

IBM TRIRIGA Application Platform
Version 3 Release 4.2

*Reporting
User Guide*



Note

Before using this information and the product it supports, read the information in "[Notices](#)" on page 165.

This edition applies to version 3, release 4, modification 2 of IBM® TRIRIGA® Application Platform and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Guide

This guide describes the procedures for accessing and presenting the data maintained by the IBM® TRIRIGA® system.

Intended Audience

This guide is for Report Writers who use the reporting capabilities of the IBM TRIRIGA Application Platform.

Prerequisites

This guide assumes the reader has a basic understanding of the IBM TRIRIGA Application Platform and the fundamental concepts required to operate the Web-based IBM TRIRIGA system.

Support

IBM Software Support provides assistance with product defects, answering FAQs, and performing rediscovery. View the IBM Software Support site at www.ibm.com/support.

1. Overview

There are multiple solutions for accessing and presenting the data maintained by the IBM TRIRIGA system. Simple tabular reports, queries, and graphs that combine data from multiple records into a single presentation can be produced using the IBM TRIRIGA Report Manager.

If you need a report presentation that is beyond the capabilities of the IBM TRIRIGA Report Manager, you can use the IBM TRIRIGA Advanced Reporting feature. IBM TRIRIGA uses Eclipse Business Intelligence Reporting Tools (BIRT) as the enabling technology for the Advanced Reporting feature.

With the assistance of Microsoft Word or Excel, the contents of a single record can be presented with most of the flexibility that Microsoft Word and Microsoft Excel offer for the presentation of documents and forms. This type of data presentation is called a *form report*.

The chart below illustrates the primary differences between the reporting methods.

Characteristic	IBM TRIRIGA Reports	Microsoft Word Form Report	IBM TRIRIGA Advanced Reports
Ease of Creation	Easy	Moderate	Technical
Formatting Capabilities	Minimal	Moderate	High
Can Include Logos & Graphics	No	No	Yes
Requires Report Server	No	No	No
Data Access	Multi-record	Single Record	Multi- and Single record
Drill through to underlying data	Yes	No	Yes

In deciding which reporting method to use, consider the following key questions:

- Is my objective to reduce or eliminate paper? → Yes, use IBM TRIRIGA Report Manager
- Are the recipients of the report IBM TRIRIGA users? → Yes, use IBM TRIRIGA Report Manager
- What level of formatting and graphics are required? → High, use IBM TRIRIGA Advanced Reporting

The remainder of this guide describes each reporting solution. [Chapter 2](#) provides information about the IBM TRIRIGA Report Manager, including the creation of Word and Excel reports. Chapter 3 provides information about the [IBM TRIRIGA Advanced Reporting](#) feature.



Tip - The documentation for the IBM TRIRIGA Connector for SAP BusinessObjects is located in the IBM TRIRIGA Application Platform 3 Knowledge Center. Customers with licenses for the IBM TRIRIGA Connector for SAP BusinessObjects can submit a request for the software through [IBM Support](#).

Naming Conventions

IBM TRIRIGA follows a set of naming conventions in its applications and in custom development that it provides on behalf of its customers. Follow these naming conventions to reduce unexpected interactions between IBM TRIRIGA's applications and applications created by others, and to help ensure that future upgrades go more smoothly.

Element	Naming Convention								
Name Prefix	A three character customer prefix is assigned to all implementations, typically <code>cst</code> . For IBM TRIRIGA applications, the prefix is <code>tri</code> .								
Report or Query	<p><code>cst+"-" + Form Name (or Business Object Name or Module Name if Report/Graph) - Keyword - Context</code></p> <p>There are no spaces between the <code>cst-</code> and the <code>tri</code> object name.</p> <p>For example: <code>cst-triPurchaseOrder - Workflow - POs for Current Year</code>.</p> <p>If the query references a new or customized object:</p> <p>Form Name (or Business Object Name or Module Name) - Keyword - Context</p> <p>For example: <code>cstEmployee - BIRT - Employee Contact Details</code></p> <p>Keywords are:</p> <table><tbody><tr><td>BIRT</td><td>Query with linked BIRT document</td></tr><tr><td>Debug</td><td>Query to help isolate data issues</td></tr><tr><td>Display</td><td>Query to display data in query sections</td></tr><tr><td>Filter</td><td>Query to filter data for other queries via Association filters</td></tr></tbody></table>	BIRT	Query with linked BIRT document	Debug	Query to help isolate data issues	Display	Query to display data in query sections	Filter	Query to filter data for other queries via Association filters
BIRT	Query with linked BIRT document								
Debug	Query to help isolate data issues								
Display	Query to display data in query sections								
Filter	Query to filter data for other queries via Association filters								

Element	Naming Convention
Find	Query for Find action of a locator or section
Formula	Query to provide input values for extended formulas
Graph	Graph reports intended for end users
Graphics	Graphics Editor report
GUIMetric	Query for metric in a form
HGrid	Hierarchical query for nesting queries
Patch	Query used in patch helpers
Portal	Query for portal section
Report	Report intended for end users
Reserve	Calendar/Reserve-based query of data associated with record
Summary	Summary Report intended for end users
Subquery	For the bottom level of an HGrid query structure
Workflow	Query for workflow Query task

Context should include filters to states, data filters, association filters, if editable, and the like. For queries tied to a \$\$RECORDID\$\$ or other platform key, make sure to include the type of context record in the context part of the name.

The ID of the report should be CUSTOM, or use your company's numbering standards for reports. SYSTEM is reserved for IBM TRIRIGA delivered reports.

Naming Convention for Labels:

Form Label (or Business Object Label, or Module Label) - Context

Context should describe what the report displays to the user.

For example: Employees - All Associated Active Employees

Print

The *Print* link on the top right of a form displays sections from all non-system tabs in the form in a read-only pop-up window. Review the information displayed automatically by the system in the Print link before you create a report to print a form.

In the printer-friendly window, the sections in the first tab of the form display first, then the second tab, and so on. Each section displays in the defined form layout, preceded by the section name and a line. Query sections and similar sections contain no actions or pagination. Tabs within multi-tab sections display in the order in which they are defined in the Data Modeler. Sections in system tabs (e.g., Calendar, Associations, Audit, and Audit Actions) do not display.

Any multi-row section (including a query section) can display up to 1000 records. Runtime filters, actions (e.g., Export and Refresh), or pagination (e.g., a Show drop-down or Next page) are not available. Where present, the system uses default filters. If a section spans more than one page, your browser software determines the page break. A non-interactive message, "There is more data...", displays at the end of a section that contains more than 1000 rows of records.

A section with an embedded advanced report does not display on the printer-friendly page; nor do Gantt charts, URLs, or Metric charts. The view supports any embedded images that the user's browser supports natively without an external viewer (e.g., GIF and JPG).

A user sees only the section content that their security level authorizes. To change the graphic displayed at the top of the report, change the image stored in `COMPANY_LOGO` in the Document Manager.

To print the printer-friendly view, click the **Print** hyperlink in the upper right corner of the display. The user's native print dialog box appears.

2. IBM TRIRIGA Report Building

IBM TRIRIGA's native reporting solution is called the *Report Manager*. It can be used to create tabular reports and graphs that can be displayed as reports, as portal components, or in navigation items. IBM TRIRIGA reports include filter, search, and sort capabilities as well as the ability to link to other reports. The tool for building reports is the *Report Builder*.

Report Manager

The starting point for creating or managing IBM TRIRIGA reports is the Report Manager. To access the Report Manager:

Step

Step 1 Sign in to the IBM TRIRIGA application.

Step 2 Select the My Reports menu item. The Report Manager displays.

Every user with a My Reports menu item in the first level of the menu bar has a *My Reports* tab. Depending on your security permissions, you also may see the *Community* tab, *System Reports* tab, and the *Administration* tab.

- [My Reports tab](#) contains reports that you created for your own purpose or that have been shared with you. With appropriate security, you may share a report in the My Reports tab with groups of users.
- [Community tab](#) contains reports that your company's administrator has designated as shared. Any user with security access to the objects defined in a report can run the report or copy the report into My Reports and customize for their own purpose.
- [System Reports tab](#) contains reports used by the IBM TRIRIGA applications. Generally, a company restricts access to the System Reports tab to designers and administrators who are responsible for the system.
- [Administration tab](#) contains all reports from every My Reports tab in the system. From here, administrators can change the owners of reports, copy reports, share reports with groups, and delete reports. Most installations restrict access to the Administration tab to system administrators.

My Reports

My Reports is what it sounds like, your collection of reports. A report displays in the My Reports tab of the Report Manager if you created it or if it is shared with a group of which you are a member.

Your view of My Reports may be different from that described in this user guide. Depending on your system security, you may see some or all of the features.

The column headings displayed in the My Reports tab follow. You click the hyperlink to open the Report Builder definition of a report. Use the filters in the column headings to find the report of interest.

Column Heading	Description
Blank	Displays the Run Report icon  . When you click the icon, the system generates the report and displays it in a separate window.
Title	The title of the report.
Name	The system name of the report.
Tag	A name that can be filtered from the Report Manager. Use this field to build collections of related reports.
Form	The display for the report. If it is a module- or business object-level report, this field shows a comma-separated list of forms.
Display Type	The kind of report. Values include <i>-All-</i> , <i>Report</i> , <i>Graphic</i> , <i>Summary</i> , <i>Chart</i> , <i>Hierarchy</i> , and <i>Metric</i> .
Owner	The user who built the report.
Shared Groups	The groups with which you shared this report or that shared it with you.

The actions available on My Reports in the Report Manager follow.

Action Name	Description
New	Opens the form for creating a new report record.
Copy	Makes a copy of a selected report and pastes the copy in your My Reports tab. The copied version has the words "Copy of" at the beginning of the Name. To copy a report, select the check box and click Copy .
Delete	Removes the selected report permanently from the Report Manager. To delete a report, select the check box and click Delete . Click OK in the delete confirmation window.
Copy as Community Report	Makes a copy of the selected report and pastes the copy into the Community tab. The copied version has the words "Copy of" at the beginning of the Name. To copy a report to the Community tab, select the check box and click Copy as Community Report . You see this action only if you have security access to System Reports.

Action Name	Description
Share Report	Provides the report to the groups you specify. The system only offers groups with security permissions to view the underlying data in the report as candidates for sharing. To share a report, select the check box, click Share Report , select the groups, and click Accept .

Creating a New My Report

From **My Reports** in the Report Manager, follow these steps to create a report.

Step

Step 1 To create a report, click **New**.

A description of each action at the top of the report form follows. Some actions only appear after the form is saved.

Action Name	Description
Save	Saves the current report definition to the report record.
Save & Close	Saves the current report definition to the report record and closes the form.
x	Closes the form. The system does not save any changes made since the last Save or Save & Close action.
Run Report	Generates the report and displays it in a secondary window. Only available after the report record has been saved.
Validate	Only available for Metric reports. Use Validate as a debugging tool to ensure the report is properly constructed. For example, for a Line-Bar Combo chart, the system checks that the main query and the line data source query have identical filters specified and identical Group Bys specified.

