of Report Designer

In order to end your Report Designer session properly, you must use this procedure to sign out.

1. In the toolbar, click .
2. Click **OK** to confirm.

Properties areas in Report Designer

When Report Designer first opens, the **Report Properties** area displays at the left side of the window. In this area, you name the report, associate it to a report category and set the physical dimensions of the report.

Other sets of properties are available. The following table describes the properties and shows the toolbar icons that you use to access them.

Properties Area	Description	Toolbar icon
Report Properties	Define the name, category, display format, size and margins of the report. Also, hide the report name, if required.	
Section Properties	Group design objects within the report for display purposes.	
Label Properties	Define text and associate data to records that display in labels.	
Image Properties	Add an image to a report.	
Chart Properties	Add a chart to a report.	
Data Table Properties	Add data to a table and set how the data displays in the table. You can click a column in a table to display the **Column Properties** area, which has options for aligning and sorting data in the columns. It also has options for displaying currency and numeric formats, and totals or averages in columns.	

Toolbar icons in Report Designer

The toolbar icons are described in the following table.

Icon	Description
	Allows you to create a new report or use an existing report as the design for a new report.
	Opens a report that you have created and saved previously.
	Saves the report.
	Deletes the report.
	Displays report properties in the properties area.

Icon	Description
	Opens the **Data Collections** dialog box, where you create your data collections for your reports.
	Imports standard Changepoint reports and Report Designer reports into your Changepoint database.
	Exports and saves a report as a local file that can then be imported into another system, such as a test database.
	Displays the report in design mode, if it is currently in preview mode.
	Displays the report in preview mode, that is, as it would be displayed to users in Changepoint. Only a sample of data displays when you view your report in preview mode.
	Prints the report design.
	Shows or hides the grid in the design area. Use the grid as a guide to help position report objects.
	Enables the snap to grid functionality, which automatically aligns the report objects with the closest grid lines.
	Locks the controls in the report workspace to prevent editing, moving and resizing of the report.
	Adds a section that you can use to group objects together for display purposes and displays the **Sections Properties** in the properties area.
	Adds a label text box and displays the **Label Properties** in the properties area. A label is an object that can be associated to a data collection.
	Adds a data table to your report, and displays the **Data Table Properties** in the properties area. A data table is an object that can be associated to a data collection.
	Adds a chart to the report and displays the **Chart Properties** in the properties area. A chart is an object that can be associated to a data collection.
	Adds an image to a report and displays the **Image Properties** in the properties area.
	Aligns all selected objects to the left of the object that you selected first. Use **Ctrl-click** to select objects.
	Aligns all selected objects to the right of the object that you selected first. Use **Ctrl-click** to select objects.
	Aligns all selected objects to the top of the object that you selected first. Use **Ctrl-click** to select objects.
	Aligns all selected objects to the bottom of the object that you selected first. Use **Ctrl-click** to select objects.
	Makes selected objects in the report, such as a data table, the same width as the object that you selected first. Use **Ctrl-click** to select objects.

Icon	Description
	Makes selected objects in the report the same height as the object that you selected first. Use **Ctrl-click** to select objects.
	Makes selected objects on the report the same height and width as the object that you selected first. Use **Ctrl-click** to select objects.
	Opens the Report Designer help.
	Signs you out of Report Designer.
	Opens the **Use PCID** dialog box, where you can set the field text to display in different languages, if your Changepoint installation has been configured accordingly. This icon displays for all labels and description fields in dialog boxes and properties areas.

CHAPTER 2
Creating and maintaining data collections

About data collections and data providers

Report Designer uses *data providers*, which are sets of data that are based on SQL views of the Changepoint database. The data providers correspond to the Changepoint entities and contain the fields that correspond to the entity fields in the database. For example, the Project data provider contains all project-related fields in Changepoint, such as ProjectName, ProjectManager, PlannedHours, PlannedStart and so on.

Note: Data providers cannot be edited.

Data collections are custom groups of fields that you create by selecting fields from the data providers. You can then specify the data for your reports by linking the objects (tables, charts) in the report to fields in the data collections.

About accessing data collections

You can access the data collections that you created in the **Data Collections** dialog box, which you can access directly from the toolbar. If you have the access rights, you can also access the data collections that were created by other resources, but you must first display the report that the data collection is linked to before opening the **Data Collections** dialog box.

When you access data collections from a report that was created by another resource, the drop-down list displays your data collections (**My data collections**) and the data collections that have been created by other resources and that are associated with the report (**Other data collections**). Data collections that are displayed in black font are linked to the current report. Data collections that are displayed in gray font are not linked to the current report.

All fields that were added to this data collection have a check mark in the **Fields to be included in the data collection** section.

If fields that belong to secondary data providers were saved to this data collection, the check box for the secondary data provider is selected in **Secondary data providers** section. The fields from the secondary data provider display below the fields from the primary data provider.

Accessing a data collection

If the data collection was created by another resource, you must first display the report design that the data collection is linked to. For more information, see “Accessing a report design” on page 24.

1. In the toolbar, click .

   The **Data Collections** dialog box appears.
2. In the **Data collections** drop-down list, select the data collection.

About creating data collections

You create a data collection by first selecting a primary data provider and then selecting the fields that you want to include in your report from the data provider.

When you select a primary data provider:

- its secondary data providers are displayed in the **Secondary data providers** section
- its fields are displayed in the **Fields to be included in the data collection** section

Try to select the data provider that includes most of the fields that you require for your report as the primary data provider. If the primary data provider does not include all of the fields that you require, do one of the following:

- select a different primary data provider
- select a secondary data provider

When you select a secondary data provider, its fields are displayed below the primary data provider fields in the **Fields to be included in the data collection** section.

For a list of data providers and descriptions, contact your Service Delivery Group representative or client manager.

After you have created a data collection, you can reuse it for other reports. You can also create custom fields for the data collection.

Creating a data collection

You can use data collections that you create in one or more reports, but you cannot share them with other resources to use when they create reports. Once a data collection is linked to a report, you can add new fields to it, but you can no longer delete fields from it.

1. In the toolbar, click .

   The **Data Collections** dialog box appears.
2. In the **Collection name** field, enter the name of the new data collection.
3. To use this data collection for other reports, select the **Share this data collection with other reports I created** check box.
4. In the **Primary data provider** drop-down list, select the data provider that contains most of the fields for the report.

   Tip: To view a description of a data provider or a field, click the data provider or the field row and then click .
5. To add more fields to the data collection, select one or more secondary providers.
6. In the **Fields to be included in the data collection** section, do one of the following:
   - To add one or more fields to the data collection, select the check boxes for the fields.
   - To add all of the fields to the data collection, select **Actions > Select all**.
   - To remove all of the fields from the data collection, select **Actions > Deselect all**.
7. Click **Save**.

   You can also create custom fields to be added to a data collection. For more information, see the “Creating a custom field that uses a simple expression” section on page 16 and the “Creating a custom field that uses an advanced SQL expression” section on page 16.

About adding custom fields to data collections

You can add custom fields to data collections. Custom fields can consist of either simple expressions or advanced expressions.

About simple expressions for custom fields

You can use fields, mathematical operators and numeric values to create simple expressions for custom fields.

For example, you have a data collection that is based on fields from the Time data provider. You want to have a column in your report that displays the total of overtime and regular hours. To do this, you can create a custom field named *Total hours* that is a total of the values of the regular and overtime hours fields. In the **Create an expression** field, you would create the following expression, using the fields from the data collection and a mathematical operator:

[Regular Hours]+[Overtime Hours]

Another example is a custom field named *Fully absorbed cost rate* that is calculated based on the hourly cost rate times a numeric value (factor). The expression for this field would consist of the **Current hourly cost rate** field, a mathematical operator and a numeric value as follows:

[Current hourly cost rate] * 1.2

You can specify that the value of the custom field be displayed in the base currency.

About advanced expressions for custom fields

You can create custom fields that use SQL expressions. You must be experienced both in SQL programming and the business practices of your organization to create advanced SQL expressions.

WARNING: Advanced SQL expressions are not supported by your Changepoint support agreement. If you require assistance, contact your Service Delivery Group representative or client manager to arrange for consulting services.

Guidelines for creating advanced expressions for custom fields:

- The **Internal** column in the field table indicates whether or not the data type for the field is a unique identifier.
- Expressions for custom fields can contain simple SELECT and CASE logic, but are restricted from using commands that could potentially damage the structure and integrity of the database. Expressions with the following commands will not be executed or saved: INSERT, UPDATE, DELETE, CREATE, DROP, ALTER, TRUNCATE, DBCC, XP_, EXEC, DECLARE and INTO.
- The owner of functions must be *dbo* and be specified as such in the prefix of the function call, for example: dbo.F_DROPTIME(….).
- You must ensure that expressions do not generate divide by zero errors; otherwise, the report will be corrupted.
- You can include variables in the expression. For more information, see the “Creating a custom field variable” section on page 17.

Creating a custom field that uses a simple expression

1. Access the data collection.
2. In the **Data Collections** dialog box, click **Custom Field**.

   The **Custom Field** dialog box appears.
3. In the **Custom field name** field, enter the name for the custom field.
4. In the **Provider fields** section, double-click the field to include in the expression.

   The field appears in the expression window.
5. Use the calculator keys to insert a mathematical operator in the expression.
6. To complete the expression, do one of the following:
   - Double-click the second field for the expression.
   - Use the calculator keys to enter a numeric value.
7. To validate the expression, click **Test Expression**.

   A message indicates whether the expression is valid.
8. To display the value for the custom field in its base currency, select the **No currency conversion for this custom field** check box.
9. Click **Save**.

Creating a custom field that uses an advanced SQL expression

You must be experienced both in SQL programming and the business practices of your organization to create advanced SQL expressions. For more information, see “About advanced expressions for custom fields” on page 15.

WARNING: Advanced SQL expressions are not supported by your Changepoint support agreement. If you require assistance, you must contact your Service Delivery Group representative or client manager to arrange for consulting services.

1. Access the data collection.
2. In the **Data Collections** dialog box, click **Custom Field**.

   The **Custom Field** dialog box appears.
3. In the **Custom field name** field, enter a name for the custom field.
4. In the **Expression** section, enter the SQL expression.
5. To add a variable, double-click it in the **Variables** section. For more information, see the “Creating a custom field variable” section on page 17.
6. To validate the expression, click **Test Expression**.

   A message indicates whether the expression is valid.

   WARNING: The expression testing functionality has limited ability to identify harmful code in the expression that could compromise the structure or integrity of the database. We strongly recommended that you copy the expression into an another tool for more comprehensive analysis.
7. To copy the expression to your clipboard, click **Copy to Clipboard**.
8. To display the value for the custom field in its base currency, select the **No currency conversion for this custom field** check box.
9. Click **Save**.

About creating custom field variables

You can create variables for use as placeholders in advanced expressions. When a resource runs the report that includes a variable, the report filter prompts the resource to enter a value for the variable.

Note: You can also use variables in design data filters and runtime queries. For more information, see the "About creating expressions for design data filters" section on page 80 and the "Adding a runtime data filter to a report design" section on page 85.

Creating a custom field variable

1. Access the data collection.
2. In the **Data Collections** dialog box, click **Custom Field**.

   The **Custom Field** dialog box appears.
3. In the **Variables** section, click .

   The **Custom Field Variable** dialog box appears.
4. In the **Variable name** field, enter a name for the variable.
5. In the **Data type** drop-down list, select the data type for the variable.
6. To map a lookup list to the variable, which allows the report user to select a value from a drop-down list or a tree view:
   a. Select nvarchar as the data type.
   b. In the **Lookup list** field, select a field.
7. In the **Default value** field, specify the default value for the variable.
   - If the data type is nvarchar, select the value for the list.
   - If the data type is numeric, enter the numeric value.
   - If the data type is datetime, do one of the following:
     - To specify a specific date, select the date from the calendar.
     - To specify the date when the report is run, select the **Current date** check box.
   - If the data type is bit, enter the binary digits.
8. In the **Display name** field, enter a name for the variable.
9. In the **Description** field, enter a description for the variable. This description will display on the report filter screen.
10. To globalize the **Display name** and **Description** fields, click . For more information, see the "Applying a PCID" section on page 23.
11. Click **Save**.

    The variable is added to the list of available variables.

Editing a custom field variable

1. Access the data collection that includes the custom field.
2. Click **Custom Field**.

   The **Custom Field** dialog box appears.
3. In the **Variables** section, select the variable.

4. Click .
   The **Custom Field Variable** dialog box appears.
5. Make the necessary changes. For more information, see the “Creating a custom field variable” section on page 17.
6. Click **Save**.

Deleting a custom field variable

1. Access the data collection that includes the custom field.
2. Click **Custom field**.
   The **Custom Field** dialog box appears.
3. In the **Variables** section, select the variable.
4. Click .
   The dialog box refreshes and the selected variable is removed from the section.

Editing a custom field

You can edit a custom field in a data collection provided that the custom field has not been linked to a report.

1. Access the data collection that includes the custom field.
2. Click **Custom field**.
   The **Custom Field** dialog box appears.
3. In the **Custom field** drop-down list, select the custom field.
   The expression for the custom field appears.
4. Make the necessary changes.
5. Click **Save**.

Deleting a custom field

You can delete a custom field from a data collection provided that the custom field has not been linked to a report.

1. Access the data collection that includes the custom field.
2. Click **Custom field**.
   The **Custom Field** dialog box appears.
3. In the **Custom field** drop-down list, select the custom field.
   The expression for the custom field appears.
4. Click **Delete**.