The subsequent sections in this chapter describe each tab in the report form for each report type. The following list describes the report types:

- [Report](#) is a basic tabular report. A report is listed in a navigation item.
- **Graphic** is outside the scope of this guide. For more information, go to the IBM TRIRIGA Application Platform 3 Knowledge Center and select *Administering IBM TRIRIGA Application Platform>Managing graphics*.

- [Chart](#) displays the data in a chart. Four kinds of charts are available: pie, bar, line, and stacked bar.
- [Summary](#) is a tabular report. It differs from other reports in the way that detail records are handled. In a non-summary report, all detail records that contribute to totals display in the report. A Summary report shows the totals without the detail records.
- [Hierarchy](#) uses a query to show information up and down a hierarchy.
- [Metric](#) aggregates data in a table or chart with drill paths, filters, and related reports. You can create metric reports based on instance data (business object data) or on Fact Tables (as done in the IBM TRIRIGA Workplace Performance Management, IBM TRIRIGA Real Estate Environmental Sustainability, and IBM TRIRIGA Strategic Facility Planning products).

My Report: Report

When a report record's type is `Report`, the result lists records in a table-like format.

My Report Tab

Define the report and its scope in the My Report tab of the report record.

Step

Specify identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 In the *Type* field, select `Report`.

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record.

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module*.

Step 3 Select one or more Business Objects.

If you select **-All-**, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report works only with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you can only select fields from the base business object.

Step 4 Select one or more Forms.

If you select **-All-**, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click **OK**.

Step 6 Click **Save**.

The **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

The **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step 8 Optional: Select other business objects.

Step 9 Click **Add Business Object**.

To add a child business object, select the parent business object before clicking **Add Business Object**.

Step

Step 10 Select the *Module*.

Step 11 From the *Business Object* list, select the business object.

To select multiple business objects, hold the Ctrl or Shift key and click your selections.

Step 12 Select the Associated Options.

To select multiple associated options, hold the Ctrl or Shift key and click your selections.

Step 13 Optional: Deselect *Show only Associations defined in Data Modeler*.

This check box is selected by default to help limit the number of associations that appear in drop-down boxes. If deselected, the form displays all modules, all business objects relative to the selected module, and all association types in the system.

Step 14 To designate this object as the *Primary Associated Business Object*, check the box.

The *Primary Associated Business Object* check box displays only for direct descendants, i.e., child associations. By default, it is selected for the first child business object added.

If you remove the designated primary associated business object, the system designates the next associated business object in the tree as the primary associated business object.

Step 15 Click OK.

The new object appears in the Business Objects sub-tab under the selected parent business object. Indentation identifies parent business objects and their children.

When an associated business object is the Primary Associated Business Object, it is denoted by a purple square ■ after the module name in the Module column.

The **Remove** action does not apply to the primary business object. To change the primary business object, edit its properties.

To remove a non-primary business object, select the business object and click **Remove**. If you remove an associated business object, you cannot use the fields from that business object for the report.

If you remove a business object that is part of a hierarchical list, the system also removes its children.

Step 16 Click Save.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the `Report` type.

Step

When the report type is `Report`, the Options sub-tab presents the following options.

Step 1 Select a value for *Data Scope*. The default value is `Active Project`.

The *Data Scope* limits the data that are accessible to the report.

Value	Description
<code>Active Project</code>	The data available to the report is restricted to the active project. If the parent record is a capital project, the active project is the record itself. If the parent record is not a capital project, the active project is the project in which the parent record resides.
<code>Company</code>	Only data that exists outside a project is accessible to the report.
<code>All Projects</code>	The report includes all data, without regard to project or company.

Step 2 For *Random Result Count*, specify a value or leave the 0 (zero) default.

Use *Random Result Count* if there are so many data records that including all of them in a report would not be useful or practical.

The default value is 0 (zero). If this field is set to a positive number, the report includes only the specified number of records randomly chosen from the complete set of data.

Step 3 To fix the left-hand columns in the report, specify the number of columns in *Fixed Column Count*. The default value is 0 (zero). Limit the fixed columns to five or less.

Fixed columns do not move as the user scrolls the report horizontally. After the report runs, users can identify the fixed columns because they have a thicker border to the right of the last fixed column.

Step 4 To specify the default size when the system runs the report, use *Result Size*.

The default value for this drop-down box is for it to be empty, in which case the platform determines the result size.

Step

Step 5 To specify an *Excel Template*, click the Search icon .

The data displayed in a report can be formatted as a Microsoft Excel spreadsheet by applying an Excel template retrieved from the Document Manager.

You can use the *Name* field to search for Excel templates that start with the text you specify. Use the % character in the *Name* field as a wild card to widen your search to any word in the name. For example, type %security to find a template with the word security anywhere in the name.

Step 6 Select the Excel template and click **Accept**.

Step 7 To enable the user to specify runtime filters to set initial criteria before the report executes, select *Prompt Before Query*.

When the Prompt Before Query check box is deselected, the report executes immediately when the user selects it. Select *Prompt Before Query* for all performance-intensive reports.

Step 8 For *Editable*, select Yes or No.

Editable determines whether a user can edit the values in the records displayed in the report directly from the report.

Step 9 Click **Save**.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. Its usual purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. Values can be passed between a main report and a related report using shared variables. Generally, a related report contains a reference back to the main report. Specify any related reports in the Related Reports sub-tab.

Step

When the report type is `Report`, the Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step

Step 2 On the section bar, click the Filter icon .

Step 3 To restrict the reports displayed to only one report type, select a report type.

The default is `Report`. To see all types of reports, select `All`.

The report types are explained [elsewhere](#) in this chapter.

Step 4 Select the *Module*. The drop-down box contains only modules for which you have security access.

The system displays My Reports and [Community reports](#) (designated by the `c`) matching the selected report type and module.

Step 5 Select the check boxes of the related reports.

Step 6 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Related reports appear in the presentation in the same sequence as they appear in the Related Reports sub-tab, from top to bottom.

Step 7 To change the sequence, click the arrows in the *Order* column to move a related report up or down in the list.

Step 8 Click **Save Order**.

Step 9 To delete a related report, select the check box and click **Remove**.

Step 10 Click **Save**.

Security Sub-Tab

The Security sub-tab names groups that can access this report.

Step

When the report type is `Report`, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user creating the report to the Security Access section. The owner has full access privileges.

Use the **Add** action on the Security Access section bar to grant access to groups.

Step 1 Click **Add**.

Step

Step 2 Select the check boxes of the groups to have access to the report.

Step 3 Click **Accept**.

By default, every group listed has `View` access.

Step 4 To grant additional access to a group, select the check box next to `All`, `Edit`, `Delete`, `Copy`, or `Share`.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

Columns Tab

The Columns tab defines which fields to use in the report. The information in the Columns tab is organized into three sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to include in the report.
- The *Display Columns* section on the right specifies the order in which the selected fields are presented and the labels used to identify them.

Step

Business Object Section

Step 1 Select the *Business Object*. The fields in the selected business object display in the Columns section.

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Columns Section

Step 2 Select the check box for each field to include in the report. The system adds the selected fields to the Display Columns section.

The fields displayed in the *Columns* section come from the selected business object.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the Display Columns section remain.

Step

Display Columns Section

When you select a check box in the Columns section, the field appears in the list in the *Display Columns* section.

Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Step 3 To change the sequence in which the fields display, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**.

Step 4 To change the label that displays for a field, edit the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box.

Step 6 To remove a field, select the field and click **Remove**.

Step 7 Click **Save**.

Order & Group Tab

The Order & Group tab defines the layout of the data in the report. You can organize the layout by group, into a specific sequence, or neither. The data, found in the left side of the *Group By* section and *Order By* section, comes from the selections made in the Columns tab.



Note - Data changes cannot be made via editable query fields if the editable query contains Group By clauses and if the query is either Query or Report report type.

Step

Group By Section

- Step 1** In the left column, select the field to *Group By*.
- Step 2** To move the selected field to the right column, use the Move Right arrow .
- Step 3** To arrange the fields, use the Move Up arrow  and Move Down arrow .
- Step 4** To return the selection from the right column to the left column, use the Move Left arrow .
-

Order By Section

- Step 5** In the left column, select the field to *Order By*.
- Step 6** To move a selected field to the right column, you can use the Ascending arrow  for an ascending sort or the Descending arrow .
- Step 7** To arrange the fields, use the Move Up arrow  and Move Down arrow .
- Step 8** To return the selection from the right column to the left column, use the Move Left arrow .
-

Summary Columns Section

- Step 9** If a Sum applies to your report, select a field to sum by checking the box in the SUM column.

Any Sum fields will have a subtotal at each Group By level. When displayed to a user, a report containing a Summary (total) row ignores the value of the Result Size property.

- Step 10** Click Save.
-

Filters Tab

The Filters tab uses fields, operators, and values to focus the results to display. The information in the Filters tab is organized into four sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to use as filters.
- The *User Filter Columns* and *System Filter Columns* sections specify filters, so that only records with fields that contain values that meet the specified criteria are included in a report.
- For additional filtering, you can use the [Advanced tab](#) to filter records based on their association with other records.

The selected filters are executed sequentially, from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Step 1 Select the Business Object.

Columns Section

The fields displayed in the *Columns* section come from the selected business object.

The columns in the Columns section are:

User: The filter value will be specified at runtime by the user. A user filter has no impact on the total results that the user sees.

System: The filter value limits the total results that the user sees. A system filter is applied by the system each time a report executes.

Field Label: The label for the field.

Field Name: The system name for the field.

Step 2 For each field used as a filter, select the check box in either or both the User or System column. The system adds the selected fields to the *User Filter Columns* section and the *System Filter Columns* section.

When you select a different business object, the fields displayed in the Columns section change, but previously selected fields in the User Filter Columns section and System Filter Columns section remain.

Step

User Filter Columns Section and System Filter Columns Section

When you select a User check box in the Columns section, the field appears in the list in the *User Filter Columns* section.

When you select a System check box in the Columns section, the field appears in the list in the *System Filter Columns* section.

Clearing a check box in the Columns section removes the field from the corresponding filter columns list.

The *Field* column shows the field's label and system name.

To see the source of a field, hover your mouse over the hyperlink in the Field column.

The system applies filters sequentially from top to bottom in the list.

Step 1 To change the sequence in which the filters apply, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**. Organize filters so that the filters that eliminate the most records are listed first.

Step 2 To change the label that displays for a filter, edit the text in the *Report Label* text box.

The report labels only apply if runtime filters are used, and then only if the field is not already displayed, or if the filter is a second runtime filter against the same field.