About editing data collections

Provided that the data collection has not been linked to a report, you can:

- change the primary data provider
- add or remove secondary data providers
- select or deselect fields to be included in the data collection

After the data collection has been linked to a report, you can only add secondary data providers and additional fields, including custom fields, to the data collection.

If you have the required access rights, you can also access the data collections associated to reports that have been created by other resources, but you must first locate and display the report.

Editing a data collection

1. Access the data collection.
2. Make the necessary changes.
3. Click **Save**.

Deleting a data collection

You can only delete a data collection if it has not been linked to a report.

1. Access the data collection.
2. Click **Delete**.

CHAPTER 3
Creating Report Designs

About creating report designs

To create a report design:.

1. Create a data collection. For more information, see “Creating a data collection” on page 14.
2. Create a new report design. For more information, see “Creating a report design” on page 21.
3. Set the report properties. If you copied a design from an existing report, the properties from the existing report are displayed. You can change the properties as required. For more information, see “Setting report design properties” on page 22.
4. If you plan to add background colors to sections of the report, add the section object to the report *before* you add other report objects. Otherwise, the section object will obscure the report objects that are under it. For more information, see the “About adding sections to report designs” section on page 41.
5. Add a report object to the report design. For more information, see “About adding tables to report designs” on page 25 and “Adding a chart to a report design” on page 54.
6. Link the report object to a data collection. For more information, see “About adding tables to report designs” on page 25 and “About linking charts to data” on page 54.
7. Define the properties for the report object.
8. Create design or runtime filters. For more information, see “About creating design data filters” on page 79 and “Adding a runtime data filter to a report design” on page 85.
9. Save the report. When you save a report, it is automatically available in Changepoint.

Creating a report design

You can create a new report design from scratch or copy an existing report design. For more information, see “Copying a report design” on page 21.

1. Access Report Designer.
2. Click .

   The **New Report Design** dialog box appears.
3. Select the **Create blank report design** option and then click **OK**.
4. In the **Report name** field, enter a name for the report.
5. Set the report design properties. For more information, see “Report Properties area options” on page 22.
6. Add a report object. For more information, see “About adding tables to report designs” on page 25 and “Adding a chart to a report design” on page 54.

Copying a report design

You can copy the report designs that you created.

1. Access Report Designer.
2. Click .
   The **New Report Design** dialog box appears.
3. Select the **Copy design from an existing report** option.
4. Select the report you want to copy.
5. Click **OK**.
6. In the **Report name** field, enter a name for the report.
7. Make the required changes to the report design.
8. To save, click .

Setting report design properties

1. Access the report design.
2. To display the **Report Properties** area, click .
3. Complete the fields as required. For more information, see the "Report Properties area options" section on page 22.

Bypassing security checks for a report

You can remove all security checks for a report so that users who normally do not have access to some or all data can view all of the data in the report.

Note: If you remove security checks for a report, it is recommended that you limit access to the report to specific users only.

1. Access the report design.
2. Click .
3. In the **Report Properties** area, select the **Bypass security access checks** check box.

Report Properties area options

Field/Option	Description
Report name field	Name of the report.
Hide report name check box	When selected, hides the report name when the report is run.
Description field	Text to describe the report.
Design format field	Specifies the output format of the report. The options are: • **Printout** – Formats the report for printing. • **Screen** – Formats the report to display on screen. The width is not limited because users can scroll horizontally to see all data in the report if required. • **Portlet** – Formats the report to display as a portlet on the Changepoint home page.

Field/Option	Description
Page size field	Specifies the page size for the printout report.
Orientation field	Specifies the page orientation for the printout report.
Margins fields	Specifies the size, in inches, of the margins for the printout report. The default margin size is 0.75 inches (1.905 cm) but you can adjust the margins based on the printer that you will use. If you adjust the report margins, you must also adjust the printer margins accordingly.
Height field	Specifies the height in pixels for the screen or portlet report.
Width field	Specifies the width in pixels for the screen or portlet report
Category field	Specifies the category for the report in the **Reports** tree view in Changepoint.
Bypass security access checks check box	When selected, the security access to the data in the report is not checked. All resources who have access to the report can view all of the report data, even if they do not have view access to the data in Changepoint.

Applying a PCID

If PCIDs have been configured for your Changepoint installation, you can set up your report to display text strings, such as report names and descriptions, labels, and headers and footers, in other languages. The fields that you can globalize have the icon beside them. For more information, see the *Changepoint Administration Guide*.

1. Obtain the PCID for the field from your system administrator or whoever is administering the PCIDs.
2. Click beside the field.

   The **Use PCID** dialog box appears.

   The **Displayed text** field displays the text that will display in the field for the language that you currently have set in your browser.
3. Select the **Enable multiple language support** check box.
4. In the **PCID** field, enter the PCID.
5. Click **Save**.

Previewing a report

While you are working on a report design, you can preview it to see how it will display to users in Changepoint. You can view changes to your report design immediately in preview mode without having to save them first.

1. When Report Designer is in design mode, do one of the following:
   - Click .
   - Right-click on the design area and select **View** > **Preview**.
   - Press the **F9** key.

   The report displays as it will display to users in Changepoint, except that only a maximum of 10 records display.

2. To return to design mode, do one of the following:
   - Click .
   - Press the **F9** key.

Accessing a report design

1. Click .

   The **Open Report** dialog box appears.
2. To locate the report, complete one or more of the fields:
   - In the **Report name** field, enter the name or partial name of the report.
   - In the **Report category** drop-down list, select the category for the report.
   - In the **Design format** drop-down list, select the report format.
3. To view the list of reports created by other resources:
   a. Select the **Display reports created by other users** check box.
   b. You can specify a resource in the **Created by** field.
4. Click the **Search** button.

   All reports that match the criteria appear.
5. Select the report and click **Open**.

   The report appears in the design area.

Editing a report design

Note: You cannot edit the standard Changepoint-supplied reports using Report Designer. However, if permitted by your organization, your system administrator can copy or export the standard Changepoint reports. For more information, contact your system administrator.

You can edit the report designs that you created.

1. Access the report design.
2. Make the necessary changes.
3. Click .

Deleting a report design

If the report is linked to another report, you must remove the links before you can delete it. For more information, see the “Identifying report links” section on page 76.

1. Access the report design.
2. Click .
3. To confirm the deletion, click **OK**.

Printing a report design

1. Access the report design.
2. Click .

CHAPTER 4
Configuring Tables

About adding tables to report designs

You display data in table format on a report by adding a table object to the report design and then linking the table to the fields in a data collection. Each field that you link to in the data collection becomes a column in the table. You can link a table to only one data collection, but you can have several tables on a report. You can link each of the tables to a different data collection or to the same data collection.

Adding a table to a report design

1. Do one of the following:
   - Right-click the design area and select **Table**.
   - Double-click .

   An empty table appears.
2. In the **Options** section of the **Table Properties** area, click **Link table to data collection**.

   The **Link Table to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select the data collection that contains the fields that you want to display in the table.

   All fields in the data collection appear.

   Tip: To add more fields to the data collection, click and then edit the data collection.
4. To add the fields to the table, do one of the following:
   - To add fields individually, select the check boxes beside the fields.
   - To add all of the fields, click **Actions** > **Select all**.

   The fields are added to the **Field Display Order** section. The fields are added as columns in the table from right to left in the order that the fields are listed from top to bottom in the list.
5. To change the display order of the fields, in **Field Display Order** section, select the field and then click the up or down arrows to move the field to a new position.
6. Click **Save**.

Changing the table columns

To add columns to, or remove columns from a report table, you add or remove links to the fields in the linked data collection. You can also change the data collection.

Before you can change the data in a table, you must ensure that all grouping and cross-tabulation options have been removed. For more information, see the “Ungrouping data in a table” section on page 30 and the “Removing cross-tabulation options” section on page 35.

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Link table to data collection**.

   The **Link Table to Data Collection** dialog box appears.
3. Make the necessary changes.
4. Click **Save**.

Changing the order of table columns

You can change the order of the columns in a table by dragging the columns to move them.

Resizing a table

You can change the size of the table and the width of table columns in the report design. However, changes in width are not displayed in the report when it is run. The only dimension that changes according to the amount of data in a table cell is the height for grouped and cross-tabulated tables.

1. Access the report design.
2. Click the table to display the sizing boxes on the borders of the table.
3. To resize the table, drag a sizing box outwards or inwards.

4. Click .

Moving a table

1. Access the report design.
2. Click the table to display the sizing boxes on the borders of the table.
3. Point to a sizing box until a four-sided arrow displays and then drag the table to the desired position.
4. Click .

Deleting a table

1. Access the report design.
2. Click the table to display the sizing boxes on the borders of the table.
3. Press the **Delete** key.

About grouping column headings in tables

After you link a table to a data collection, you can group column headers under a main heading. If you group the columns in a table, you cannot do the following when you run the report:

- hide any of the table columns
- remove a grouped header from the table

You cannot group column headers in tables that contain grouped or cross-tabulated data.

Grouping column headings in a table

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Group column headers**.

   The **Group Column Headers** dialog box appears.
3. Do one of the following:
   - To group all of the columns to the right of the first column, double-click the first column.
   - To group some of the columns, double-click the column heading that is furthest to the right but within the group that you want to create.
4. To set up the group heading:
   a. Click the **Group** main heading and then in the **Heading** field, enter a name for the group.
   b. To change the alignment of the heading text, click a text alignment option.
5. After you have grouped some columns, you can do one or more of the following:
   - To group all columns in the table, double-click the **Group** main heading.
   - To clear a column grouping, double-click the **Group** heading.
   - To remove the selected group, click the **Remove** button.
   - To remove all groupings, click the **Reset** button.
6. Click **Save**.

Enabling users to sort data in a table column

There is an option that you must select to enable users to sort the data in a table column when they run the report.

1. Access the report design and click the table to select it.
2. In the table, click the column heading.

   The **Column Properties** area appears.
3. In the **Column Properties** area, select the **Enable sorting at runtime** check box.
4. Click .

Setting the sort order on a table column

You can specify the sort order for the data in the table. You can specify the sort order for the columns and whether the data in the columns is sorted in ascending or descending order.

1. Access the report design and click the table to select it.
2. In the table, click the column heading.

   The **Column Properties** area appears.
3. In the **Sort order** field, do the following:
   a. Select the number that represents the sort order for the column.
   b. Select the order for the data in the column.
4. Click .

Formatting date, currency and numeric data in a table column

You can specify the display format for numeric, currency, and date and time data in table columns. You can also specify that the resource's browser language settings be applied to the format.

1. Access the report design and click the table to select it.
2. In the table, click the column heading that includes the numeric, currency or date and time data.

   The **Column Properties** area appears.
3. Click **Define Format**.

   The **Define Format** dialog box appears.
4. In the **Display Format** column, select the format type.

   The **Currency/Numeric format** field displays the selected format.
5. You can edit the format directly in the **Currency/Numeric format** field. For example, you can change and move the currency symbol, add spaces, and so on.
6. By default, the server locale settings are used for currency, date and numeric formats. To apply the browser language settings of the resource running the report, select the **Use the browser's settings** check box.

   Note: The **Use the browser's settings** option applies only to the numeric separators, such as the decimal and thousand separators. It does not apply to any other formatting such as the usage or placement of currency symbols or other symbols.
7. Click **OK**.

Displaying totals or averages for table columns

If a column contains numeric values, you can display the total or average of the values at the bottom of the column.

1. Access the report design and click the table to select it.
2. In the table, click the column that you want to display a total or average for.

   The **Column Properties** area appears.
3. In the **Calculation** drop-down list, select one of the following options:
   - **Calculate the total for this column**
   - **Calculate the average for this column**
4. Click .

Displaying multiple values for configurable field columns

If the table includes a configurable field column for which multiple values can be selected, you can have the multiple values display in separate cells. By default, all values are displayed in a single cell.

1. Access the report design and click the table to select it.
2. In the table, click the column heading for the configurable field.

   The **Column Properties** area appears.
3. Select the **Display individual values of configurable fields** check box.
4. Click .

About grouping data in a table

You can organize the layout of data in a table by grouping the data. Grouped data is displayed in nested levels that can be expanded and collapsed.

Each grouped field displays as a expandable level on the report. The fields that are under a grouped field display at the same level as the grouped field.

Example

Resource name – First grouped field: All report data displays categorized by this field.

Workgroup – First non-grouped field: Displays at the same level as the first grouped field.

Project name – Second grouped field

Task name – Second non-grouped field: Displays at the same level as the second grouped field.

Time entry date – Second non-grouped field: Displays at the same level as the second grouped field.

Time entry type – Third grouped field: Displays at the third level.

Grouping data in a table

You must link the table to a data collection before grouping data.

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** or **Column Properties** area, click **Group data**.

   The **Group Data** dialog box appears.
3. Select the **Group data based on the selected conditions** check box.
4. For each field in the **Field** column, select a grouping option in the **Group data options** lists.

   Note: You must select a *group data* option for at least one field and a *calculate* or *apply formula* option for at least one field.
5. In the **Specify the grouping order** drop-down list, click a field and then use the up or down arrows to display the fields in the order that you want to group your table.
6. Click **Save**.

Ungrouping data in a table

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Group data**.

   The **Group Data** dialog box appears.
3. Clear the **Group data based on the selected conditions** check box.
4. Click **Save**.

   The grouping options are removed from the table, and all of the fields display on one row in the table.
5. Click .

Group Data dialog options

- **Group data based on the selected conditions** check box – When selected, groups the data based on the specified settings.

- **Group data options** column:
  - **Group data based on this field** – Groups the data (records in the report) based on this field.
  - **Group data based on calendar year** – groups data by calendar years. Available for date fields only.
  - **Group data based on calendar month** – groups data by calendar months. Available for date fields only
  - **Group data based on fiscal year** – groups data by fiscal years. Available for date fields only
  - **Group data based on fiscal period** – groups data by fiscal years. Available for date fields only
  - **Do not group or calculate** – Does not group or perform calculations on the field. The field displays on the same level as the grouped field immediately above it.
  - **Calculate a count for this field** – Calculates the number of records for the field in the report. Replaces the field values with a 1.
  - **Calculate the total for this field** – Calculates the total of the values for the field. The subtotals are displayed at each grouped level.
  - **Calculate the average for this field** – Calculates the average of the values for the field. The calculated values are displayed at each grouped level.
  - **Apply formula - Sum individual fields used in custom field** – Adds the values of the fields first before applying the formula in a custom field.
  - **Apply formula - Average individual fields used in custom fields** – Calculates the average of the fields first before applying the formula in a custom field.

Note: For the fiscal year and fiscal period options to display, you must associate a cost structure to the report. For more information, see the "About setting up fiscal period options" section on page 44.

- **Specify the grouping order** field – In this field, the fields that are not grouped are indented under the fields that are grouped. In the resulting report, the grouped data displays in a row with a plus sign (+) beside it. Expand the row to view the data grouped in it.

About cross-tabulating data in tables

Cross-tabulating is another way of presenting data in tables, where you can compare variables in rows against variables in one or more columns. For example, you can create a table that displays the regular and overtime hours logged by resources per month and per project. The project names are listed in rows and the months in the columns. The intersecting cells display the regular hours per month per project.

You can set up cross-tabulations only in tables that include at least one numeric field, such as hours, expenses or project time. You cannot set cross-tabulation options for tables that have custom fields that contain a constant, or include a subquery.

Example

You have a table that lists the regular hours entered by resources for projects. To view the number of hours per month for each resource and project, you can set up the table to cross-tabulate on the **Time entry date** field, with the date interval of **Calendar month**.

The report preview displays each resource, project, task and monthly regular hours one row.

To group the data in the report by resource, project and task, set up the fields in the **Group data** field as per the following screen clip:

The report preview displays the data grouped by resource with the hours per month. Under each resource, the data is grouped by project with the task name and the hours per month entered by the resource for the project.

Cross-tabulation dialog options

Cross-tabulate data on this table check box	When selected, enables cross-tabulation for the table
Display zero in table cells with no data check box	When selected, displays a zero instead of a blank cell when there is no data
Exclude columns with no data check box	When selected, hides columns that do not contain data.
Cross-tabulation on field	Select the field to be the cross-tabulated columns. You cannot create conditional formats for this field. You cannot select a custom field with advanced expressions for the interval period.
Date interval list	If the field that you selected for the **Cross-tabulation on** field is a date field, select one of the following options for the interval: • Calendar year • Calendar month • Fiscal period **Note:** For the fiscal year and fiscal period options to display, you must associate a cost structure to the report. For more information, see the “About setting up fiscal period options” section on page 44.
Fields to include in the cross-tabulation section	Section where you set up the data to be displayed in the cross-tabulated columns
Select check box	Fields to be included in the cross-tabulated columns
Custom field calculation column	If the field is a custom numeric field that includes a calculation, specifies how the formula is applied when the field is being totaled: • **Calculate the total for this field** – Applies the custom field calculation to each cell first and then adds the total values of all cells. • **Apply formula – Sum individual fields used in custom field** – Adds the total values of all cells first and then applies the custom field calculation

Total calculation per row column	List of calculation options: • **Calculate the total for this row** – Adds a column that calculates the total for the each row. • **Calculate the average for this row** – Adds a column that calculates the average for the each row. • **Calculate the total and the average** – Adds columns that calculates the total and the average for the each row. • **Do not calculate the total** – Does not perform any calculation
Sum up row totals check box	If selected, displays the grand total, total average or both, of all rows at the bottom of the total calculation column. If you select a total or average calculation in the **Total calculation per row** column and the **Sum up row totals** check box, the total or average also displays at the bottom of a summary column.
Group data check box	Select to group data. In the list box, use the arrows to move the fields into the desired grouping hierarchy
Preview section	Displays a preview of the report with the current settings. This preview displays variables in place of field data

Cross-tabulating data in a table

You must link the table to a data collection before setting cross-tabulation options.

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Cross-tabulation options**.

   The **Cross-Tabulation Options** dialog box appears.
3. Select the **Cross-tabulate data on this table** check box.
4. By default, table cells without data are empty. To display a zero (0) in table cells that have no data, select the **Display zero in table cells with no data** check box.
5. To hide columns that have no data, select the **Exclude columns with no data** check box.
6. In the **Cross-tabulation on** drop-down list, select the field to be used for the columns that will contain the cross-tabulated data.
7. If the field that you selected from the **Cross-tabulation on** list is a date field, you can select the calendar month, calendar year or fiscal periods in the **Date interval** field.
8. In the **Select the fields to be included in the cross-tabulation** section, select the fields for the numeric data that displays for each column. You cannot include advanced custom fields that have the bit datatype.
9. To add columns that display the total or average amounts for the rows, in the **Total calculation per row** drop-down list, select one of the options.
10. If the field is a custom numeric field that includes a calculation, you can select one of the options from the **Custom field calculation** list.
11. To display a grand total, average or both in a row at the bottom of **Total Calculation** columns, select the **Sum up row totals** check box.
12. Click **Save**.

13. Click the preview icon to view how the cross-tabulation table displays on the report.

Removing cross-tabulation options

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Cross-tabulation options**.

   The **Cross-Tabulation Options** dialog box appears.
3. Clear the **Cross-tabulate data on this table** check box.
4. Click **Save**.

Grouping data in cross-tabulation tables

You group data in cross-tabulation tables in the **Group data** field in the **Cross-Tabulation Options** dialog box. For more information, see “Cross-tabulation dialog options” on page 33.

1. Access the report design and click the table to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Cross-tabulation options**.

   The **Cross-Tabulation Options** dialog box appears.
3. Select the **Cross-tabulate data on this table** check box.
4. Select the **Group data** check box.
5. To move a field up or down, select the field and then click the up or down arrows.
6. To indent or outdent a field, select the field and then click the left or right arrows.

Indented fields display on the same level as the outdented field directly above it in the report. For more information, see the “Group Data dialog options” section on page 30.

CHAPTER 5
Configuring Labels

About adding labels to report designs

You can add labels to report designs. You can set up a label to display one of the following:

- Text that you enter. For more information, see the “Adding a label to a report design” section on page 37.
- The value of a field. For more information, see the “Displaying a field value in a label” section on page 38.
- The total, average or count of a field value. For more information, see the “Displaying the total, average or count of a field value in a label” section on page 39.

You can also add a hyperlink to a label. For more information, see the “Adding a hyperlink to a label” section on page 39.

Adding a label to a report design

1. Access the report design.
2. Double-click .

   A label text box displays on the design area and the **Label Properties** area appears.
3. Complete the fields as required. For more information, see the “Label Properties area options” section on page 37.
4. To save, click .

Label Properties area options

Field/Option	Description
Text field	Text to be displayed in the label.
Style field	Specifies the style (bold, italic, and underscore) and the alignment of the text (right-align, center and left-align).
Font field	Specifies the type and size for the font.
Font color field	Specifies the font color. To view more colors, click ... and select a color from the palette.
Background color field	Specifies the background color. To view more colors, click ... and select a color from the palette.
Use report background color check box	If selected, he background color of the label frame is transparent.

Field/Option	Description
Allow link to Changepoint profile check box	If selected, links the label to a Changepoint profile. For more information, see the “Linking a label to a Changepoint profile” section on page 38.
Currency/Numeric format field	Specifies the display format for numeric, currency, and date and time data in a label. For more information, see the “Formatting date, numeric or currency data in a label” section on page 40.

Displaying a field value in a label

You can display a field value instead of the label text in a label by linking the label to a field in a data collection. However, a label can only display the value for one record, and only the first line if the value consists of multiple lines. To ensure that the report includes only one record you must add a runtime filter.

1. Access the report design and click the label to select it.
2. In the **Options** section of the **Label Properties** area, click **Link label to data collection**.

   The **Link Label to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select the data collection.
4. In the **Field** drop-down list, select the field whose value will display in the label.
5. Click **Save**.

You can set up the label to launch the entity profile of the field value from the report in Changepoint. For more information, see the “Linking a label to a Changepoint profile” section on page 38.

Linking a label to a Changepoint profile

You can set up a label that displays a field value to launch the entity profile of the field value from the report in Changepoint. For example, you can set up a label to display a project name. You can then set up the label so that when you run the report and double-click the label in Changepoint, the profile of the project displays.

You must first set up a label to display a field value. For more information, see the “Displaying a field value in a label” section on page 38.

1. Access the report design and click the label to select it.
2. In the **Label Properties** area, select the **Allow link to Changepoint profile** check box.
3. Click .

Resizing a label

1. Access the report design and click the label to display the sizing boxes.
2. Point to a sizing box to display the double-sided arrow and then drag the arrow to the size you require.
3. Click .

About displaying totals, averages or counts of field values in labels

You can display the totals or averages of numeric fields, or a count of the number of fields in labels. In the **Apply Calculation** dialog box, you link to the field in the data collection, group the data based on the field and then select the condition for the grouping.

For example, to display a total of regular hours in a label, you would:

- link the label to the **Time.Regular hours** field in a data collection that is based on the Time data provider
- group the data based on the **Regular hours** field
- select the **Calculate the total for this field** option

If you group data based on a non-numeric field, the total of the number of records displays. For example, if you group based on the project name, the *total number* of projects in the report displays in the label, not the project *name*.

If the field that you are grouping on is a custom numeric field that uses a calculation that you created, two additional options are available:

- **Apply formula - Sum individual fields used in custom field** – Adds the values of the fields first before applying the formula in a custom field.
- **Apply formula - Average individual fields used in custom fields** – Calculates the average of the fields first before applying the formula in a custom field.

Displaying the total, average or count of a field value in a label

1. Access the report design and click the label to select it.
2. In the **Options** section of the **Label Properties** area, click **Apply calculation**.

   The **Apply Calculation** dialog box appears.
3. In the **Data collections** drop-down list, select the data collection.
4. In the **Field** drop-down list, select the field to group on.
5. Select the **Group data based on the following condition** check box.
6. In the **Perform a calculation using the following formula** drop-down list, select a calculation, such as count, total, or average. For more information, see the “About displaying totals, averages or counts of field values in labels” section on page 39.
7. Click **Save**.

Adding a hyperlink to a label

You can add a hyperlink to a label. When the report is run, the label text is the same, but it displays as a hyperlink.

1. Access the report design and click the label to select it.
2. In the **Options** section of the **Label Properties** area, click **Add hyperlink**.

   The **Hyperlink** dialog box appears.
3. In the **Type** drop-down list, select the protocol.
4. In the **URL** field, enter the website or intranet address.
5. Click **OK**.

Formatting date, numeric or currency data in a label

You can specify the display format for numeric, currency, and date and time data in a label. You can also specify that the resource's browser language settings be applied to the format.

1. Access the report design and click the label to select it.

   The **Label Properties** area appears.
2. Click **Define Format**.

   The **Define Format** dialog box appears.
3. In the **Display format** column, select the format type.

   The **Currency/Numeric format** field displays the selected format.
4. You can edit the format directly in the **Currency/Numeric format** field. For example, you can change and move the currency symbol, add spaces, and so on.
5. By default, the server locale settings are used for currency, date and numeric formats. To apply the browser language settings of the resource running the report, select the **Use the browser's settings** check box.

   Note: The **Use the browser's settings** option applies only to the numeric separators, such as the decimal and thousand separators. It does not apply to any other formatting such as the usage or placement of currency symbols or other symbols.
6. Click **OK**.

Changing the field that is linked to a label

1. Access the report design and click the label to select it.
2. In the **Options** section of the **Data Table Properties** area, click **Link label to data collection**.

   The **Link Label to Data Collection** dialog box appears.
3. If required, select a different data collection from the **Data collections** list.
4. In the **Field** drop-down list, select a field.
5. Click **Save**.

About removing a link from a label to a field

It is not possible to remove a link from a label. Instead, you must delete the label and create a new one. For more information, see the "Deleting a label" section on page 40.

Deleting a label

1. Access the report design and click the label to select it.
2. Press the **Delete** key.

CHAPTER 6
Additional Properties and Options

About adding sections to report designs

You can create sections in your report design by adding section objects. You can add the following items to sections:

- text
- borders around the section
- background color

Tip: If you are adding a background color, place the section on the design area first, so the section does not conceal any other element when the report is in design mode.

After you add a section, you can add report objects to the section.

Adding a section to a report design

1. Access the report design.
2. Double-click .

   A section element displays on the design area and the **Section Properties** area appears.
3. Complete the fields as required. For more information, see the "Section Properties area options" section on page 41.
4. To save, click .