If the field is a Time field, the user must input the time in milliseconds or as a string in hh:mm:ss format.

Step 3 From the *Filter Operator* drop-down box, select the comparison filter operator.

The choices presented depend on the field type of the selected field.

For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 4 For system filters that the user provides a value for at runtime, specify the *Value* that must be matched. To filter a Boolean field, use the values `TRUE` or `FALSE`.

For more information about the special values, see [Appendix B: Special Values](#).

Step 5 To organize system filters in sets to further refine the order in which the filters are applied, select the *Join Operator*.

The join operator provides one layer of grouping. For the first field, the choices are blank and `NOT`. For subsequent fields, the choices are `AND`, `OR`, `AND NOT`, and `OR NOT`.

Step

Another layer of system filter grouping comes from the column to the right of the Join Operator column and the column to the right of the Value column. Together they provide the ability to define sets of filters. The filters in each group are applied as a unit before joining their result with the rest of the filters.

You can organize groups within groups. The innermost group will be applied first, all the way up to the outermost group.

Step 6 To organize nested filters, use the selections in the numbered drop-down.

Step 7 Click **Save**.

If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Step 8 To copy an existing filter and create one with the same source, select the filter item and click **Copy**.

A new identical row appears below the copied row. The copy of a User filter appears in the User Filter Columns section. The copy of a System filter appears in the System Filter Columns section. The system clears any groupings in the System Filter Columns section.

Step 9 Adjust the values in the filter properties, as described above.

Step 10 To remove a row, select the row and click **Remove**.

If you click **Remove** and this is the only row that refers to a field in the Columns section, the system clears the field's check box in the Columns section.

If you clear the check box in the Columns section, the system removes all rows in both filter columns sections that refer to that field.

Step 11 Click **Save**.

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records. For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

You can define the type of associated records by which you want to filter the results of the report.

To avoid potential report performance issues, avoid using `-Any-` for the module selection and `All` for the business object selection whenever possible.

Step 2 Select the *Module*.

Step 3 Select the *Business Object*. To include all business objects in the selected module, select `All`.

The choices in *Business Object* depend on the selected module.

Step 4 Select the *Association Type*.

This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 5 All new reports will have a *Reverse Association* set to `No`. If an existing report has a *Reverse Association* set to `Yes`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `Yes`, a warning message will display. To remove the warning message, set the *Reverse Association* to `No`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `No`, it is not possible to set it back to `Yes`.

Step 6 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

You can specify a specific filtering record through the use of special name values. You can specify multiple filtering records by specifying `Query` in the Filter Type field and then selecting a query that returns the filtering records in the Record / Query field. For more information about both of these fields, see [Appendix C: Special Names in Record Field](#), and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step 7 Click **OK**.

Step

Step 8 To delete an association filter, select the check box, and click **Delete**.

Step 9 Click **Save**.

My Report: Summary Report

When a report record's type is *Summary*, the result is a tabular report showing totals from the values in records.

My Report Tab

Define the report and its scope in the My Report tab of the report record.

Step

Specify identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 *Type* indicates what sort of report this record is. Standard choices are `Report`, `Graphic`, `Chart`, `Summary`, `Hierarchy`, and `Metric`.

The fields that display in this tab and the other tabs in this record vary, based on your selection for *Type*.

Step 7 Select `Summary`.

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record.

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 From the drop-down box, select the *Module*.

The system displays the business objects in the selected module.

The *Business Object* specifies whether the report works with data from any business object in the module or if it works with data from specific business objects.

Step 3 Select the Business Objects.

The list contains *-All-* and the names of the business objects in the specified module.

If you select *-All-*, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report works only with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you only can select fields from the base business object.

Step 4 Select the *Forms*.

If you select *-All-*, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click **OK**.

Step 6 Click **Save**.

The **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

The **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step

Step 8 Optional: Select other business objects.

Step 9 Click **Add Business Object**.

To add a child business object, select the parent business object before clicking **Add Business Object**.

Step 10 Select the *Module* for the report.

Step 11 From the *Business Object* list, select from the business object.

To select multiple business objects, hold the Ctrl or Shift key and click your selections.

Step 12 Select Associated Options.

To select multiple associated options, hold the Ctrl or Shift key and click your selections.

Step 13 Optional: Deselect *Show only Associations defined in Data Modeler*.

This check box is selected by default to help limit the number of associations that appear in drop-down boxes. If deselected, the form displays all modules, all business objects relative to the selected module, and all association types in the system.

Step 14 To designate this object as the *Primary Associated Business Object*, select the box.

The *Primary Associated Business Object* check box displays only for direct descendants, i.e., child associations. By default, it is selected for the first child business object added.

If you remove the designated primary associated business object, the system designates the next associated business object in the tree as the primary associated business object.

Step 15 Click **OK**.

The new object appears in the Business Objects sub-tab under the selected parent business object. Indentation identifies parent business objects and their children.

When an associated business object is the Primary Associated Business Object, it is denoted by a purple square ■ after the module name in the Module column.

The **Remove** action does not apply to the primary business object. To change the primary business object, edit its properties.

To remove a non-primary business object, select the *Business Object* and click **Remove**. If you remove an associated business object, you cannot use the fields from that business object for the report.

If you remove a business object that is part of a hierarchical list, the system also removes its children.

Step

Step 16 Click **Save**.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the *Summary* report type.

Step

When the report type is *Summary*, the Options sub-tab presents the following options.

The *Data Scope* limits the data that are accessible to the report.

Step 1 Select a value for *Data Scope*. The default value is *Active Project*.

Value	Description
Active Project	The data available to the report is restricted to the active project. If the parent record is a capital project, the active project is the record itself. If the parent record is not a capital project, the active project is the project in which the parent record resides.
Company	Only data that exists outside a project is accessible to the report.
All Projects	The report includes all data, without regard to project or company.

The data displayed in a report can be formatted as a Microsoft Excel spreadsheet by applying an Excel template retrieved from the Document Manager.

Step 2 To specify an *Excel Template*, click the Search icon .

You can use the *Name* field to search for Excel templates that start with the text you specify. Use the % character in the *Name* field as a wild card to widen your search to any word in the name. For example, type %security to find a template with the word security anywhere in the name.

Step 3 Select the Excel template and click **Accept**.

Step

Step 4 To enable the user to specify runtime filters to set initial criteria before the report executes, select *Prompt Before Query*.

When the Prompt Before Query check box is deselected, the report executes immediately when the user selects it. Select *Prompt Before Query* for all performance-intensive reports.

Step 5 For *Editable*, select Yes or No.

Editable determines whether a user can edit the values in the records displayed in the report directly from the report.

Step 6 Click Save.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. Its usual purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. Values can be passed between a main report and a related report using shared variables. Generally a related report contains a reference back to the main report. Specify any related reports in the Related Reports sub-tab.

Step

When the report type is *Summary*, the Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step 2 On the section bar, click the Filter icon .

Step 3 To restrict the reports displayed to only one report type, select a report type.

The default is *Report*. To see all types of reports, select *All*.

The report types are explained [elsewhere](#) in this chapter.

Step 4 Select the *Module*. The drop-down box contains only modules for which you have security access.

The system displays My Reports and [Community reports](#) (designated by the c) matching the selected report type and module.

Step

Step 5 Select the check boxes of the related reports.

Step 6 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Related reports appear in the presentation in the same sequence as they appear in the Related Reports sub-tab, from top to bottom.

Step 7 To change the sequence, click the arrows in the *Order* column to move a related report up or down in the list.

Step 8 Click **Save Order**.

Step 9 To delete a related report, select the report and click **Remove**.

Step 10 Click **Save**.

Security Sub-Tab

The Security sub-tab names groups that can access this report.

Step

When the report type is *Summary*, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user creating the report to the Security Access section. The owner has full access privileges.

Use the **Add** action on the Security Access section bar to grant access to groups.

Step 1 Click **Add**.

Step 2 Select the check boxes of the groups to have access to the report.

Step 3 Click **Accept**.

By default, every group listed has *View* access.

Step 4 To grant additional access to a group, select the check box next to one or more of the following: *All*, *Edit*, *Delete*, *Copy*, *Share*.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

Columns Tab

The Columns tab defines which fields to use in the report. The information in the Columns tab is organized into three sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to include in the report.
- The *Display Columns* section on the right specifies the order in which the selected fields are presented and the labels used to identify them.

Step

Business Object Section

Step 1 Select the *Business Object*. The fields in the selected business object display in the Columns section.

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Columns Section

The fields displayed in the *Columns* section come from the selected business object.

Step 2 Select the check box for each field to include in the report. The system adds the selected fields to the Display Columns section.

The fields displayed in the *Columns* section come from the selected business object.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the Display Columns section remain.

Display Columns Section

When you select a check box in the Columns section, the field appears in the list in the *Display Columns* section.

Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Step 3 To change the sequence in which the fields display, select the field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom** until the field list is ordered the way you want.

Step 4 To change the label that displays for a field, edit the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box.

Step

Step 6 To remove a field, select the field and click **Remove**.

Step 7 Click **Save**.

Order & Group Tab

The Order & Group tab defines the layout of the data in the report. You can organize the layout by group, into a specific sequence, or neither. The data, found in the left side of the *Group By* section and *Order By* section, comes from the selections made in the Columns tab.

Step

Group By Section

Step 1 In the left column, select the field to *Group By*.

Step 2 To move the selected field to the right column, use the Move Right arrow .

Step 3 To arrange the fields, use the Move Up arrow  and Move Down arrow .

Step 4 To return the selection from the right column to the left column, use the Move Left arrow .

Order By Section

Step 5 In the left column, select the field to *Order By*.

Step 6 To move a selected field to the right column, you can use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.

Step 7 To arrange the fields, use the Move Up arrow  and Move Down arrow .

Step 8 To return the selection from the right column to the left column, use the Move Left arrow .

Step

Summary Columns Section

Step 9 If a Sum applies to your report, select a field to be summed by checking the box in the SUM column.

Any Sum fields will have a subtotal at each Group By level. When displayed to a user, a report containing a Summary (total) row ignores the value of the Result Size property.

Step 10 Click **Save**.

Filters Tab

The Filters tab uses fields, operators, and values to focus the results to display. The information in the Filters tab is organized into four sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to use as filters.
- The *User Filter Columns* and *System Filter Columns* sections specify filters, so that only records with fields that contain values that meet the specified criteria are included in a report.
- For additional filtering, you can use the [Advanced tab](#) to filter records based on their association with other records.

The selected filters are executed sequentially, from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Step 1 Select the Business Object.

Step

Columns Section

The fields displayed in the *Columns* section come from the selected business object.

The columns in the Columns section are:

User: The filter value will be specified at runtime by the user. A user filter has no impact on the total results that the user sees.

System: The filter value limits the total results that the user sees. A system filter is applied by the system each time a report executes.

Field Label: The label for the field.