Section Properties area options

Field/Option	Description
Text field	Text to be displayed in the section.
Style field	Specifies the style (bold, italic, and underscore) and the alignment of the text (right-align, center and left-align).
Font field	Specifies the type and size for the font.
Font color field	Specifies the font color. To view more colors, click ... and select a color from the palette.
Background color field	Specifies the background color. To view more colors, click ... and select a color from the palette.
Use report background color check box	If selected, he background color of the section is transparent.

Field/Option	Description
Section border field	Section border to be edited (top, bottom, left, right or all borders).
Border style field	Specifies the style of the selected border.
Border width field	Specifies the width of the selected border.
Border color field	Specifies the color of the selected border.

About adding print headers and footers

You can set up headers and footers to appear on reports when they are printed. You can enter text and use variables and PCIDs to create the header and footer information. You can also specify the position (right, left or center) of the information within the headers and footers. For more information, see the "Print header and footer options for report designs" section on page 42.

Note: Users must install the Report Designer Print Utility in Changepoint for these headers and footers to print on their reports. If they do not have the utility installed or are not using Internet Explorer, the default browser headers and footers will print.

You can also use Internet Explorer header and footer variables. For more information about the Internet Explorer variables, see the Internet Explorer online help.

Print header and footer options for report designs

Header and Footer Options	Variable	Description
A single ampersand (&)	&&	Inserts an ampersand.
Current page number	&p	Inserts the page number.
Page address (URL)	&u	Inserts the URL of the web page.
Page X of Y	&XY	Inserts "Page <current page number> of <total number of pages>."
Report date	&RD	Inserts the date that the report is run (as opposed to when it is printed).
Report name	&RN	Inserts the name of the report
Report time	&RT	Inserts the time that the report is run.
Total number of pages	&P	Inserts the total number of pages.

Adding a print header or footer to a report design

If the text in the print header or footer is wider than the report margins, it will be truncated on the report printout.

1. Access the report design.
2. In the **Options** section of the **Report Properties** area, click **Headers and Footers**.

   The **Headers and Footers** dialog box appears.
3. Select the **Enable headers and footers** check box.
4. In the **Print Header** section or **Print Footer** section, click in the **Left**, **Center** or **Right** field and do one or more of the following to create the header text:
   - Enter the text.
   - To insert a variable, in the **Parameters** section, double-click the header/footer option or enter the variable directly into the field.
   - To insert a PCID, click the PCID icon. For more information, see the "Applying a PCID" section on page 23.
5. Click **Save**.

Adding an image to a report design

You can add images, such as corporate logos, to report designs. The supported file formats for images are: .png, .gif, .jpg, and .bmp.

1. Access the report design.
2. To add an image, do one of the following:
   - Right-click the design area and select **Image** from the menu.
   - Double-click .

   The image icon displays on the report design.
3. In the **Options** section of the **Image Properties** area, click **Select Image**.

   The **Select Image** dialog box appears.
4. Click **Browse** and then locate the image file that you want to add to the report.
5. Select the file and then click **OK**.

   The image file replaces the image icon on the report.
6. To resize the image, click it and then use the sizing boxes to adjust the size.
7. To move the image, drag it to the desired location.

Adding a border to an image

You can add a border to one or more sides of an image. You can specify the style, width and color of the border.

1. Access the report design.
2. Click the image to display the **Image Properties** area.
3. In the **Section borders** drop-down list, select the border.
4. In the **Border style** drop-down list, select the line style for the border.
5. In the **Border width** drop-down list, select the line thickness for the border.
6. To change the border color, do one of the following:
   - In the **Border color** drop-down list, select a color for the border.
   - To view more colors, click and select a color from the palette.

About setting up fiscal period options

Before you can group or cross-tabulate data in a table based on fiscal years or fiscal periods, you must associate a cost structure with the report design. The fiscal periods from the cost structure will then be available in the grouping options.

About enabling users to select a fiscal period before running a report

To enable users to select a fiscal period before running a report, you must do the following:

- Associate a cost structure with the report design.
- Enable the **Allow users running the report to override the cost structure** option.
- Create a runtime filter for the report design. (Users require access to the **Actions** menu on the runtime filter to select a fiscal period before they run the report.)

For more information, see the "Setting up fiscal period options" section on page 44 and the "Adding a runtime data filter to a report design" section on page 85.

Setting up fiscal period options

1. To display the **Report Properties** area, click .
2. In the **Options** section, click **Fiscal Period Setup**.

   The **Fiscal Period Setup** dialog box appears.
3. In the type-ahead field, enter a cost structure.

   The fiscal periods associated with this cost structure will be used in grouping and selections.
4. To allow users to select a different set of fiscal periods before running the report, select the **Allow users running the report to override the cost structure** check box.
5. Click **Save**.

About currency conversion options

Although financial data in Changepoint can be entered in different currencies, you can specify that the financial data be converted to a single currency in the report design. The currency conversion options are:

- Convert to the base currency that was specified in the profile of the resource who runs the report.
- Convert to a specific currency.

You can also allow the user to select a different currency before running the report.

About enabling users to select a currency before running a report

To enable users to select a fiscal period before running a report, you must do the following:

- Select the **Allow users running the report to override specified currency** check box.
- Create a runtime filter for the report design. (Users require access to the **Actions** menu on the runtime filter to select a currency before they run the report.)

For more information, see the "Setting up currency conversion options" section on page 45 and the "Adding a runtime data filter to a report design" section on page 85.

About setting dates for currency conversions

Each field has a default date field that is normally used as the currency conversion date, but you can specify a different date field to be used for the currency conversion. For example, the default date field for the Time Cost data provider is TimeDate, but you could use InvoiceDate instead from the Invoiced Time data provider. However, you would first have to create a data collection that includes both the Time Cost and Invoiced Time data providers.

You can also change the conversion date to be as at the date that the report is run.

For more information, see “Setting up currency conversion options” on page 45.

Setting up currency conversion options

1. To display the **Report Properties** area, click .
2. In the **Options** section, click **Currency Conversion Setup**.

   The **Currency Conversion Setup** dialog box appears.
3. Select the **Convert all monetary values to a single currency** check box.
4. Do one of the following:
   - To use the currency of the user who runs the report, click the **Convert to the base currency of the user running the report** option.
   - To use a specific currency, click the **Convert to a specific currency** option and select the currency from the drop-down list.
5. To allow users to select a different currency before running the report, select the **Allow users running the report to override specified currency** check box.
6. To set the effective date for the currency conversion:
   a. Click **Options**.
   b. Select the fields for which you want to change the conversion date.
   c. In the **Currency conversion date field** drop-down list, do one of the following:
      - To convert the currency as at the date that the report is run, select **Current date**.
      - To convert the currency as of a different date, select the date field.
   d. Click **Save**.
7. Click **Save**.

About setting up conditional formats for fields

You can set up conditional formats for the fields in your report. The conditional formats can consist of text styles and colors and background colors, or images. The conditional formats are applied when the report is run and the field values meet the conditions.

For example, you could set up a table where conditional formats are applied to a field. You could set up conditional formats so that the field values display as follows when the report is run:

- values over 200 display in red text
- values under 100 display in green text
- values between 100 and 199 display in yellow text

You can use conditional formats in tables and labels only. However, you cannot apply conditional formats to fields in cross-tabulation tables.

Setting up a conditional format for a field

Setting up a conditional format for a field consists of the following steps:

1. Defining one or more expressions based on the field values. For more information, see “Creating an expression for a conditional format” on page 46.
2. Building a conditional formula using the expressions. For more information, see “Creating a conditional formula” on page 47.
3. Linking the conditional formula to a field. For more information, see “Linking a conditional formula to a field” on page 49.
4. Setting up the conditional formats. See one of the following:
   - “Setting up an image for a conditional format” on page 49
   - “Setting up text and background colors for a conditional format” on page 50

Creating an expression for a conditional format

You create expressions to be used in conditional formulas.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. Click .

   The **Conditional Formula** dialog box appears.
5. In the **Conditional expression** field, enter a name (without spaces) for the expression.
6. In the **Field** drop-down list, select the field to use in the expression.
7. In the **Condition** drop-down list, select the condition for the expression.
8. To compare the selected field with another field:
   a. Select the **Compare with another field in the data collection** check box.
   b. In the **Value** drop-down list, select the other field.
9. In the **Value** field, enter the value for the expression.
10. In the **Step 1** section, click **Save**.

    The expression displays in the **Available expressions** table.

Editing an expression for a conditional format

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formulas** drop-down list, select the formula.
5. Click .

   The **Conditional Formula** dialog box appears.
6. In the **Available expressions** section, select the row that contains the expression.

   The details for the expression display in the **Step 1** section.
7. Make the necessary changes.

8. Click **Save**.

Deleting an expression

If the expression is used in a formula, you must remove the expression from the formula first.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.
   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formulas** drop-down list, select the formula.
5. Click .
   The **Conditional Formula** dialog box appears.
6. In the **Available expressions** section, select the row that contains the expression.
   The details for the expression display in the **Step 1** section.
7. Click **Delete**.

Creating a conditional formula

You can create a conditional formula based on a single expression or you can create a more complex formula by using multiple expressions and other formulas.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.
   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formulas** drop-down list, select the formula.
5. Do one of the following:
   - To create a new formula, click .
   - To edit an existing formula, select a column and a conditional formula and then click .

   The **Conditional Formula** dialog box appears.
6. In the **Available expressions** table, double-click the expression to add it to the **Conditional formula** field.
7. In the **Formula name** field, enter a name for the formula.
8. If necessary, add to the formula by doing one or more of the following:
   - To add another formula, select one from the **Available formulas** list.
   - To add another expression, double-click one in the expression table.
   - To add an operator, bracket or space, click the appropriate button.
9. When you are finished, test the formula:
   a. Click **Test Formula**.
   b. If the formula is not valid, make the necessary corrections.
   c. If the formula is valid, click **Save**.

10. Do one of the following:
    - To save the formula and create another formula, click **Apply**.
    - To save the formula and return to the **Conditional Formatting** dialog box, click **Save**.

Editing a conditional formula

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formula** drop-down list, select the formula.
5. Click .

   The **Conditional Formula** dialog box appears.
6. In the **Available formulas** drop-down list (in the **Step 2** section), select the formula.
7. Make the necessary changes.
8. Click **Save**.

Deleting a conditional formula in the Conditional Formulas dialog box

You can delete a conditional formula in the **Conditional Formula** dialog box, if the conditional formula has not been linked to a field. If the conditional formula has been linked to a field, you must first remove the link. For more information, see “Deleting a conditional format in the Conditional Formatting dialog box” on page 48.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formulas** drop-down list, select the formula.
5. Click .

   The **Conditional Formula** dialog box appears.
6. In the **Available formulas** list (in the **Step 2** section), select the formula.
7. Click **Delete Formula**.

Deleting a conditional format in the Conditional Formatting dialog box

If a conditional formula has been linked to a field, you must remove the link before you can delete the conditional formula.

1. Access the report design.
2. Click the object (table or label) to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Column** drop-down list, select the field linked to the formula.
5. Click **Reset**.

   This removes the link between the field and the formula.

6. In the **Conditional formula** drop-down list, select the formula to delete.
7. Click .
8. Click **Save**.

Linking a conditional formula to a field

To apply the conditional formula, you must link it to the field.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Column** drop-down list, select the field to link to the formula.
5. In the **Conditional formula** drop-down list, select the formula.
6. Click .

   The formula is added to the **Linked conditional formulas** table.
7. When the report is run, the first condition that matches is applied. To change the order of the formulas:
   a. Select the formula in the **Linked conditional formulas** section.
   b. Click the up or down arrows to move it to the correct position.
8. Set up the conditional format for the formula. For more information, see the "Setting up an image for a conditional format" section on page 49 and the "Setting up text and background colors for a conditional format" section on page 50.

Removing a conditional format from a field

To remove a conditional format from a field, you remove the link between the field and the conditional formula. The conditional formula is not deleted. You can link the conditional formula to the same field with the same format or a different format at any time. You can also link the conditional formula to different fields of the same type.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Column** drop-down list, select the field with the conditional format that you want removed.
5. In the **Linked conditional formulas** section, select the formula name.
6. Do one of the following:
   - To remove the link to a conditional formula, click beside the formula.
   - To remove all of the links to conditional formulas, click **Reset**.
7. Click **Save**.

Setting up an image for a conditional format

After you link a conditional formula to a field, you must set up the conditional format. You can set up an image in a conditional format so that when the report is run, the image displays

in place of the values that match the conditional formula. When you point to the image, the value displays in a tooltip.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Conditional formulas** drop-down list, select the formula.
5. In the **Linked conditional formulas** section, select the formula name.
6. Select the **Image** check box.
7. To use a stock image:
   a. Click **Stock image**.
   b. Select the red, yellow or green square.
8. To use your own image:
   a. Click **Custom image**.
   b. Click ...
   c. Browse to locate and then select the image.
9. In the **Image size** drop-down list, select the display size for the icon. If you select **Custom size**, enter the width and height in pixels.
10. Click **Save**.

Setting up text and background colors for a conditional format

After you link a conditional formula to a field, you must set up the conditional format. You can set up a conditional format so that when the report is run, the field values that meet the conditional formula display in the specified text styles and background colors.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Linked conditional formulas** section, select the formula name.
5. In the **Style** section, select a font and an alignment option.

   Tip: A sample of the font and color formats display in the **Sample** field.

6. To change the font, from the **Font** lists, select the type and size for the font.
7. To change the font color, do one of the following:
   - From **Font color** drop-down list, select a color for the font
   - To view more colors, click ... and select a color from the palette.
8. To specify a background color, do one of the following:
   - In the **Background color** drop-down list, select a color.
   - To view more colors, click ... and select a color from the palette.
9. Click **Save**.

Editing a conditional format

You can edit a conditional format by changing the text styles and background colors or the image. You can also change the conditional format from text to an image or vice versa.

1. Access the report design.
2. Click the table or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Conditional formatting**.

   The **Conditional Formatting** dialog box appears.
4. In the **Column** drop-down list, select the field that is linked to the conditional formula.
5. In the **Linked conditional formulas** section, select the formula name.

   The conditional format settings display on the right.
6. Make the necessary changes.
7. Click **Save**.

CHAPTER 7
Configuring Charts

About charts in report designs

You can add chart objects to a report design to provide a visual representation of data. The following chart types are available:

- Column charts:
  - Clustered column
  - Stacked column
  - 100% stacked column
- Bar charts:
  - Clustered bar
  - Stacked bar
  - 100% stacked bar
- Line charts:
  - Line
  - Stacked line
  - 100% stacked line
- Line-column combination charts:
  - Line-column combination
  - Pareto
- Pie charts
- Bubble charts
- Gantt charts

About adding charts to report designs

The basic steps to creating a chart include:

- “Adding a chart to a report design” on page 54
- “About linking charts to data” on page 54
- “General display options” on page 60
- “Options for configuring titles and labels in report charts” on page 63
- “About configuring chart items” on page 66
- “About specifying colors in report charts” on page 67

Adding a chart to a report design

1. Access the report design.
2. Do one of the following:
   - In the toolbar, double-click .
   - Right-click the design area and select **New > Chart**.

   A sample chart appears in the design area, and the **Chart Properties** options appear in the properties area.
3. In the **Chart type** section, select a chart type and a chart subtype.
4. After you add a chart to a report, you must link the chart to data. For more information, see the “About linking charts to data” section on page 54.

Deleting a chart from a report design

1. Access the report design and click the chart to select it.
2. Press the **Delete** key.

About linking charts to data

After adding a chart to the report design, you must associate the chart to data by linking the chart to a data collection. You can only associate one data collection to a chart. However, you can add multiple charts to a report and associate each chart to a different data collection.

The procedure differs slightly depending on the chart type. For more information, see the section appropriate to the chart type:

- “Linking a column chart to data” on page 55
- “Linking a bar chart to data” on page 55
- “Linking a line chart to data” on page 56
- “Linking a line-column combination chart to data” on page 56
- “Linking a pareto chart to data” on page 57
- “Linking a pie chart to data” on page 57
- “Linking a bubble chart to data” on page 58
- “Linking a Gantt chart to data” on page 58

You can sort the information in the tables in the **Link Chart to Data Collection** dialog box by clicking the column headings. For example, you can click the **Provider** or **Field** column headings to sort the information by data providers or field names. Also, to quickly identify the fields that have already been selected, click the **Select** column heading until the selected fields appear at the top.

About linking column charts to data

When you link a column chart to data, you must specify one field for the x-axis and one or more fields for the y-axis. The values of the x-axis field are displayed as labels along the x-axis, and the values of the y-axis field are displayed as columns above the corresponding x-axis labels.

If the legend is displayed on the chart, the y-axis field names display in a table beside the color used to represent them. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a column chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.
4. In the **X-Axis Data** section, select the field to display on the x-axis. You can only select one field for the x-axis.
5. In the **Y-Axis Data** section, select one or more fields to display as columns on the chart.
6. Click **Save**.

About linking bar charts to data

When you link a bar chart to data, you must select one field for the y-axis and one or more fields for the x-axis. The values of the y-axis fields are displayed as labels along the y-axis. The values of the x-axis fields are displayed graphically as bars to the right of the corresponding y-axis label.

If the legend is displayed on the chart, the x-axis field names display in a table beside the color used to represent them. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a bar chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.

   The fields from the selected data collection are displayed in the **Y-Axis Data** and the **X-Axis Data** sections. The **X-Axis Data** section lists only the fields that can be calculated.
4. In the **Y-Axis Data** section, select the field to display on the y-axis. You can select one field only.
5. In the **X-Axis Data** section, select one or more fields to display as bars on the chart.
6. Click **Save**.
7. If required, select a calculation option for the x-axis fields. For more information, see the “About applying calculations to numeric data in report charts” section on page 59.

About linking line charts to data

When you link a line chart to data, you must select one field for the x-axis and one or more fields for the y-axis. The values of the x-axis field are displayed as labels along the x-axis, and the values of the selected y-axis fields are displayed graphically as line markers above the corresponding x-axis label.

If the legend is displayed on the chart, the y-axis field names display in a table beside the color used to represent them. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a line chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.

   The fields from the data collection are displayed in the **X-Axis Data** and the **Y-Axis Data** sections. The **Y-Axis Data** section lists only the fields that can be calculated.
4. In the **X-Axis Data** section, select the field to display on the x-axis. You can select one field only.
5. In the **Y-Axis Data** section, select one or more fields to display graphically as lines on the chart.
6. Click **Save**.
7. If required, select a calculation option for the y-axis fields. For more information, see the "About applying calculations to numeric data in report charts" section on page 59.

About linking line-column combination charts to data

When you link a line-column chart to data, you must select one field for the x-axis and one or more fields for the column data and the line data. The values of the x-axis field are displayed as labels along the x-axis. The values of the selected column data fields display as columns, and the line data fields display as line markers above the corresponding x-axis labels.

If the legend is displayed on the chart, the column and line field names display in a table beside the colors used to represent them. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a line-column combination chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.

   The fields from the selected data collection are displayed in the **Y-Axis Data**, the **Column Data** and the **Line Data** sections.
4. In the **X-Axis Data** section, select the field to display on the x-axis. You can select one field only.
5. In the **Column Data** section, select one or more fields to display as columns in the chart.
6. In the **Line Data** section, select one or more fields to display as lines in the chart.
7. Click **Save**.
8. If required, select a calculation option for the column and/or line fields. For more information, see the "About applying calculations to numeric data in report charts" section on page 59.

About linking pareto charts to data

When you link a pareto chart to data, you must select one field each for the x-axis and y-axis. The values of the x-axis field are displayed as labels along the x-axis. The values of the y-axis field are displayed as columns sorted in descending order from left to right. The values of the

y-axis field are also displayed as line markers whose values are added cumulatively above the corresponding x-axis labels. The second y-axis is demarcated in percentages, with 100% being equal to the total of the y-axis values.

If the legend is displayed on the chart, the y-axis field name displays in a table beside the color used to represent the columns, and **Cumulative totals** displays beside the color used to represent the line. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a pareto chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.
4. In the **X-Axis Data** section, select the field to display on the x-axis. You can select one field only.
5. In the **Y-Axis Data** section, select the field whose values will be displayed graphically as columns and as lines in the chart.
6. Click **Save**.
7. If required, select a calculation option for the y-axis field. For more information, see the "About applying calculations to numeric data in report charts" section on page 59.

About linking pie charts to data

When you link a pie chart to data, you must select one field each for the x-axis and y-axis. The values of the x-axis fields are displayed as labels for each pie slice. The size of each pie slice is determined by the value of the y-axis fields with the arc length of each pie slice being proportional to the total sum of the field values.

If the legend is displayed, the x-axis field names are listed beside the corresponding color. The legend is displayed in the preview mode of the report design and in the generated report in Changepoint.

Linking a pie chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.
4. In the **X-Axis Data** section, select the field to be displayed as a sector (slice) of the pie.
5. In the **Y-Axis Data** section, select the field whose values will determine the size of each pie slice.
6. Click **Save**.
7. If required, select a calculation option for the y-axis field. For more information, see the "About applying calculations to numeric data in report charts" section on page 59.

About linking bubble charts to data

When you link a bubble chart to data, you must select one field each for the x-axis, y-axis and bubble size. The values of the x-axis field are displayed as labels along the x-axis, and the

values of the y-axis field are displayed as labels along the y-axis. The values for the field that you select for the bubble size determine the size of the bubbles.

Linking a bubble chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.

   The fields from the selected data collection are displayed in the **X-Axis Data**, the **Y-Axis Data** and the **Bubble Size** sections.
4. In the **X-Axis Data** section, select the field to display on the x-axis. You can select one field only.
5. In the **Y-Axis Data** section, select the field to display on the y-axis.
6. In the **Bubble Size** section, select the field whose values will determine the size of the bubbles.
7. Click **Save**.
8. If required, select a calculation option for the bubble size field. For more information, see the “About applying calculations to numeric data in report charts” section on page 59.

About linking Gantt charts to data

When you link a Gantt chart to data, you select a field to display as the row label in the primary column. You can also add time line, milestone and percentage chart items.

You can link the row labels in the primary column to other reports. For information on linking reports, see the “About linking reports” section on page 75.

Linking a Gantt chart to data

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. In the **Data collections** drop-down list, select a data collection.

   The fields from the selected data collection are displayed in the **Primary Column** section.
4. Select the field to display as the row label in the primary column of the Gantt chart.
5. To add a time line:
   a. In the **Item type** drop-down list, select **Time line**.
   b. In the **Label** field, enter a name for the time line chart item.
   c. In the **Start date** field, select a date field whose value will be the start of the time line.
   d. In the **End date** field, select a date field whose value will be the end of the time line.
   e. Click the **Save** button below the **End date** field. The time line is added to the **Gantt Chart Items** table.
6. To add additional chart items to the Gantt chart, click the **New** button to clear the fields or you will overwrite the currently selected item.
7. To delete an item from the **Gantt Chart Items** table, select the item row and click **Delete**.
8. To add a milestone:
   a. In the **Item type** drop-down list, select **Milestone**.

   b. In the **Label** field, enter a name for the milestone chart item.
   c. In the **Date** drop-down list, select the field to be displayed on your Gantt chart as a milestone.
   d. Click the **Save** button that is below the **Date** field. The milestone is added to the **Gantt Chart Items** table.
9. To add a percentage:
   a. Select **Percentage** from the **Item type** list.
   b. In the **Label** field, enter a name for the percentage chart item.
   c. In the **Percentage** drop-down list, select the field whose value will be used to calculate the percentage complete of a time line.
   d. In the **Shown against this time line** drop-down list, select the time line.
   e. Click the **Save** button that is below the **Shown against this time line** field. The percentage is added to the **Gantt Chart Items** table.
10. Click **Save**.

About applying calculations to numeric data in report charts

You can apply calculations to data in numeric fields in charts. The following options are available:

- **Do not calculate the total** – Default setting. No calculation is applied.
- **Calculate a count for this field** – Calculates the total number of records for the field.
- **Calculate the total for this field** – Calculates the total of the values for the field.
- **Calculate the average for this field** – Calculates the average of values for the field.

For example, if you linked a column chart to the **Time** data provider and selected the field **Task Name** for the x-axis and **Regular Hours** for the y-axis, the chart would display a column for each time record in which regular hours were reported for each task. However, to have the chart display one column for each task, you can apply a calculation so that the regular hours for each task are totaled.

If the field is a custom numeric field that uses a calculation that you created, two additional options are available:

- **Apply formula – Sum individual fields used in custom field**
- **Apply formula – Average individual fields used in custom field**

For numeric fields, the calculation is applied to each row and then the rows are added together to provide a total. For some custom numeric fields, such as percentages, the results may not be correct if the calculation is applied to each row instead of on the total sum. You can use the apply formula options to specify that the rows be added first and the calculation applied to the total sum.

Applying a calculation to numeric data in a report chart

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Apply calculation**.

   The **Apply Calculation** dialog box appears, displaying the numeric fields that are associated to the chart.

3. In the **Total calculation per row** column, select the calculation type from the list beside the field to apply the calculation.
4. Click **Save**.

Removing a calculation from numeric data in a report chart

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Apply calculation**.

   The **Apply Calculation** dialog box appears.
3. In the **Total calculation per row** column, select **Do not calculate the total** for each field.
4. Click **Save**.

Changing the data in a report chart

If you want to change the data that is displayed in a chart, you can add fields to, or remove fields from a data collection that is linked to the chart, or you can change the data collection.

If calculations have been applied to the chart, you must remove them first. For more information, see “Removing a calculation from numeric data in a report chart” on page 60.

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Link chart to data collection**.

   The **Link Chart to Data Collection** dialog box appears.
3. If required, select a different data collection from the **Data collections** list.
4. Make the necessary changes.
5. Click **OK**.
6. If you removed any calculations, reapply them. For more information, see “Applying a calculation to numeric data in a report chart” on page 59.

General display options

After you have associated data to a chart, you can configure the general appearance of the chart (gridlines, borders, markers, margins, and so on). The general display options that are available depend on the chart type. The following list describes all of the options.

The options available for the Gantt chart are different than all other charts. For more information, see the “Configuring a report Gantt chart” section on page 72.

Option	Description
Border color list	Specifies the color of the chart border.
Border style list	Specifies the chart border as either flat, raised or sunken.
Circle pie chart check box	When selected, displays the pie chart in a more circular shape than the default oval shape.
Date/Number formats link	Displays the **Date/Number formats** dialog box, where you can configure the formatting for date and numeric data. For more information, see the “About formatting date and numeric data in report charts” section on page 65.