Field Name: The system name for the field.

Step 2 For each field used as a filter, select the check box in either or both the User or System column. The system adds the selected fields to the *User Filter Columns* section and the *System Filter Columns* section.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the User Filter Columns section and System Filter Columns section remain.

User Filter Columns Section and System Filter Columns Section

When you select a User check box in the Columns section, the field appears in the list in the *User Filter Columns* section.

When you select a System check box in the Columns section, the field appears in the list in the *System Filter Columns* section.

Clearing a check box in the Columns section removes the field from the corresponding filter columns list.

The *Field* column shows the field's label and system name.

To see the source of a field, hover your mouse over the hyperlink in the Field column.

The system applies filters sequentially from top to bottom in the list.

Step 3 To change the sequence in which the filters will apply, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom** until each filter is ordered the way you want. Organize filters so that the filters that eliminate the most records are listed first.

Step

Step 4 To change the label that displays for a filter, edit the text in the *Report Label* text box.

The report labels only apply if runtime filters are used, and then only if the field is not already displayed, or if the filter is a second runtime filter against the same field.

If the field is a Time field, the user must input the time in milliseconds or as a string in hh:mm:ss format.

Step 5 From the *Filter Operator* drop-down box, select the comparison filter operator.

The choices presented depend on the field type of the selected field.

For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 6 For system filters that the user provides a value for at runtime, specify the *Value* that must be matched. To filter a Boolean field, use the values TRUE or FALSE.

For more information about the special values, see [Appendix B: Special Values](#).

Step 7 To organize system filters in sets to further refine the order in which the filters are applied, select the *Join Operator*.

The join operator provides one layer of grouping. For the first field, the choices are blank and NOT. For subsequent fields, the choices are AND, OR, AND NOT, and OR NOT.

Another layer of system filter grouping comes from the column to the right of the Join Operator column and the column to the right of the Value column. Together they provide the ability to define sets of filters. The filters in each group are applied as a unit before joining their result with the rest of the filters.

You can organize groups within groups. The innermost group will be applied first, all the way up to the outermost group.

Step 8 To organize nested filters use the selections in the numbered drop-down.

Step 9 Click Save.

If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Step 10 To copy an existing filter and create one with the same source, select the filter item and click Copy.

A new identical row appears below the copied row. The copy of a User filter appears in the User Filter Columns section. The copy of a System filter appears in the System Filter Columns section. The system clears any groupings in the System Filter Columns section.

Step 11 Adjust the values in the filter properties, as described above.

Step

Step 12 To remove a row, select the row and click **Remove**.

If you click **Remove** and this is the only row that refers to a field in the Columns section, the system clears the check box in the Columns section.

If you clear the check box in the Columns section, the system removes all rows in both filter columns sections that refer to that field.

Step 13 Click **Save**.

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records. For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

You can define the type of associated records by which you want to filter the results of the report.

To avoid potential report performance issues, avoid using *-Any-* for the module selection and *All* for the business object selection whenever possible.

Step 2 Select the *Module*.

The choices in *Business Object* depend on the selected module.

Step 3 Select the *Business Object*. To include all business objects in the selected module, select *All*.

Step

Step 4 Select the *Association Type*.

This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 5 All new reports will have a *Reverse Association* set to `No`. If an existing report has a *Reverse Association* set to `Yes`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `Yes`, a warning message will display. To remove the warning message, set the *Reverse Association* to `No`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `No`, it is not possible to set it back to `Yes`.

Step 6 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

You can specify a specific filtering record through the use of special name values. You can specify multiple filtering records by choosing `Query` in the *Filter Type* field and then choosing a query that returns the filtering records in the *Record / Query* field. For more information about both of these fields, see [Appendix C: Special Names in Record Field](#), and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step 7 Click OK.

Step 8 To delete an association filter, select the check box, and click **Delete**.

Step 9 Click **Save**.

My Report: Metric Report

When a report record's type is `Metric`, the result presents aggregated data in a table or chart.

You can set up a metric graphic report to drill through to the underlying data when the user clicks on a specific data point of the report. You do this by creating a metric tabular report that represents the underlying records, and associating the metric tabular report with the target metric graphic report, as described in the [My Report: Metric Report - Drill-Through](#) section.

My Report Tab

Define the report and its scope in the My Report tab of the report record.

Step

Complete identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 In the *Type* field, select `Metric`.

Step 7 In the *Data Scope* field, select `Active Project`.

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record.

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module*.

Step

Step 3 Select the Business Objects.

If you select `-All-`, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report only works with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you can only select fields from the base business object.

Step 4 Select the *Forms*.

If you select `-All-`, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click OK.

Step 6 Click Save.

The Run Report action becomes available. Use Run Report any time you want to test your report design.

The Edit and Remove actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlinked name or select the radio button and click **Edit**.

Step 8 Click Save.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the `Metric` report type.

Step

When the report type is `Metric`, the Options sub-tab presents the following options.

Step 1 For *Graph Y Title*, specify the text to use as the title for the Y-axis of the chart.

Step

Step 2 To display the legend on the chart, select *Display Legend*.

By default, Display Legend is deselected, which optimizes the chart viewing area.

Charts honor the Display Legend value except when maximized. When maximized, the legend always displays.

For charts that display in a small area, leave the Display Legend property deselected.

Step 3 Optional: Specify a value for *Precision*.

Precision specifies the number of decimal places to display in the chart and in the chart hover information. Precision must be greater than or equal to 0 and less than 13.

Step 4 Optional: Select *Tabular Output*.

When *Tabular Output* is selected, the metric chart displays as a tabular report instead of as a chart.

By default, Tabular Output is deselected.

Threshold / Scorecard Settings Section

Thresholds identify how to score metric values. Each threshold record contains values, ranges, and colors. A threshold record can support either three ranges (for example, low, medium, and high) or two ranges (for example, low and high).

In metric charts based on Fact Tables, the threshold record defines the ranges and the count of values that fall within each range. In metric charts not based on Fact Tables, the threshold record sets the color used in the chart.

Find Threshold definitions in the Tools menu item on the first level of the menu bar. Select **Tools > System Setup > General > Thresholds**. For more information, go to the IBM TRIRIGA 10 Knowledge Center and select *Administering IBM TRIRIGA>Reporting>Thresholds*.

Step 5 Click the Search icon  and select the *Threshold Record*.

Step 6 Select the *Scorecard Category*.

Scorecard categories organize metrics into groups for display.

Step 7 To indicate whether the target of the metric chart is a low value or a high value, select **Low Threshold** or **High Threshold**.

The *Scorecard Target Value* can be based on any value that is set in the selected threshold record.

Step 8 Click **Save**.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. The typical purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. Values can be passed between a main report and a related report using shared variables. Generally, a related report contains a reference back to the main report. Specify any related reports in the Related Reports sub-tab.

Step

When the report type is `Metric`, the Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step 2 Click the Filter icon  and select a report type to restrict the reports displayed to only that report type.

The default is `Report`. To see all types of reports, select `All`.

The report types are explained [elsewhere](#) in this chapter.

Step 3 Select the *Module*.

The drop-down list contains only those modules for which you have security access.

The system displays My Reports and [Community reports](#) (designated by the `c`) matching the elected report type and module.

Step 4 Select the check boxes of the related reports.

Step 5 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Step 6 To make the filters defined in the related report available at runtime, select the *Apply Filters*.

Step 7 To change the sequence of the related reports, click the arrows in the *Order* column and move a related report up or down in the list.

Related reports appear in the presentation in the same sequence as they appear in the Related Reports sub-tab, from top to bottom.

Step 8 Click **Save Order**.

Step 9 To delete a related report, select the check box and click **Remove**.

Step

Step 10 Click **Save**.

Security Sub-Tab

The Security sub-tab names the groups that can access this report.

Step

When the report type is `Metric`, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user who creates the report to the Security Access section. The owner has full access privileges.

To grant access to groups, use the **Add** action on the Security Access section bar.

Step 1 Click **Add**.

Step 2 Select the check boxes of the groups to have access to the report.

Step 3 Click **Accept**.

By default, every group listed has `View` access.

Step 4 To grant additional access to a group, select `All`, `Edit`, `Delete`, `Copy`, or `Share`.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

Columns Tab

The Columns tab specifies how to aggregate data for this report.

Step

Aggregation Settings Section

Step 1 On the Aggregation Settings section bar, click **Add**.

Step 2 Specify a *Label* for the report display.

Step

Step 3 Select a *Function*.

Step 4 Specify a *Sequence* number.

Sequence identifies the order in which to apply the aggregation setting when the metric report runs.

Step 5 To specify the field upon which the aggregation occurs, select *Field1*.

Step 6 For *Target Axis*, select either `Primary Y-Axis` or `Secondary Y-Axis`.

Target Axis identifies where the aggregated data displays.

Use `Secondary Y-Axis` to display a second data series with the primary one.

Step 7 To specify a *Color* to represent this aggregation, click the Search icon .

The system offers Basic and Advanced palettes from which to select the *Color*. When *Color* is blank, the system uses the color from the user's My Profile record. The default color is blank.

Step 8 Click **OK**.

Step 9 Optional: Add additional aggregation settings.

Step 10 To delete an aggregation setting, select the check box and click **Delete**.

Step 11 Click **Save**.

Order & Group Tab

The Order & Group tab defines the layout of the data in the metric. The information in the Order & Group tab is organized into three sections:

- The *Group By* section defines the fields that appear in the Group By area of the metric report and the graph type.
- The *Secondary Group By Properties* section provides a second level of group by.
- The *Order By* section specifies the fields by which to sort the data.

Step

When the report type is `Metric`, the Order & Group tab presents the following options.

Step

Group By Section

To add a group by, use the **Add** action on the Group By section bar. You can add more than one Group By.

Step 1 Click **Add**.

Step 2 Specify the field to group by.

The system pre-populates *Label* from the Field definition.

Step 3 Specify the *Label* for the report.

Step 4 Optional: If a field is hierarchical, and you want it to have hierarchical support:

- From the drop-down box, select *Hierarchy Definition*.
- To specify a *Root*, click the Search icon  and select from the choices.

To treat the hierarchical field as a regular text field, do not use these options.

Step 5 If the field you specified is a Date or DateTime field, in the *Group Dates By* field, select a date format to group by.

The group by date selection works on both fact and transactional tables, but only for metric reports.

When grouping in Calendar Hour, Calendar Day, Calendar Week, Calendar Month, or Calendar Year, the system uses the date or date-time function in the database.

When grouping in Calendar Quarter, the system uses the start and end date defined in Calendar Period Classification records as the ranges, and uses the name value in those classification records as the display label of the group.

When grouping in Fiscal Month, Fiscal Quarter, or Fiscal Year, the system uses the start and end date defined in Fiscal Periods Classification records as the ranges, and uses the name value in those classification records as the display label of the group.