Option	Description
Display chart data check box	When selected, displays the chart data. Examples of chart data are: • line chart – the value beside each data point marker • column chart – the value displayed on each column.
Display chart item colors check box	When selected, displays the fill colors that have been selected in the **Chart items** section.
Display legend check box	When selected, displays the chart legend.
Display markers check box	When selected, displays the data point markers on line charts.
Display x-axis grid lines check box	When selected, displays the x-axis grid lines.
Display x-axis units check box	When selected, displays the x-axis unit markers.
Display y-axis grid lines check box	When selected, displays the y-axis grid lines.
Display y-axis units check box	When selected, displays the y-axis unit markers.
Exploded pie check box	When selected, displays the pie slices are separated.
Hide zero values check box	When selected, hides chart items that have a value equal to zero or that have no value.
Margins fields	Adjusts the size, in pixels, of the margins between the chart border and the chart data. For example, to increase the space for the x-axis labels, you would increase the size of the bottom margin.
Rounded borders check box	When selected, the corners of the chart borders are rounded rather than square.
Stagger x-axis labels check box	When selected, the x-axis labels are displayed alternately closer and farther away from the x-axis.

Configuring general display options for report charts

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **General options**.
3. Specify the options as required. For more information, see the “General display options” section on page 60.
4. Click .

About viewing a sample preview of report charts

When working in a chart, you can view a sample preview of your changes by double-clicking the chart in the design area. The sample chart refreshes to display changes that you made to titles, labels, fonts, colors, chart items, and so on. However, the sample preview does not display the following:

- changes to Gantt charts
- the actual data in the chart
- more than one chart item of each type (line, column, bar)
- changes to the chart scale or units
- changes to date or numeric display formats

To view the full effect of your changes, you must preview the report. For more information, see the “Previewing a report” section on page 23.

Viewing a sample preview of a report chart

To view a sample preview of the chart, double-click the chart in the design area.

Resizing and moving a report chart

You can make a chart larger or smaller in size. Only the scale of the chart changes, not the amount of data displayed in it. You can also move the chart.

1. Access the report design and click the chart to select it.
2. To resize the chart, point to one of the sizing boxes until a double-sided arrow displays and then drag the sizing box until the chart is the size that you require.
3. To move the chart, point to chart border until the displays and then drag the chart to its new position.
4. Click .

When a chart is displayed, the scale and unit for the chart are automatically determined based on the chart dimensions and the minimum and maximum data values. Provided that one of the axes in your chart has a numeric scale, you can specify that only a portion of the entire chart be displayed by specifying the range of the scale to be displayed in the chart. You can also specify a different unit for the increments in the axis grid.

For example, the following chart includes values from 0 to 9000, and the y-axis grid is in increments of 2,000.

To view more details at the midrange, you can specify that the scale of the chart start at 7000 and end at 8000, as per the following diagram. The chart items that have a value that is below the minimum amount of 7000 are represented at the bottom of the chart by the minimal representation of a chart item, and chart items that have values above the maximum amount

are cut off at the top. If you point to a column that is below the minimum, the value displays in a tooltip.

Note: Only bar and column charts display data that is out of range of the specified minimum and maximum values. For all other chart types, only the chart items that fall within the range will be displayed; there is no visual indication of data that falls outside of the range.

Consider the following guidelines and limitations when changing the scale or units for a chart:

- If you specify only one or two of the minimum, maximum and unit options, then the remaining values are calculated based on the chart data.
- If you change the unit only, the first increment is equal to the lowest value in the chart, and the maximum is equal to the highest value. To make the increments begin at 0, you must specify 0 as the minimum.
- To remove scale and or unit values, you must clear the fields, that is, delete the values. Do not enter zeroes for this purpose.

Specifying the scale of a report chart

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **Scale configuration**.
3. In the **Minimum** field, specify the value that you want the chart to begin at.
4. In the **Maximum** field, specify the value that you want the chart to end at.
5. In the **Unit** field, specify the unit by which you want the axis grid to increment.
6. Click .

Options for configuring titles and labels in report charts

You can specify the wording, placement and appearance of all of the titles and labels in a chart. This section describes the options in the various title and label sections in the **Chart Properties** area, except for the titles in Gantt charts. For more information, see the “Configuring a report Gantt chart” section on page 72.

Option	Description
Background color list and field	Two fields: one specifies the background color of the title or label text and the second field displays a sample of the color.
Background color same as slice field check box	When selected, the background color for the pie slice labels is the same as the corresponding pie slice.
Background same as bubble field check box	• **Outside label** section – When selected, the background color of the outside label is the same as the corresponding bubble. When cleared, the background color is the same as the background color of the chart. • **Inside label** section – When selected, the background color for the inside bubble label is the same as the bubble. When cleared (after being selected), the background color stays the same as the bubble color unless you specify a different color in the Start color field.
Border color list and field	Two fields: one specifies the color of the border and the second field displays a sample of the color.
Date/Number formats link	Displays the **Display Format Settings** dialog box. For more information, see the “About formatting date and numeric data in report charts” section on page 65.
Display format list	Use to specify the same display format to the x-axis or y-axis labels that has been specified for date or numeric data. This field is enabled only if you have specified display formats for date and/or numeric data. Lists the fields and the display formats that have been applied to them (if any).
Display <label name> label check box	When selected, displays the label.
Display <title name> title check box	When selected, displays the title.
Font lists	Specifies the font type and size for the title or label text.
Font color list and field	Two fields: one specifies the color of the title or label text and the second field displays a sample of the color.
Field to display in label field	Specifies the field whose values display in the inside or outside bubble label. Keep in mind that the length of a bubble label is limited to the width of the corresponding bubble, and labels may not display properly if the chart is crowded. An ellipsis (…) indicates when field text has been truncated or if the number of characters allowed for the field is longer than the label. However, users viewing the chart online can point to the bubble label to display the full text.

Option	Description
Placement list	Specifies the placement of the title or label text. If you choose the options **Outside** or **Outside with line** for pie chart labels, the text in the labels wraps automatically. To adjust how the text wraps, you can change the overall chart size, text size, and/or chart margins.
Rounded borders check box	When selected, the corners of the border of the title or label are rounded instead of square.
Style buttons	Specifies the font style and alignment of the title or label text.
Text field	The text for the title. To globalize the text, click . For more information, see the “Applying a PCID” section on page 23.
Wrap text check box	When selected, the text of the title or label wraps when there is not enough space to display the entire text on one row. This option is not available for the chart title or inside or outside bubble labels.

Configuring a title or label in a report chart

You can configure various titles and labels for report charts.

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click the section for the title or label that you want to configure.
3. Specify the options as required. For more information, see “Options for configuring titles and labels in report charts” on page 63.
4. Click .

About formatting date and numeric data in report charts

By default, the server locale settings determine the formats for dates and numeric data in charts. However, you can specify different formats for date and numeric data. You can also set the data to display according to the language preferences setting in the browser. The language preferences in the browser only apply to the numeric separators, such as the decimal and thousand separators. They do not apply to any other formatting, such as the use or placement of currency symbols or other symbols.

Consider the following guidelines when specifying formats for data:

- If you specify formats for data, you should also specify the same format for the x-axis or y-axis label that corresponds to the data.
- If you specify a format that results in values being rounded, the rounded values can affect other report configurations. For example, if you select a format with two decimal places, and then link the field to another report that uses the field value in a runtime filter, the value used in the filter will be the rounded value and not the original value.

Formatting date and numeric data in a report chart

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **General Options**.
3. Click **Date/Number formats**.

   The **Display Format Settings** dialog box appears.
4. In the **Column** column, click the field whose data you want to format.
5. Click the **Define Format** link.

   The **Define Format** dialog box appears.
6. In the **Display format** column, select the format type.

   The **Currency/Numeric format** field displays the selected format.
7. If required, you can edit the format directly in the **Currency/Numeric format** field. For example, you can change and move the currency symbol, add spaces, and so on.
8. To use the default display formats for the language setting in your browser, select the **Use the browser's settings** check box.
9. Click **OK**.

About configuring chart items

In the **Chart items** section in the **Chart Properties** area, you can specify the following:

- shape and color of chart items (lines, columns, bars)
- sort order for chart items in bar, column, line and line-column charts
- cumulative values in line charts

Note: You configure bubble charts and Gantt charts differently. For more information, see the "About specifying fields to determine colors for bubble and Gantt chart items" section on page 69 and the "Configuring an item in a report Gantt chart" section on page 72.

Options for configuring chart items in report charts

These options are available in the **Chart items** section of the **Chart Properties** area.

Field	Description
Display in 3-D check box	When selected, displays the chart items in 3-D.
Accumulate field values check box	Applies to line charts only. When selected, the y-axis values are added cumulatively from left to right. For example, you could use this option to create a chart to show the cumulative number of requests each day over a period of time.
Field list	Field that you use to specify: • the field whose values that the sort order for chart items is based on • one or more fields whose data is to be added cumulatively

Field	Description
Sort order list	The order that the chart item corresponding to the field is sorted in. The sort order is based on the field values. Applies to bar, column, line and line-column charts. Note that for 100% stacked bar charts, the sort order is based on the values of the field, and not the percentages.
Item shape list	Shape for the columns or bars. Depending on the chart item, the shape options include: • Cylinder • Diamond • Square • Triangle (regular, inverted, left and right)
Color effect list	Visual effects to apply to columns, bars and the chart background. Depending on the chart item, the options include: • Glass • Gradient (requires that you select a start and end color) • Solid • Soft light
Start color list	When **Gradient** is specified as the color effect, the color that is darkest at the start of the gradient and lightest at the end of the gradient. When a color is specified, a sample is displayed in the field below.
End color list	When **Gradient** is specified as the color effect, the color that is the lightest at the start of the gradient and is darkest at the end of the gradient. When a color is specified, a sample is displayed in the field below.

Configuring a chart item

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **Chart items**.
3. Specify the options as required. For more information, see “Options for configuring chart items in report charts” on page 66.
4. Click .

About specifying colors in report charts

You can specify colors for all chart labels, titles, borders, backgrounds and chart items in all chart types, except for chart items in pie, bubble, and Gantt charts.

For specifying colors in pie charts, see the “About specifying colors for slices in pie charts” section on page 69. For specifying colors for bubble and Gantt charts, see the “About specifying fields to determine colors for bubble and Gantt chart items” section on page 69.

You can choose from a list of standard colors or a color palette, or you can specify a custom color using RGB values. Where you have the option to specify colors for chart items, you can specify shapes and/or color effects as well. Every color field has a field below it that displays a sample of the selected color.

If you select a gradient color effect, then you must also chose start and end colors. The direction of the gradient for different chart items is as follows:

- Background colors – by default, the start color is at the top and end color is at the bottom

  Note: You can select a different direction for the chart background color.

- Columns – start color is at the bottom and end color at the top
- Bars – start color is at the left and end color at the right

Specifying a color for a chart item

This section describes how to specify colors for various chart items.

Specifying a color effect for a chart item

- In the color effect drop-down list, select an effect.
- If you chose **Gradient**, then you must choose a start and end color.

Specifying a standard color for a chart item

In the color drop-down list, select a color.

Specifying a color for a chart item by using the color palette

- Click ...
  The **Color Palette** dialog box appears.
- Select a color.
- Click **OK**.

Specifying a custom color for a chart item

- Click ...
  The **Color Palette** dialog box appears.
- Select **Custom Color**.
- In the **Red**, **Green** and **Blue** fields, specify the RGB color values (0 - 255) for the color. For example, white = 255, 255, 255 and black = 0, 0, 0.
- Click **OK**.

Removing a color from a chart item

- To remove a standard color, select the blank field at the top of the color list.
- To remove a palette color or custom color:
  - Select a different color from the color list.
  - Select the blank field at the top of the color list.

About specifying colors for slices in pie charts

There are 10 default colors for slices in pie charts. The colors are numbered from 1 to 10 and are assigned in order to the first 10 pie slices (values) in the pie chart. If there are more than 10 slices, then the subsequent slices are assigned colors starting over again in order from color 1.

You can assign different colors to replace the 10 default colors.

Specifying a color for a slice in a pie chart

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **Chart items**.
3. In the **Colors** drop-down list, select the color that you want to change.

   The current color name and sample appear in the **Start color** fields.
4. In the **Start color** field, select a different color.
5. Repeat for each color that you want to change.
6. Click .

About specifying fields to determine colors for bubble and Gantt chart items

This section covers how to specify colors for bubbles in bubble chart and chart item rows in Gantt charts only. For information about specifying colors for titles, labels, background colors and all other chart items in charts, see the “About specifying colors in report charts” section on page 67.

Report Designer uses a hidden color table to store 40 colors (in hexadecimal values) assigned to field values based on the field type to determine the colors for bubble and Gantt chart items. However, you can specify that colors for chart items in bubble or Gantt charts be based on the values in fields. When you select a field to control the colors, then the field values and their corresponding colors appear in the chart legend.

The color selection works differently depending on the field type, as follows:

- Text fields (standard and configurable) – To specify colors using text fields, you must specify the hexadecimal color values in one of the text fields of the chart item. For example, if your chart items are requests, and you want some of the requests to display in red, then you would input the hexadecimal code for red (#FF0000) in one of the request text fields for those requests.
- Code fields (standard and configurable, including entity-based single-select configurable code fields) – each field value is mapped to a different color from 0 - 39 in the color table. If there are more than 40 fields, then the color assignments start over from the beginning. That is, the 41st field will be assigned color 0, 42 - 1, 43 - 2, etc. You would specify a code field when you want each chart item to be a different color. For example, if your chart displays requests, and you want each request type to display in a different color, you would select the **RequestType** field to control the chart item color.
- Numeric fields (standard and configurable) – Numeric fields are assigned a color based on their value. Each of the numbers from 0 to 39 map to a different color of the 40 predefined colors within the color table. If the numeric field contains any other number, its assigned color is white. Values are rounded to the nearest whole number, for example, 1.2 is rounded down to 1 and 3.6 is rounded up to 4.

Specifying a field to determine bubble color in a report chart

If calculations have been applied to the bubble chart, then this option is not available.

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **Bubble options**.
3. In the **Field to control bubble color** drop-down list, select the data field that will determine the color applied to bubbles in the chart.
4. Click .

Specifying a row color in a Gantt chart

See “Configuring an item in a report Gantt chart” on page 72.

Specifying tooltip text in bubble charts

You can display the data for fields in the tooltip text for bubbles. You can choose from the other fields in the same data collection that is linked to the chart.

If calculations have been applied to the bubble chart, then this option is not available.

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click **Bubble options**.
3. Click **Tooltip text**.

   The **Tooltip Text** dialog box appears.
4. Select one or more fields whose names and values will display in the tooltip when users point to a bubble.
5. Click .

Specifying the size of bubbles

By default, the minimum size of bubbles is 5 pixels. However, you can change the minimum size. The lowest value in the chart corresponds to the minimum bubble size, and the sizes of the other bubbles are scaled according to their values relative to the minimum bubble size.

1. Access the report design.
2. Click the chart to select it.
3. In the **Chart Properties** area, click **Bubble options**.
4. In the **Minimum bubble size** field, enter the size in pixels.
5. Click .

Specifying titles on report Gantt charts

You can specify titles for a Gantt chart as well as the row number and primary columns.

1. Access the report design and click the chart to select it.
2. In the **Chart Properties** area, click the applicable title section.
3. Do one of the following:
   - In the **Text** field, enter the text for the title.
   - To use a PCID, click . For more information, see the “Applying a PCID” section on page 23.

4. Click .

Gantt Display Options dialog box options

This section lists the options for configuring the *overall appearance* of Gantt charts, including specifying the time line of the chart, and whether the chart title, row numbers, time units and legend are displayed.

You can also configure the display options for *chart items* (time lines, percentages, and milestones) in the Gantt chart. For more information, see the "Configuring an item in a report Gantt chart" section on page 72.

Display Option	Description
Auto-calculate the time line check box	When selected, bases the start and end dates on the earliest and latest time line or milestone dates. When this option is selected, the options in the **Time line** section are unavailable.
Background color list	Specifies a background color. You can either specify the hexadecimal value of the color or choose from the color palette.
Display chart title check box	Displays/hides the title of the Gantt chart.
Display days check box	Displays/hides the row that displays the days.
Display legend check box	Displays/hides the legend.
Display months check box	Displays/hides the row that displays the months.
Display row numbers check box	Displays/hides the column that numbers the rows.
Display weeks check box	Displays/hides the row that displays the weeks.
Display years check box	Displays/hides the row that displays the year. If the option is deselected, the year is displayed as a prefix to the month (if displayed).
Row height field	Specifies the row height in pixels. The default is 24 pixels.
Timescale list	Displays grid lines in monthly, weekly or daily intervals.

Time Line section

These options are available only if **Auto-calculate the time line** is deselected.

- **Start date** – Specifies the start date for the chart. You can either enter a date or select the **Current date** check box to specify today's date.

  If you enter dates manually, only the month and year are considered. For example, if you choose September 12, 2012 as the start date and November 18, 2012 as the end date, the Gantt chart will display a period from September 1 to November 30, 2012.

- **End date** – Specifies the end date for the chart. You can either enter a date or select the **Current date** check box to specify today's date.

Configuring a report Gantt chart

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Gantt display options**.

   The **Gantt Display Options** dialog box appears.
3. Specify the options as required. For more information, see the "Gantt Display Options dialog box options" section on page 71.
4. Click **Save**.

Configuring an item in a report Gantt chart

Once you have linked data to a Gantt chart, you can change the way that the chart items (time lines, percentages, and milestones) display on the Gantt chart. You can configure the shape and color for each chart item and the tooltip text to accompany the item.

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Gantt display options**.

   The **Gantt Display Options** dialog box appears.
3. Select the **Gantt style** tab.
4. In the **Select a chart item** section, select the chart item that you want to modify.

   The current settings for the selected item are displayed in the **Chart Item Options** section.
5. In the **Bar shape** field, select one of the shapes to represent the chart item in the Gantt chart (does not apply to milestones).
6. To manually select the color of the chart item:
   a. Select a color from the **Color or field** list.
   b. Click **Save**.
7. To use the value of a field to determine the color of the chart item:
   a. Select the **Use the selected field to determine the color** check box.

      The **Color or field** list changes to list field names instead of colors.
   b. Select a field from the list.

      For more information about using fields to determine color selection, see the "About specifying fields to determine colors for bubble and Gantt chart items" section on page 69.

      The **Sample** field displays how the chart item will display in the Gantt chart based on the settings you have chosen.
   c. Click **Save**.

Specifying tooltip text for items in report Gantt charts

For each chart item, you can specify fields whose names and values will display in a tooltip when users point to the chart item.

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Gantt display options**.

   The **Gantt Display Options** dialog box appears.
3. Click the **Gantt style** tab.

4. In the **Select a chart item** section, select the chart item for which you want to add tooltip information.
5. In the **Fields to display in tooltip** section, select one or more fields whose names and values will display in the tooltip when users point to the chart item.
6. Repeat step 4 and step 5 for each chart item that you want to add tooltip information to.
7. Click **Save**.

About configuring row labels in report Gantt charts

The first column in the Gantt chart numbers the rows. The second column, called the *primary column*, lists the chart item labels that were specified in the **Link Chart to Data Collection** dialog box. You can change the font, size, and alignment, and colors for the row labels in the primary column. However, you cannot change the appearance of the row numbers.

Configuring a row label in a report Gantt chart

1. Access the report design and click the chart to select it.
2. In the **Options** section of the **Chart Properties** area, click **Gantt display options**.

   The **Gantt Display Options** dialog box appears.
3. Click the **Gantt style** tab.
4. In the **Primary Column Options** section, in the **Style** field, select the font style and alignment options. These settings apply to all row labels.
5. In the **Font** lists, select the font type and size.
6. To change the width of the primary column, in the **Width** field, enter the new width (in pixels).
7. To change the color of the text in the row label, do one of the following:
   - To specify a standard color, from the color drop-down list, select a color.
   - To use the color palette, click ..., select a color in the **Color Palette** dialog box and then click **OK**.
   - To specify a custom color, click ...:

   a. In the **Color Palette** dialog box, select **Custom Color**.

   b. In the **Red**, **Green** and **Blue** fields, specify the RGB color values (0 - 255) for the color. For example, white = 255, 255, 255 and black = 0, 0, 0.

   c. Click **OK**.
8. To change the background color of the row labels, follow the same procedure as in the previous step.

   Note: The **Sample** field displays how the primary column displays in the Gantt chart based on the selected settings.
9. Click **Save**.

Troubleshooting charts in report designs

This section describes issues that you might encounter when working with charts in report designs, and provides explanations and possible solutions or workarounds.

An ellipsis (…) appears in bubble chart labels even when the entire field text is displayed

An ellipsis is displayed when the length of the field itself, that is, the number of characters allowed in a field is longer than the bubble label. To prevent the ellipsis from appearing, you can create a custom field that restricts the number of characters for the field.

Duplicate axis labels display

Applying numeric formatting may result in duplicate axis labels due to rounding. For example, if you apply a numeric format that includes two decimal places, but the unit values have more than two decimal places, then rounding may result in duplicate labels.

Pareto chart displays two sets of units on y-axis

In Pareto charts, the unit for the y-axis is calculated automatically based on the total of the values in the chart and is synchronized with second y-axis. If you specify a scale or unit that conflicts with the synchronization, two sets of units may display. If this occurs, change or remove the scaling options.

Sort option does not work on 100% stacked chart

The sort option applies to the data values of the fields and not to the percentage.

Specified minimum and maximum values do not display on a chart

When you change the scale units in a chart, the minimum and maximum values must conform to the scale of the unit, that is, they must be multiples of the unit value; otherwise, they will not display on the chart.

Zero values display in a chart when Hide zero values option has been selected

If you specify a format that results in values being rounded, zero values may display on a chart due to rounding even if you have enabled **Hide zero values**. For example, if you select a format with two decimal places, a value of .0011 would round to .00, which would display on the chart, even if you have enabled **Hide zero values**.

Zero values in a 100% stacked chart display percentages

For 100% stacked charts, the system calculates the percentage of the field values relative to the total of the field values. If all of the values for a chart item are zero, then the system applies the percentages evenly. For example, if three fields are being compared and the value of each is 0, the percentage calculated for each field will be 33.33%.

CHAPTER 8
Linking Reports

About linking reports

You can set up links on a report design so that when the report is run, one or more additional reports can be launched from the first report. To link reports, you first link from the table column, chart or label in the originating (source) report to the new (destination) report. At this point, you can save the report design, run the source report and click the linked table column, chart or label to launch the destination report.

Once a report is linked, you cannot change the fields in the report, nor can you remove any runtime filters.

When you run a report that includes links, you can point to the fields that are linked to display tooltips that include the name of the linked report.

About mapping runtime filters in linked reports

If the destination report has runtime filters, you can map the runtime filters to either a runtime filter value or a field value in the source report.

About mapping a runtime filter value

If both the source report and destination report have the same field in their runtime filters, you can map the fields in the runtime filters in the two reports so that the same value for the field is used for both reports. That is, when the source report is run, the same value that is selected for the runtime filter is automatically applied to the runtime filter of the destination report when it is launched.

About mapping a field value

You map a specific field value from the source report to a runtime filter in the destination report. When the source report is run, the destination report can be launched from the mapped field value. The field value of the mapped field is applied to the runtime filter of the destination report.

For example, you have a source report that displays a list of resources for a project and a destination report that displays the time entries for resources. Both reports have runtime filters that include the **Resource** field. You map the **Resource** field value between the two reports. The result is, when you run the source report, you can double-click a **Resource** field value to launch the destination report. The destination report automatically displays the time entries for the same resource.

Linking a report to another report

Before you can link a table, chart or label to a report, you must link it to a data collection.

1. Access the report design for the source report.
2. Click the table, chart or label to display the corresponding properties area.

3. In the **Options** section of the properties area, click **Link to report**.

   The **Link to Report** dialog box appears.
4. In the **Column** drop-down list, select the field from the source report to link to the destination report.
5. In the **Destination report** type-ahead field, select the destination report.
6. Click **Save**.

   In the **Column** drop-down list, the field name changes to include the destination report name (Field name -> Report name).
7. If fields from the runtime filters for the destination report display in the **Current mappings** table, you can map them. For more information, see "Mapping a runtime filter between linked reports" on page 76.

Removing a link from a report

1. Access the report design.
2. Click the table, chart or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Link to report**.

   The **Link to Report** dialog box appears.
4. In the **Column** drop-down list, select the linked field.
5. Click **Actions > Unlink**.
6. Click **Close**.

Identifying report links

To identify the reports that are linked to a report design, use the **Report Links** option.

1. Access the report design.
2. To display the **Report Properties** area, click .
3. In the **Options** section of the properties area, click **Report links**.

   The **Report Links** dialog box displays the reports that are linked to the current report, if any.
4. Click **OK**.

Mapping a runtime filter between linked reports

1. Access the report design.
2. Click the table, chart or label to display the corresponding properties area.
3. In the **Options** section of the properties area, click **Link to report**.

   The **Link to Report** dialog box appears.
4. In the **Destination report filters** column, select the field to be mapped to the source report.

5. In the **Map the following value to the filter of the destination report** section, do one of the following:
   - To map a runtime filter value from the source report to a runtime filter in the destination report, select **Runtime filter value** and then select the runtime filter value from the drop-down list.
   - To map a field value from the source report to a runtime filter in the destination report, select the **Data field value** and then select the field from the drop-down list.
6. Click **Save**.

CHAPTER 9
Creating Report Filters

About report filters

To improve the run-time performance of reports with large amounts of data, you must add data filters to your report design that restrict the number of records that are returned. If you do not add filters to reports with large amounts of data, you risk the report timing out and degrading the performance of Changepoint.

You can add the following types of data filters to report designs:

- Design data filters – are part of the report design and filter the data automatically whenever the report is run.
- Runtime data filters – display filter criteria for the user to specify before running the report.

Accessing a design data filter

1. Access the report design.
2. If the design data filter was applied to a specific report object, click the report object to select it.
3. In the **Options** section, select **Design data filter**.

   The **Design Data Filter** dialog box appears.

About creating design data filters

Before you can add a design data filter to a report design, you must add at least one report object and link it to a data collection. You can add design data filters to the report design and to report objects. However, you can only create one design data filter per data collection. To create different design data filters in the same report design, you must create separate data collections.

Creating a design data filter consists of the following steps:

- Adding a design data filter to a report design.
- Defining one or more expressions based on field values. For more information, see the “Creating an expression for a design data filter” section on page 80.
- Building a formula using the expressions. For more information, see the “Creating a formula for a design data filter” section on page 82.

Adding a design data filter to a report design

1. Access the report design.
2. To apply the design data filter to a specific report object, click the report object to select it.
3. In the **Options** section, select **Design data filter**.

   The **Design Data Filter** dialog box appears.

4. Create expressions for the design data filter. For more information, see “Creating an expression for a design data filter” on page 80.