If the user profile does not have a defined date format, the system date format defined in the property file is used.

Step 6 Select the *Chart Type*.

Chart Type identifies the type of display.

Step

Step 7 Select the *Chart Template*.

Chart Template specifies the chart within the chart type.

Find *Chart Template* definitions in the Tools menu item on the first level of the menu bar. Select **Tools > System Setup > General > Chart Templates**. For more information, go to the IBM TRIRIGA 10 Knowledge Center and select *Administering IBM TRIRIGA>Reporting>Creating chart templates*.

The system displays a miniature image that represents the chart type and chart template.

The remaining fields in the Group By Properties form depend on the selected Chart Template.

When the *Chart Type* is **Bar**, the standard choices for *Chart Template* are: Horizontal Grouped Bar, Horizontal Stacked Bar, Vertical Grouped Bar, and Vertical Stacked Bar.

When the *Chart Type* is **Bar (Percent)**, the standard choices for *Chart Template* are: Horizontal Grouped Bar (percent) and Vertical Grouped Bar (percent).

When the *Chart Type* is **Line**, the standard choices for *Chart Template* are: Line and Spline.

When the *Chart Type* is **Pie**, the standard choices for *Chart Template* are: 3D Doughnut, 3D Pie, Doughnut, and Pie.

When the *Chart Type* is **Circular Gauge**, the standard choices for *Chart Template* are: Circular Bar Gauge and Circular Gauge.

When the *Chart Type* is **Linear Gauge**, the standard choices for *Chart Template* are: Horizontal Linear Bar Gauge, Horizontal Linear Tank Gauge, Vertical Linear Bar Gauge, and Vertical Linear Tank Gauge.

When the *Chart Type* is **Circular Gauge (Percent)**, the standard choices for *Chart Template* are: Circular Bar Gauge (percent) and Circular Gauge (Percent).

When the *Chart Type* is **Linear Gauge (Percent)**, the standard choices for *Chart Template* are: Horizontal Linear Bar Gauge (percent), Horizontal Linear Tank Gauge (percent), Vertical Linear Bar Gauge (percent), and Vertical Linear Tank Gauge (percent).

When the *Chart Type* is **Bubble**, the standard choice for *Chart Template* is: Bubble.

When the *Chart Type* is **Pyramid**, the standard choice for *Chart Template* is: Pyramid.

Step

When the *Chart Type* is *Line-Bar Combo*, the standard choices for *Chart Template* are: *Line / Vertical Grouped Bar Combo* and *Line / Vertical Stacked Bar Combo*.

Using a *Bubble* chart for purposes of illustration:

Step 8 If specified, the *Secondary Data Source* displays in the same chart as the primary data source. Click the Search icon  to select.

The secondary data source displays in the same chart as the primary data source for *Bar*, *Line*, and *Bubble* charts. For *Gauge* charts, the secondary data source displays as a separate gauge next to the primary gauge. For *Line-Bar Combo* charts, the secondary data source can be a different chart type than the primary data source.

Step 9 Click **OK**.

Step 10 Optional: Repeat steps 1 - 9 to add additional *Group By* properties.

Step 11 When there is more than one group by, specify the *Default* by selecting the appropriate radio button.

Step 12 To change the sequence, click the arrows in the *Order* column to move a group by up or down in the list.

The group bys appear in the presentation in the same sequence as they appear in the *Group By* section, from top to bottom.

Step 13 Click **Apply Order**.

Step 14 To delete a group by, select the check box and click **Delete**.

Secondary Group By Properties Section

You can use the *Secondary Group By* section to group by a column, which results in a multi-series chart with one aggregation. When you define a *Secondary Group By*, and you define more than one aggregation in the *Group By* section, the system ignores the secondary group.

Step 1 Specify the *Field*.

Step 2 Specify the *Label*.

Step 3 Select the *Hierarchy Definition*.

Step 4 To specify a *Root*, click the Search icon  and select from the choices.

Step

Order By Section

- Step 1** Optional: In the left column, select the field to *Order By*.
- Step 2** Use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.
- Step 3** Use the Move Up arrow  and Move Down arrow  to arrange the fields.
- Step 4** Use the Move Left arrow  to return the selection from the right column to the left column.
-

- Step 5** Click Save.
-

Filters Tab

The Filters tab uses fields, operators, and values to focus the results to display. The selected filters are executed sequentially from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

When the report type is *Metric*, the entries in the Filter section define the filters applied at runtime.

- Step 1** Click **Add**.
-

- Step 2** Select the *Field* to use as the filter.

The system displays fields in `SectionName::FieldName` format.

- Step 3** Optional: Change the *Label* for the report.

The system pre-populates *Label* from the Field definition.

- Step 4** Optional: Select *Hierarchy Definition* from the drop-down box.

This option is available only when the field is hierarchical.

- Step 5** Optional: To specify a *Root*, click the Search icon  and select from the choices.

This option is available only when the field is hierarchical.

Step

Step 6 Select the comparison filter operator.

The choices presented in the *Operator* drop-down box depend on the field type of the selected Field. For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 7 Select or deselect the *Conditional* check box.

If you select the check box, the system filter is ignored in the query results when the filter input is empty.

Step 8 Specify the *Value*.

The user can specify the filter value at runtime. For more information about the special values, see [Appendix B: Special Values](#).

Step 9 Click OK.

Step 10 To change the sequence, click the arrows in the *Order* column to move a filter up or down in the list.

The system applies filters sequentially from top to bottom of the list.

Step 11 Click **Apply Order**.

Step 12 To delete a filter, select the check box and click **Delete**.

Step 13 Click **Save**.

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records. For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

You can define the type of associated records by which to filter the results of the report.

To avoid potential report performance issues, avoid using `-Any-` in the module selection and `All` for the business object selection whenever possible.

Step 2 Select the *Module*. To include all modules, select `-Any-`.

Step 3 Select the *Business Object*. To include all business objects in the selected module, select `All`.

The choices in *Business Object* depend on the selected module.

Step 4 Select the *Association Type*.

This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 5 All new reports will have a *Reverse Association* set to `No`. If an existing report has a *Reverse Association* set to `Yes`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `Yes`, a warning message will display. To remove the warning message, set the *Reverse Association* to `No`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `No`, it is not possible to set it back to `Yes`.

Step 6 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

You can specify a specific filtering record through the use of special name values. You can specify multiple filtering records by selecting `Query` in the *Filter Type* field and then selecting a query that returns the desired filtering records in the *Record / Query* field.

For more information about both of these fields, see [Appendix C: Special Names in Record Field](#) and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step 7 Click **OK**.

Step 8 Optional: To debug the construction of your metric report, use the **Validate** action.

Step 9 To delete an association filter, select the check box and click **Delete**.

My Report: Metric Report - Drill-Through

You can set up a metric graphic report to drill through to the underlying data when the user clicks on a specific data point of the report. You do this by creating a metric tabular report that represents the underlying records, and associating the metric tabular report with the target metric graphic report. This feature works for both fact and transactional data.

The system filters the records based on which data point you pick. For example, you might have a metric graphic report that represents the sum of the original budget by status against the project fact table. When the user clicks on the Active status data point in the metric graphic chart, the system displays only the underlying records with an Active status in the tabular view. Then, the user can drill down from the tabular chart to the base record.

Before you create the drill-through report, you must create the target metric graphic report, as described in the [My Report: Metric Report](#) section and associate the tabular report with it.

My Report Tab

Define the tabular report and its scope in the My Report tab of the report record.

Step

Complete identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 In the *Type* field, select `Metric`.

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module* that you specified in the target metric graphic report.

Step 3 Select the Business Object.

Select the name of the business object that you specified in the target metric graphic report.

Step 4 Select the *Form* that you specified in the target metric graphic report.

Step 5 Click OK.

Step 6 Click **Save**.

The **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

The **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the `Metric` report type.

Step

When the report type is `Metric`, the Options sub-tab presents the following options.

Step 1 Select Tabular Output.

Step 2 If you are using a fact table, in the *Associated Field*, select the associated field.

Fact tables can contain aggregated data from multiple business objects. The *Associated Field* tells the system which business object to display when the user wants to drill thru to the base record. The system populates the *Associated Module* and *Associated Business Object* fields based on the selected *Associated Field*.

For a transactional table, you do not need to define the *Associated Field* because the primary business object is the base business object.

Security Sub-Tab

The Security sub-tab names the groups that can access this report.

Step

When the report type is `Metric`, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user who creates the report to the Security Access section. The owner has full access privileges.

To grant access to groups, use the **Add** action on the Security Access section bar.

Step 1 Click **Add**.

Step

Step 2 Select the check boxes of the groups to have access to the report.

By default, every group listed has `View` access.

Step 3 Click **Accept**.

Step 4 To grant additional access to a group, select **All**, **Edit**, **Delete**, **Copy**, or **Share**.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

Columns Tab

The Columns tab specifies how to aggregate data for this report.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Step 1 Select the Business Object.

The fields in the selected business object display in the Columns section.

Columns Section

Step 2 Select the check box for each field to include in the report.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the Display Columns section remain.

Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Display Columns Section

Step 3 To change the sequence in which the fields display, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**.

Step

Step 4 To change the label that displays for a field, specify the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box.

Step 6 To remove a field, select the field and click **Remove**.

Step 7 Click **Save**.

Associate the tabular report with the target metric graphic report

After you define the tabular metric report, you need to associate it with the target metric graphic report.

Step

Step 1 Open the target graphic metric report.

Step 2 Select the **Order & Group** tab.

Step 3 Add or select an existing Group By field.

Step 4 Click the Search icon  next to *Source Tabular Report*.

Step 5 Select the tabular metric report and click **OK**.

Step 6 Click **Save and Close**.

My Report: Chart

When a report record's type is `chart`, the result displays records in a pie, bar, line, or stacked bar chart. You can view the source data for the chart report by clicking anywhere on the chart.

My Report Tab

Define the report and its scope in the My Report tab of the report record.

Step

Define identifying information about the chart.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 In the *Type* field, select `Chart`.

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record.

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module*.

Step

The system displays the business objects in the selected module.

The *Business Object* specifies whether the chart works with data from any business object in the module or if it will be constrained to work with data from specific business objects.

Step 3 Select the Business Objects.

If you select `-All-`, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report works only with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you can only select fields from the base business object.

Step 4 Select the Forms.

If you select `-All-`, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click OK.

Step 6 Click Save.

The **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

The **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step 8 Optional: Select other business objects.

Step 9 Click **Add Business Object**.

To add a child business object, select the parent business object before clicking **Add Business Object**.

Step

Step 10 Select the *Forms*.

If you select *-All-*, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 11 Select the *Module*.

Step 12 From the *Business Object* list, select from the business object.

Step 13 To select multiple business objects, hold the Ctrl or Shift key and click your selections.

Step 14 Select *Associated Options*.