About creating expressions for design data filters

The expressions for a design data filter determine the data to be included in the filter. Once the expressions have been added to the design data filter, you must create the filter formula that sets the conditions upon which the data will be included in the report.

Creating an expression for a design data filter

1. Add a design data filter to the report design.

   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.
3. In the **Expression name** field, enter a name (without spaces) for the expression. If you do not enter a name, the expression is automatically assigned a name.
4. In the **Field** drop-down list, select the field to use in the expression.
5. In the **Condition** drop-down list, select the condition for the expression.
6. To compare the selected field with another field:
   a. Select the **Compare with another field in the data collection** check box.
   b. In the **Value** drop-down list, select the other field.
7. If only the **Value** field is available, enter the value for the expression.
8. If both the **Variable** and **Value** fields are available, do one of the following:
   - To specify a variable, select **Variable** and then select the variable from the list. When the report is run, the report filter prompts the user for input to replace the variable.
   - To specify a value, select **Value** and then specify the value.
9. If the **Include children** check box displays, you can select this option so that when the report is run, the report filter will include the option to include or exclude data from the children of the field.
10. In the **Step 1** section, click **Save**.

    The expression displays in the **Available expressions** table.
11. To create another expression, click **New** and repeat the procedure.

    Tip: To create several similar expressions, use the **Copy** button.

12. Create the filter formula. For more information, see the “Creating a formula for a design data filter” section on page 82.

Editing an expression in a design data filter

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.

   The expressions for the filter display in the **Available expressions** table.
3. Select the expression.

   The expression details display in the **Step 1** section.
4. Make the necessary changes.
5. In the **Step 1** section, click **Save**.

Deleting an expression in a design data filter

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.

   The expressions for the filter display in the **Available expressions** table.
3. Select the expression.

   The expression details display in the **Step 1** section.
4. In the **Step 2** section, remove the expression from the filter formula:
   a. Do one of the following:
      - Select the expression and then press the **Delete** key.
      - To delete the entire formula, click **Clear Formula**.

   b. To save the formula, click **Apply**.
5. In the **Step 1** section, click **Delete**.

   The expression is deleted.

About selecting values for multi-select configurable fields in expressions

A multi-select configurable field is a configurable field for which multiple values can be selected from a drop-down list. When you create an expression for a multi-select configurable field, you can specify one or more of its values.

If you select a multi-select configurable field and a condition that requires a value in the **Design Data Filter** dialog box, the **Value** field appears as follows:

Selecting values for a multi-select configurable field in an expression

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Value** field of the **Step 1** section, click .

   The **Search Configurable Fields** dialog box appears. If the dialog box contains a tree view, the configurable field is entity-based. For more information, see the “Selecting values for entity-based multi-select configurable fields in an expression” section on page 82.
3. Do one of the following:
   - To view all field values, click .
   - Enter a partial field value in the **Search for values** field and then click .

   The values display in the list below the **Search for values** field.
4. Select one or more values that you want to add to the expression, and then click .

   The values display in the **Selected values** list.

5. To remove a value, select the value in the **Selected values** list and then click .
6. Click **OK**.

   The selected values display in the **Value** field.

Selecting values for entity-based multi-select configurable fields in an expression

If the **Search Configurable Fields** dialog box contains a tree view, the configurable field is entity-based.

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Value** field of the **Step 1** section, click .

   The **Search Configurable Fields** dialog box appears.
3. Do one of the following:
   - Expand the tree view to locate a value.
   - Enter a partial field value in the **Search for values** field and then click the down arrow. The values display in the list below the **Search for values** field.
4. Select the value and then click .

   The value displays in the **Selected values** list.
5. To add more values, repeat the procedure.
6. Click **OK**.

   The selected values display in the **Value** field.

Creating a formula for a design data filter

You can create a conditional formula based on a single expression or you can create a more complex formula by using multiple expressions and other formulas.

1. Create the expressions. For more information, see “Creating an expression for a design data filter” on page 80.
2. In the **Available expressions** table, double-click the expression to add it to the **Filter formula** field.

   Tip: To display the formula instead of the formula name in the **Filter formula** field, select the **Display expanded filter formula** check box.

3. In the **Formula name** field, enter a name for the formula.
4. If necessary, add to the formula by doing one or more of the following:
   - To add another formula, select one from the **Available formula** drop-down list.
   - To add another expression, double-click one in the expression table.
   - To add an operator, bracket or space, click the appropriate button.
5. When you are finished, test the formula:
   a. Click **Test Formula**.
   b. If the formula is not valid, make the necessary corrections.
   c. If the formula is valid, click **Save**.

6. Do one of the following:
   - To save the formula and create another formula, click **Apply**.
   - To save the formula and return to the **Conditional Formatting** dialog box, click **Save**.

Editing a formula for a design data filter

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.
3. If required, create an expression. For more information, see the "About creating expressions for design data filters" section on page 80.
4. Make the necessary changes to the filter formula.

   Tip: To display the full expressions instead of only the expression names, select the **Display expanded filter formula** check box.
5. Test the filter formula:
   a. Click **Test Formula**.
   b. If the filter formula is not valid, make the necessary corrections.
6. When the filter formula is valid, click **Save**.

Deleting a formula for a design data filter

1. Access the design data filter.

   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.
3. Click **Clear Formula**.
4. Click **Save**.

Creating a design data filter for a personalized report

You can create personalized reports that only include the data for the user who runs the report. To do this, you must create a design data filter that includes a specific expression that is based on a resource field.

1. Access or create the report design.
2. In the **Options** section, click **Design data filter**.

   The **Design Data Filter** dialog box appears.
3. In the **Data collection** drop-down list, select the data collection for the design data filter.
4. In the **Field** drop-down list, select the resource field.
5. In the **Condition** drop-down list, select **Equal to**.
6. Select the **Filter on users executing the report** check box.

   User executing report displays in the **Value** field.
7. Click **Save** below the **Value** field.

   The expression displays in the **Available expressions** table.
8. Create the formula. For more information, see the "Creating a formula for a design data filter" section on page 82.

About using dates or fiscal periods in design data filters

When creating design data filters that are based on date fields or variables that include date fields, you can select either specific dates or fiscal periods, or dynamic dates or fiscal periods.

You select specific dates by using the calendar fields. You select dynamic dates by specifying a date or range of dates that are relative to the date that the report is run. For example, you could create a design data filter for a report that includes all of the requests that are created on the current date; that is, the day that the report is run. Or to create a weekly time report, you would create a design data filter that only includes time for the last seven days before the date that the report is run.

Creating an expression with a date field and the "Is within" condition

1. Access or create the report design.
2. In the **Options** section, click **Design data filter**.

   The **Design Data Filter** dialog box appears.
3. In the **Data collection** drop-down list, select the data collection for the design data filter.
4. In the **Field** drop-down list, select the date field.
5. In the **Condition** drop-down list, select **Is within**.

   Three fields display in the **Value** field.

6. In the first drop-down list, select **Next** or **Last**.
7. In the middle field, enter the number of time periods.
8. In the second drop-down list, select the time period.

   If you select fiscal periods or fiscal years, then another field appears. You must select the cost structure for the set of fiscal periods or fiscal years.

9. To select the cost structure for the set of fiscal *periods*:

   a. Click . The **Select Cost Structure/Fiscal Year** dialog box appears.

   b. In the **Cost structure** drop-down list, select the cost structure. The fiscal years for the cost structure display in the **Fiscal year** list.

   c. In the **Fiscal Year** drop-down list, select the fiscal year.

   d. Click **OK**.

10. To select the cost structure for the set of fiscal *years*:
    a. Click . The **Select Cost Structure/Fiscal Year** dialog box appears.
    b. In the **Cost structure** drop-down list, select the cost structure.
    c. Click **OK**.
11. Click **Save** below the **Value** field.
    The expression displays in the **Available expressions** table.

About editing design data filters

To edit a design data filter, you can add, edit or delete expressions and then edit the filter formula. For more information, see the following:

- "Creating an expression for a design data filter" on page 80
- "Editing an expression in a design data filter" on page 80
- "Deleting an expression in a design data filter" on page 81
- "Editing a formula for a design data filter" on page 83

Deleting a design data filter

When you delete a design data filter, you also delete all of its expressions.

1. Access the design data filter.
   The **Design Data Filter** dialog box appears.
2. In the **Data collection** drop-down list, select the data collection for the design data filter.
3. Click **Reset**.
4. Click **OK** to confirm.
5. Click **Save**.

About adding runtime data filters to a report design

When you add runtime data filters to a report design, a report filter screen displays when the report is run in Changepoint, and when you preview a report in Report Designer. If no runtime data filters are added, the report is generated as soon as it is accessed. A runtime data filter consists of fields from the data collection that the user can use to create filter expressions when the report is run.

Adding a runtime data filter to a report design

Before you can add a runtime data filter to a report design, you must add at least one report object and link it to a data collection.

1. Access the report design.
2. In the **Options** section of the **Report Properties** area, click **Runtime query options**.
   The **Runtime Query Options** dialog box appears.
3. In the **Step 1** section, select a field that can be used in a filter expression when the report is run.
4. In the **Step 2** section, select the properties for the field.

5. If the same field from a different data collection has been linked to the report design, you can set the report filter to prompt the user only once for input:
   a. Select the **Automatically populate this field with the value specified in the following field** check box.
   b. In the **Shared field** drop-down list, select the field.
6. To make the field mandatory, select the **Force users to provide a value for this field** check box. For portlet reports, optional filters are treated as mandatory filters.
7. (Date fields only) To provide users with the option of selecting a fiscal period instead of a date for a date field, select the **Allow users to select a fiscal period** check box.
8. (Date fields only) To force users to select a fiscal period instead of a date, select the **Force users to select a fiscal period** check box.
9. (Configurable fields only) To change the field name that is displayed in the report filter, in the **Displayed text** field, do one of the following:
   - Enter the text to be displayed.
   - To use a PCID, click . For more information, see the "Applying a PCID" section on page 23.
10. Click **Save**.

Setting the prompt order for mandatory fields in a runtime data filter

1. Access the report design.
2. In the **Options** section of the **Report Properties** area, click **Runtime query options**.

   The **Runtime Query Options** dialog box appears.
3. Set up the mandatory fields for the filter. For more information, see "Adding a runtime data filter to a report design" on page 85.
4. Click **Apply**.
5. Click **Prompt Order**.

   The **Prompt Order** dialog box appears.
6. To move a field:
   a. In the **Filter field** column, select the field.
   b. Click the up or down arrow.
7. Move additional fields as required.
8. Click **Save**.

CHAPTER 10
Report Availability

About running reports in Changepoint

When you create and save a report design, the report is automatically available to you in Changepoint. However, before other users can run your report, the system administrator must grant access to them.

For more information about running reports, see the *User Basics User Guide*.

About running screen and print reports

The reports in screen or print format that you create are available in Changepoint in the **My Report Designs** folder in the **Reports** tree view, and in the report category folder that you specified when you saved it in Report Designer. If other users are given access to your reports, the reports will be available in the specified report category folder only.

About running portlet reports

The reports in portlet format that you create are available in the **Portals** section of the **Preferences** view. To display the report in a portlet, you must add it to a portal and then display the portal on your home page in Changepoint.

About scheduling reports

In Changepoint, you can schedule reports to run at a specific time or on a recurring basis, and edit or delete these schedules.

About setting up reports to run on the production server

The Changepoint production server is the default server for running reports on, but your Changepoint installation may include a report server. The report server is a copy of your production database server and is typically updated daily. However if you have a small report that contains data that changes more than once a day, you might want to run the report from your Changepoint production server.

Setting up a report to run on the production server

1. Access the report design.
2. Click to display the **Report Properties** area.
3. Select the **Run report on production server** check box. This option displays only if your Changepoint installation includes a report server.
4. Click .

About exporting and importing reports

You can use the export and import functionality to transfer user-defined reports between databases and share reports between users. For example, you can create reports on a test database and then export them to your production database without having to recreate the reports.

To move a report from one database to another, you must first export the report as an XML file from the source database. You can then import the report XML file to another target database, or another user can import it into the same database.

When you import a report, the report and its associated data collections are imported under your user account. You can specify another user as the report owner, which allows the user to edit the report design and its associated data collections.

Standard Changepoint reports must be exported by the system administrator, but can then be imported in Report Designer by any user. This process enables full edit access on the report for the user who is specified as the report owner.

WARNING: The export functionality does not export custom fields that use advanced expressions. A report that uses custom fields with advanced expressions will fail if moved to a database that does not have the custom field.

Exporting a report

1. Access the report design.
2. Click .

   The **File Download** dialog box appears.
3. Click **Save**.

   The **Save As** dialog box appears.
4. Select a folder and if required, change the file name. The file name must have an .xml extension.
5. Click **Save**.

   The report XML file is saved to the specified folder.
6. You can import the file to another Changepoint database, or email it to another user for importing into Changepoint.

Importing a report

1. In Report Designer, click .

   The **Import Report** dialog box appears.
2. In the **File name** field, click the **Browse** button and locate the report XML file to be imported.
3. Select the file and then click **Open**.
4. In the **Report category** drop-down list, select the report category where the report will be available in the **Reports** tree view in Changepoint.
5. In the **Report name** field, enter a name for the report. This field only displays if you import the report as a personal report for another user. If you do not enter a new name in this field, the original report name is used.

6. In the **Report owner** type-ahead field, enter the name of the user.
7. Click **Import**.
   The report XML file is imported.
8. Click **Close**.

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