To select multiple associated options, hold the Ctrl or Shift key and click your selections.

Step 15 Optional: Deselect *Show only Associations defined in Data Modeler*.

This check box is selected by default to help limit the number of associations that appear in drop-down boxes. If deselected, the form displays all modules, all business objects relative to the selected module, and all association types in the system.

Step 16 To designate this object as the *Primary Associated Business Object*, check the box.

The *Primary Associated Business Object* check box displays only for direct descendants, i.e., child associations. By default, it is selected for the first child business object added.

If you remove the designated primary associated business object, the system designates the next associated business object in the tree as the primary associated business object.

Step 17 Click OK.

The new object appears in the Business Objects sub-tab under the selected parent business object. Indentation identifies parent business objects and their children.

When an associated business object is the Primary Associated Business Object, it is denoted by a purple square ■ after the module name in the Module column.

The **Remove** action does not apply to the primary business object. To change the primary business object, edit its properties.

To remove a non-primary business object, select the business object and click **Remove**. If you remove an associated business object, you cannot use the fields from that business object for the report.

If you remove a business object that is part of a hierarchical list, the system also removes its children.

Step

Step 18 Click **Save**.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the `Chart` report type.

Step

When the report type is `Chart`, the Options sub-tab presents the following options.

Step 1 Select a value for *Data Scope*.

The *Data Scope* limits the data that are accessible to the report. The default value is `Active Project`.

Value	Description
Active Project	The data available to the chart is restricted to the active project. If the parent record is a capital project, the active project is the record itself. If the parent record is not a capital project, the active project is the project in which the parent record resides.
Company	Only data that exists outside a project is accessible to the chart.
All Projects	The chart includes all data records, without regard to project or company.

Step 2 For *Graph X Title*, specify the text to use as the title for the X-axis of the chart.

Step 3 For *Graph Y Title*, specify the text to use as the title for the Y-axis of the chart.

Step 4 For *Graph Type*, select the type of chart: `Pie`, `Bar`, `Line`, or `Stacked Bar`.

Step 5 To display the legend on the chart, select *Display Legend*.

By default, `Display Legend` is deselected, which optimizes the chart viewing area.

Charts honor the `Display Legend` value except when maximized. When maximized, the legend always displays.

For charts that display in a small area, leave the `Display Legend` property deselected.

Step

Step 6 Optional: Specify a value for *Precision*.

Precision specifies the number of decimal places to display in the chart and in the chart hover information. Precision must be greater than or equal to 0 and less than 13.

Step 7 To specify an *Excel Template*, click the Search icon .

The data displayed in a report can be formatted as a Microsoft Excel spreadsheet by applying an Excel template retrieved from the Document Manager.

You can use the *Name* field to search for Excel templates that start with the text you specify. Use the % character in the *Name* field as a wild card to widen your search to any word in the name. For example, type %security to find a template with the word security anywhere in the name.

Step 8 Select the Excel template and click **Accept**.

Step 9 To enable the user to specify runtime filters to set initial criteria before the report executes, select *Prompt Before Query*.

When the Prompt Before Query check box is deselected, the report executes immediately when the user selects it. Select *Prompt Before Query* for all performance-intensive reports.

Step 10 For *Editable*, select Yes or No.

Editable determines whether a user can edit the values in the records displayed in the report directly from the report.

Step 11 Click **Save**.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. The typical purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. Values can be passed between a main report and a related report using shared variables. Generally, a related report contains a reference back to the main report. Specify any related reports in the Related Reports sub-tab.

Step

When the report type is `Chart`, the Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step 2 On the section bar, click the Filter icon .

Step 3 To restrict the reports displayed to only one report type, select a report type.

The default is `Report`. To see all types of reports, select `All`.

The report types are explained [elsewhere](#) in this chapter.

Step 4 Select the *Module*.

The drop-down box contains only modules for which you have security access.

The system displays My Reports and [Community reports](#) (designated by the `c`) matching the selected report type and module.

Step 5 Select the check boxes of the related reports.

Step 6 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Step 7 To change the sequence of the related reports, click the arrows in the *Order* column and move a related report up or down in the list.

Related reports will appear in the presentation in the same sequence as they appear in the Related Reports sub-tab, from top to bottom.

Step 8 Click **Save Order**.

Step 9 To delete a related report, select the check box and click **Remove**.

Step 10 Click **Save**.

Step

Step 11 Select the check boxes of the related reports.

Step 12 Click OK.

When available, clicking a hyperlink opens the definition of that report.

Security Sub-Tab

The Security sub-tab names groups that can access this chart.

Step

When the report type is `Chart`, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user creating the report to the Security Access section. The owner has full access privileges.

To grant access to groups, use the **Add** action on the Security Access section bar.

Step 1 Click **Add**.

Step 2 Select the check boxes of the groups to have access to the report.

Step 3 Click **Accept**.

By default, every group listed has `View` access.

Step 4 To grant additional access to a group, select `All`, `Edit`, `Delete`, `Copy`, or `Share`.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

Columns Tab

The Columns tab defines which fields to use in the report. The information in the Columns tab is organized into three sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to include in the report.
- The *Display Columns* section on the right specifies the order in which the selected fields are presented and the labels used to identify them.

Step

Business Object Section

Step 1 Select the *Business Object*. The fields in the selected business object display in the Columns section.

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Columns Section

Step 2 Select the check box for each field to include in the report. The system adds the selected fields to the Display Columns section.

The fields displayed in the *Columns* section come from the selected business object.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the Display Columns section remain.

Display Columns Section

When you select a check box in the Columns section, the field appears in the list in the *Display Columns* section.

Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Step 3 To change the sequence in which the fields display, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**.

Step 4 To change the label that displays for a field, edit the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box.

Step 6 To remove a field, select the field and click **Remove**.

Step 7 Click **Save**.

Order & Group Tab

The Order & Group tab defines the layout of the data in the chart. You can organize the layout by group, into a specific sequence, or neither. The data, found in the left side of the *Group By* and *Order By* sections, comes from the selections made in the Columns tab.

Step

Group By Section

- Step 1** In the left column, select the field to *Group By*.
 - Step 2** To move the selected field to the right column, use the Move Right arrow .
 - Step 3** To arrange the fields, use the Move Up arrow  and Move Down arrow .
 - Step 4** To return the selection from the right column to the left column, use the Move Left arrow .
-

Order By Section

- Step 5** In the left column, select the field to *Order By*.
 - Step 6** To move a selected field to the right column, you can use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.
 - Step 7** To arrange the fields, use the Move Up arrow  and Move Down arrow .
 - Step 8** To return the selection from the right column to the left column, use the Move Left arrow .
-

Summary Columns Section

- Step 9** If a Sum applies to your report, select a field to sum by checking the box in the SUM column.

Any Sum fields will have a subtotal at each Group By level. When displayed to a user, a report containing a Summary (total) row ignores the value of the Result Size property.

- Step 10** Click **Save**.
-

Filters Tab

The Filters tab uses fields, operators, and values to focus the results to display. The information in the Filters tab is organized into four sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to use as filters.
- The *User Filter Columns* and *System Filter Columns* sections specify filters, so that only records with fields that contain values that meet the specified criteria are included in a report.
- For additional filtering, you can use the [Advanced tab](#) to filter records based on their association with other records.

The selected filters are executed sequentially, from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Step 1 Select the Business Object.

Columns Section

The fields displayed in the *Columns* section depend on the selected business object.

The columns in the Columns section are:

User: The filter value will be specified at runtime by the user. A user filter has no impact on the total results that the user sees.

System: The filter value limits the total results that the user sees. A system filter is applied by the system each time a report executes.

Field Label: The label for the field.

Field Name: The system name for the field.

Step 2 For each field used as a filter, select the check box in either or both the User or System column. The system adds the selected fields to the *User Filter Columns* section and the *System Filter Columns* section.

When you select a different business object, the fields displayed in the Columns section change, but previously selected fields in the User Filter Columns section and System Filter Columns section remain.

Step

User Filter Columns Section and System Filter Columns Section

When you select a User check box in the Columns section, the field appears in the list in the *User Filter Columns* section.

When you select a System check box in the Columns section, the field appears in the list in the *System Filter Columns* section.

Clearing a check box in the Columns section removes the field from the corresponding filter columns list.

The *Field* column shows the field's label and system name.

To see the source of a field, hover your mouse over the hyperlink in the Field column.

Step 3 To change the sequence in which the filters apply, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**. Organize filters so that the filters that eliminate the most records are listed first.

Step 4 To change the label that displays for a filter, edit the text in the *Report Label* text box.

The report labels only apply if runtime filters are used, and then only if the field is not already displayed, or if the filter is a second runtime filter against the same field.

If the field is a Time field, the user must input the time in milliseconds or as a string in hh:mm:ss format.

Step 5 From the *Filter Operator* drop-down box, select the comparison filter operator.

The choices presented depend on the field type of the selected field.

For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 6 For system filters that the user provides a value for at runtime, specify the *Value* that must be matched. To filter a Boolean field, use the values `TRUE` or `FALSE`.

For more information about the special values, see [Appendix B: Special Values](#).

Step 7 To organize system filters in sets to further refine the order in which the filters are applied, select the *Join Operator*.

The join operator provides one layer of grouping. For the first field, the choices are blank and `NOT`. For subsequent fields, the choices are `AND`, `OR`, `AND NOT`, and `OR NOT`.

Step

Step 8 To organize nested filters, use the selections in the numbered drop-down.

The join operator provides one layer of grouping.

Step 9 Select the *Join Operator*. For the first field, the choices are blank and NOT. For subsequent fields, the choices are AND, OR, AND NOT, and OR NOT.

Another layer of system filter grouping comes from the column to the right of the Join Operator column and the column to the right of the Value column. Together they provide the ability to define sets of filters. The filters in each group are applied as a unit before joining their result with the rest of the filters.

You can organize groups within groups. The innermost group will be applied first, all the way up to the outermost group.

Step 10 To organize nested filters, use the selections in the numbered drop-down.

Step 11 Click **Save**.

Step 12 If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Step 13 To copy an existing filter and create one with the same source, select the filter item and click **Copy**.

A new identical row appears below the copied row. The copy of a User filter appears in the User Filter Columns section. The copy of a System filter appears in the System Filter Columns section. The system clears any groupings in the System Filter Columns section.

Step 14 Adjust the values in the filter properties, as described above.

Step 15 To remove a row, select the row and click **Remove**.

If you click **Remove** and this is the only row that refers to a field in the Columns section, the system clears the field's check box in the Columns section.

If you clear the check box in the Columns section, the system removes all rows in both filter columns sections that refer to that field.

Step 16 Click **Save**.

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records. For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

You can define the type of associated records by which you want to filter the results of the report.

To avoid potential report performance issues, avoid using `-Any-` for the module selection and `All` for the business object selection whenever possible.

Step 2 Select the *Module*.

Step 3 Select the *Business Object*.

To include all business objects in the selected module, select `All`.

The choices in *Business Object* depend on the selected module.

Step 4 Click **OK**.

The new filter appears in the Association Filters section.

Step 5 To delete an association filter, select the check box and click **Delete**.

Step 6 Select the *Association Type*.

This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 7 All new reports will have a *Reverse Association* set to `No`. If an existing report has a *Reverse Association* set to `Yes`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `Yes`, a warning message will display. To remove the warning message, set the *Reverse Association* to `No`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `No`, it is not possible to set it back to `Yes`.

Step

Step 8 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

You can specify a specific filtering record through the use of special name values. You can specify multiple filtering records by choosing `QUERY` in the *Filter Type* field and then choosing a query that returns the filtering records in the *Record / Query* field. For more information about both of these fields, see [Appendix C: Special Names in Record Field](#), and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step 9 Click OK.

Step 10 To delete an association filter, select the check box, and click **Delete**.

Step 11 Click **Save**.

My Report: Hierarchy

When a report record's type is `Hierarchy`, the result lists records up and down a hierarchy.

My Report Tab

Define the report and its scope in the My Report tab of the report record.

Step

Complete identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step 6 In the *Type* field, select `Report`.

Step

The [Business Objects](#), [Options](#), [Related Reports](#), and [Security](#) sub-tabs provide more particulars about the report.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record.

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module*.

Step 3 Select the Business Objects.

If you select *-All-*, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report works only with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you can only select fields from the base business object.

Step 4 Select the *Forms*.

If you select *-All-*, the data included in the report will not be filtered by form. If you select the name of one or more forms, only data associated with the specified forms are included in the report. To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click **OK**.

Step 6 Click **Save**.

The **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

The **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step

Step 8 Optional: Select other business objects.

Step 9 Click **Add Business Object**.

To add a child business object, select the parent business object before clicking **Add Business Object**.

Step 10 To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step 11 Optional: Select other business objects.

Step 12 Click **Add Business Object**.

Step 13 To add a child business object, select the parent business object before clicking **Add Business Object**.

Step 14 Select the *Module*.

Step 15 From the *Business Object* list, select from the business object.

To select multiple business objects, hold the Ctrl or Shift key and click your selections.

Step 16 Select Associated Options.

To select multiple associated options, hold the Ctrl or Shift key and click your selections.

Step 17 Optional: Deselect *Show only Associations defined in Data Modeler*.

This check box is selected by default to help limit the number of associations that appear in drop-down boxes. If deselected, the form displays all modules, all business objects relative to the selected module, and all association types in the system.

Step 18 To designate this object as the *Primary Associated Business Object*, check the box.

The *Primary Associated Business Object* check box only displays for direct descendants, i.e., child associations. By default, it is selected for the first child business object added.

If you remove the designated primary associated business object, the system designates the next associated business object in the tree as the primary associated business object.

Step

Step 19 Click OK.

The new object appears in the Business Objects sub-tab under the selected parent business object. Indentation identifies parent business objects and their children.

When an associated business object is the Primary Associated Business Object, it is denoted by a purple square ■ after the module name in the Module column.

The **Remove** action does not apply to the primary business object. To change the primary business object, edit its properties.

To remove a non-primary business object, select the business object and click **Remove**. If you remove an associated business object, you cannot use the fields from that business object for the report.

If you remove a business object that is part of a hierarchical list, the system also removes its children.

Step 20 Click Save.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the `Hierarchy` report type.

Step

When the report type is `Hierarchy`, the Options sub-tab presents the following options.

Step 1 Select a value for *Data Scope*. The default value is `Active Project`.

The *Data Scope* limits the data that are accessible to the report.

Value	Description
Active Project	The data available to the report is restricted to the active project. If the parent record is a capital project, the active project is the record itself. If the parent record is not a capital project, the active project is the project in which the parent record resides.
Company	Only data that exists outside a project is accessible to the report.
All Projects	The report includes all data records, without regard to project or company.

Step

Step 2 To fix the left-hand columns in the report, specify the number of columns in *Fixed Column Count*. The default value is 0 (zero). Limit the fixed columns to five or less.

Fixed columns do not move as the user scrolls the report horizontally. After the report runs, users can identify the fixed columns because they have a thicker border to the right of the last fixed column.

Step 3 To specify the default size when the system runs the report, use *Result Size*.

The default value for this drop-down box is for it to be empty, in which case the platform determines the result size.

Step 4 To specify an *Excel Template*, click the Search icon .

The data displayed in a report can be formatted as a Microsoft Excel spreadsheet by applying an Excel template retrieved from the Document Manager.

You can use the *Name* field to search for Excel templates that start with the text you specify. Use the % character in the *Name* field as a wild card to widen your search to any word in the name. For example, type %security to find a template with the word security anywhere in the name.

Step 5 Select the Excel template and click **Accept**.

Step 6 For *Editable*, select Yes or No.

Editable determines whether a user can edit the values in the records displayed in the report directly from the report.

Step 7 Select the *Module*.

Step 8 Select the *Query*.

A report can contain hierarchical queries nested for multiple levels: 1) the original, 2) the associated query, and 3) the associated query of that associated query. Additional levels of associated queries are possible, but the typical limit is three levels.

Use hierarchical queries to display associated data in a hierarchical fashion. The top-level queries must have their Type property set to *Hierarchy* and point to the query (Associated Query) below them. Bottom-level (associated) queries need an Association Filter filtering by \$\$RECORDID\$\$ representing the selected record. Mid-level queries combine both of these attributes.

Step

Step 9 Choose the appropriate *Child Column Display* value.

The parameters in *Child Column Display* configure the display and usability of hierarchical queries.

The drop-down box offers two options: Show headers and indent columns, and Suppress headers and align columns.

The default option of Show headers and indent columns displays child rows indented but not aligned, along with the corresponding column headers.

In cases like program and project hierarchies, where the child rows display similar data to the parent rows at all levels in the hierarchy, another option is available. Suppress headers and align columns displays the child rows aligned with their parent rows, and hides the duplicated column headings.

Step 10 When the *Enable Project Switching* check box is selected, users experience quick and easy navigation through program and project hierarchies in a portal section. Users see the Portal Switching icon  before the hyperlinked project type.

The  icon displays only if the record is a Capital Project record and the user has appropriate project security permissions.

- When a user clicks the  for a record in a non-default project, the project context switches to that record's project.
- When a user clicks the  for a record in a default project, the project context switches to the Company Level, if not already there.

By default, *Enable Project Switching* is not selected.

Step 11 Optional: Select Enable Project Switching.

Step 12 Click Save.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. The typical purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. Values can be passed between a main report and a related report using shared variables. Generally, a related report contains a reference back to the main report. Specify any related reports in the Related Reports sub-tab.

Step

When the report type is `Hierarchy`, the Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step 2 On the section bar, click the Filter icon .

Step 3 To restrict the reports displayed to only one report type, select a report type.

The default is `Report`. To see all types of reports, select `All`.

The report types are explained [elsewhere](#) in this chapter.

Step 4 Select the *Module*.

The drop-down box contains only modules for which you have security access.

The system displays My Reports and [Community reports](#) (designated by the `c`) matching the selected report type and module.

Step 5 Select the check boxes of the related reports.

Step 6 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Step 7 To change the sequence of the related reports, click the arrows in the *Order* column and move a related report up or down in the list.

Related reports will appear in the presentation in the same sequence as they appear in the Related Reports sub-tab, from top to bottom.

Step 8 Click **Save Order**.

Step 9 Select the check boxes of the related reports.

Step 10 Click **OK**.

When available, clicking a hyperlink opens the definition of that report.

Step

Step 11 To delete a related report, select the check box and click **Remove**.

Step 12 Click **Save**.

Security Sub-Tab

The Security sub-tab names groups that can access this report.

Step

When the report type is `Hierarchy`, the Security sub-tab presents the following options.

Although not shown in the Security sub-tab, the system automatically adds the user creating the report to the Security Access section. The owner has full access privileges.

To grant access to groups, use the **Add** action on the Security Access section bar.

Step 1 Click **Add**.

Step 2 Select the check boxes of the groups to have access to the report.

Step 3 Click **Accept**.

By default, every group listed has `View` access.

Step 4 To grant additional access to a group, select `All`, `Edit`, `Delete`, `Copy`, or `Share`.

Step 5 To delete a group, select the check box and click **Remove**.

Step 6 Click **Save**.

To grant access to groups, use the **Add** action on the Security Access section bar.

Step 7 Click **Add**.

Columns Tab

The Columns tab defines which fields to use in the report. The information in the Columns tab is organized into three sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to include in the report.
- The *Display Columns* section on the right specifies the order in which the selected fields are presented and the labels used to identify them.

Step

Business Object Section

Step 1 Select the *Business Object*. The fields in the selected business object display in the Columns section.

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Columns Section

Step 2 Select the check box for each field to include in the report. The system adds the selected fields to the Display Columns section.

The fields displayed in the *Columns* section come from the selected business object.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the Display Columns section remain.

Display Columns Section

When you select a check box in the Columns section, the field appears in the list in the *Display Columns* section.

Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Step 3 To change the sequence in which the fields display, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**.

Step 4 To change the label that displays for a field, edit the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box.

Step 6 To remove a field, select the field and click **Remove**.

Step 7 Click **Save**.

Order & Group Tab

The Order & Group tab defines the layout of the data in the report. You can organize the layout by group, into a specific sequence, or neither. The data, found in the left side of the *Group By* and *Order By* sections, comes from the selections made in the Columns tab.

Step

Group By Section

- Step 1** In the left column, select the field to *Group By*.
 - Step 2** To move the selected field to the right column, use the Move Right arrow .
 - Step 3** To arrange the fields, use the Move Up arrow  and Move Down arrow .
 - Step 4** To return the selection from the right column to the left column, use the Move Left arrow .
-

Order By Section

- Step 5** In the left column, select the field to *Order By*.
 - Step 6** To move a selected field to the right column, you can use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.
 - Step 7** To arrange the fields, use the Move Up arrow  and Move Down arrow .
 - Step 8** To return the selection from the right column to the left column, use the Move Left arrow .
-

Summary Columns Section

- Step 9** If a Sum applies to your report, select a field to sum by checking the box in the SUM column.

Any Sum fields will have a subtotal at each Group By level. When displayed to a user, a report containing a Summary (total) row ignores the value of the Result Size property.

- Step 10** Click Save.
-

Filters Tab

The Filters tab uses fields, operators, and values to focus the results to display. The information in the Filters tab is organized into four sections:

- The *Business Object* section on the upper left indicates the source business objects.
- The *Columns* section on the lower left identifies which fields in the selected business object to use as filters.
- The *User Filter Columns* and *System Filter Columns* sections specify filters, so that only records with fields that contain values that meet the specified criteria are included in a report.
- For additional filtering, you can use the [Advanced tab](#) to filter records based on their association with other records.

The selected filters are executed sequentially, from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the My Report tab.

Step 1 Select the radio button for a business object.

The fields in the selected business object display in the Columns section.

Columns Section

The fields displayed in the *Columns* section depend on the selected business object.

The columns in the Columns section are:

User: The filter value will be specified at runtime by the user. A user filter has no impact on the total results that the user sees.

System: The filter value limits the total results that the user sees. A system filter is applied by the system each time a report executes.

Field Label: The label for the field.

Field Name: The system name for the field.

Step 2 For each field used as a filter, select the check box in either or both the User or System column. The system adds the selected fields to the *User Filter Columns* section and the *System Filter Columns* section.

When you select a different business object, the fields displayed in the Columns section change, but previously selected fields in the User Filter Columns section and System Filter Columns section remain.

Step

User Filter Columns Section and System Filter Columns Section

When you select a User check box in the Columns section, the field appears in the list in the *User Filter Columns* section.

When you select a System check box in the Columns section, the field appears in the list in the *System Filter Columns* section.

Clearing a check box in the Columns section removes the field from the corresponding filter columns list.

The *Field* column shows the field's label and system name.

To see the source of a field, hover your mouse over the hyperlink in the Field column.

The system applies filters sequentially from top to bottom in the list.

Step 3 To change the sequence in which the filters apply, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**. Organize filters so that the filters that eliminate the most records are listed first.

Step 4 To change the label that displays for a filter, edit the text in the *Report Label* text box.

The report labels only apply if runtime filters are used, and then only if the field is not already displayed, or if the filter is a second runtime filter against the same field.

If the field is a Time field, the user must input the time in milliseconds or as a string in hh:mm:ss format.

Step 5 From the *Filter Operator* drop-down box, select the comparison filter operator.

The choices presented depend on the field type of the selected field.

For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 6 For system filters that the user provides a value for at runtime, specify the *Value* that must be matched. To filter a Boolean field, use the values `TRUE` or `FALSE`.

For more information about the special values, see [Appendix B: Special Values](#).

Step 7 To organize system filters in sets to further refine the order in which the filters are applied, select the *Join Operator*.

The join operator provides one layer of grouping. For the first field, the choices are blank and `NOT`. For subsequent fields, the choices are `AND`, `OR`, `AND NOT`, and `OR NOT`.

Step

Another layer of system filter grouping comes from the column to the right of the Join Operator column and the column to the right of the Value column. Together they provide the ability to define sets of filters. The filters in each group are applied as a unit before joining their result with the rest of the filters.

You can organize groups within groups. The innermost group will be applied first, all the way up to the outermost group.

Step 8 To organize nested filters, use the selections in the numbered drop-down.

Step 9 Click **Save**.

If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Step 10 To copy an existing filter and create one with the same source, select the filter item and click **Copy**.

A new identical row appears below the copied row. The copy of a User filter appears in the User Filter Columns section. The copy of a System filter appears in the System Filter Columns section. The system clears any groupings in the System Filter Columns section.

Step 11 Adjust the values in the filter properties, as described above.

Step 12 To remove a row, select the row and click **Remove**.

If you click **Remove** and this is the only row that refers to a field in the Columns section, the system clears the field's check box in the Columns section.

If you clear the check box in the Columns section, the system removes all rows in both filter columns sections that refer to that field.

Step 13 Click **Save**.

If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records. For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

You can define the type of associated records by which you want to filter the results of the report.

To avoid potential report performance issues, avoid using `-Any-` for the module selection and `ALL` for the business object selection whenever possible.

Step 2 Select the *Module*.

Step 3 Select the *Business Object*.

To include all business objects in the selected module, select `ALL`.

The choices in *Business Object* depend on the selected module.

Step 4 Select the *Association Type*.

This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 5 All new reports will have a *Reverse Association* set to `NO`. If an existing report has a *Reverse Association* set to `YES`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `YES`, a warning message will display. To remove the warning message, set the *Reverse Association* to `NO`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `NO`, it is not possible to set it back to `YES`.

Step 6 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

You can specify a specific filtering record through the use of special name values. You can specify multiple filtering records by choosing `QUERY` in the *Filter Type* field and then choosing a query that returns the filtering records in the *Record / Query* field. For more information about both of these fields, see [Appendix C: Special Names in Record Field](#), and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step

Step 7 Click OK.

Step 8 To delete an association filter, select the check box, and click **Delete**.

Step 9 Click **Save**.

Community

The *Community* tab in the Report Manager contains a collection of generally available system reports. A report displays in the Community tab if it was designated to do so by your system administrator.

Not all users have access to the Community tab. If you have access to the Community tab, your view may be different from that described in this user guide. Depending on your security settings, you may see some or all of the features.

The column headings displayed in the Community tab follow.

Column Heading	Description
Blank	Displays the Run Report icon  . When you click the  , the system generates the report and displays it in a separate window.
Title	The title of the report
Name	The system name of the report.
Tag	A name that can be filtered from the Report Manager, often used for collections of reports.
Module	The module of the report.
Business Object	The business object of the report.
Form	The display for the report. If it is a module- or business object-level report, this field shows a comma-separated list of forms.
Display Type	The kind of report. Values include <i>-All-</i> , <i>Report</i> , <i>Query</i> , <i>Graphic</i> , <i>Summary</i> , <i>Chart</i> , <i>External</i> , <i>Reserve Legacy</i> , <i>Reserve</i> , <i>Hierarchy</i> , and <i>Metric</i> .
Owner Language	The original language of the report owner.

Use the filters in the column headings to find the report you need.

The action available on the Community tab follows.

Action Name	Description
Copy as My Report	Makes a copy of a selected report and pastes the copy in your My Reports tab. The copied version has the words "Copy of" at the beginning of the report name. To copy a report to your My Reports tab, select the check box and click Copy as My Report .

You manage the reports in the Community tab from the [System Reports tab](#).

The following briefly describes the report types available for Community reports:

- **Report** is a basic tabular report. A Report is listed in a navigation item.
- **Query** is a basic tabular report. A Query is not listed in a navigation item.
- **Graphic** is outside the scope of this guide. For more information, go to the IBM TRIRIGA Application Platform 3 Knowledge Center and select *Administering IBM TRIRIGA Application Platform>Managing graphics*.
- **Summary** is a tabular report. It differs from reports and queries in the way that detail records are handled. In a report or query, all detail records that contribute to totals display in the report. A Summary report shows the totals without the detail records.
- **Chart** displays the data in a chart. Four kinds of charts are supported: pie, bar, line, and stacked bar.
- **External** specifies that the report was created using third-party software, such as BIRT.
- **Reserve Legacy** is a query that returns the results of available resources only.
- **Reserve** is a query that acts like the **Reserve Legacy** query, but it also adds support for calendar sets to determine the availability of resources.
- **Hierarchy** uses a query to show information up and down a hierarchy.
- **Metric** aggregates data in a table or chart with drill paths, filters, and related reports. You can create metric reports based on instance data (business object data) or on Fact Tables (as done in IBM TRIRIGA's Workplace Performance Management, IBM TRIRIGA Real Estate Environmental Sustainability, and IBM TRIRIGA Strategic Facility Planning products).

System Reports

The *System Reports* tab in the Report Manager contains reports used by the IBM TRIRIGA applications. A report displays in the System Reports tab if it is an IBM TRIRIGA standard report, if it was created by a user with access to the System Reports tab, or if it was copied to System Reports as a Community report from a user's My Reports tab.

You may not have access to the System Reports tab. If you have access to the System Reports tab, your view may be different from that described in this user guide. Depending on your system security settings, you may see some or all of the features.

The column headings in the System Reports tab follow. Click the hyperlink to open the Report Builder definition of a report.

Column Heading	Description
Blank	Displays the Run Report icon  . When you click the  , the system generates the report and displays it in a separate window.
C	Indicates whether the report is designated to appear in the Community tab. The value C means the report displays in the Community tab.
Title	The title of the report
Name	The system name of the report.
Tag	A name you can filter on from the Report Manager. Use this field to build collections of related reports.
Module	The module of the report.
Business Object	The business object of the report.
Form	The display for the report. If it is a module- or business object-level report, this field shows a comma-separated list of the forms.
Display Type	The kind of report. Values include -All-, Report, Query, Graphic, Summary, Chart, External, Reserve Legacy, Reserve, Hierarchy, and Metric.

The first time you select the System Reports tab, the system does not show any reports. At any time, you can use the filters in the column headings to find the report of interest.

The actions available on System Reports in the Report Manager follow.

Action Name	Description
New	Opens the form for creating a new report record.
Copy	Makes a copy of a selected report and pastes the copy in the System Reports tab. The copied version has the words "Copy of" at the beginning of the Name. To copy a report, select the check box and click Copy .
Delete	Removes the selected report permanently from the Report Manager. To delete a report, select the check box and click Delete . In the delete confirmation window, click OK .
Copy as My Report	Makes a copy of the selected report and pastes the copy in your My Reports tab. The copied version has the words "Copy of" at the beginning of the Name. To copy a report to your My Reports tab, select the check box and click Copy as My Report .
Share as Community	Designates the selected report as a Community report. The report becomes visible in the Community tab of all users that have security access to view the data within. To share a report to the Community tab, select the check box and click Share as Community .
Validate	Only available for Metric reports. Use Validate as a debugging tool to ensure that the report is properly constructed. For example, for a Line-Bar Combo chart, the system checks that the main query and the line data source query have identical filters specified and identical Group By specified.

Creating a New System Report

From the System Reports tab, you click **New** to create a report.

A description of each action at the top of the report form follows. Some actions appear only after you save the Report form.

Action Name	Description
Save	Saves the current report definition to the report record.
Save & Close	Saves the current report definition to the report record and closes the report form.
x	Closes the form. The system does not save any changes made since the last Save or Save & Close action.

Action Name	Description
Run Report	Generates the report and displays it in a secondary window. Available only after you save the report record.
Validate	Available only for Metric reports. You use Validate as a debugging tool to ensure proper construction of the report. For example, for a Line-Bar Combo chart, the system checks that the main query and the line data source query have identical filters specified and identical Group Bys specified.

The *Type* field on the General tab identifies the report type.

The following briefly describes the report types available for system reports:

- *Report* is a basic tabular report. A Report is listed in a navigation item.
- *Query* is a basic tabular report. A Query is not listed in a navigation item.
- *Graphic* is outside the scope of this guide. For more information, go to the IBM TRIRIGA Application Platform 3 Knowledge Center and select *Administering IBM TRIRIGA Application Platform>Managing graphics*.
- *Chart* displays the data in a chart. The chart types include: pie, bar, line, and stacked bar.
- *Summary* is a tabular report. It differs from reports and queries in the way that it handles detail records. In a report or query, all detail records that contribute to totals display in the report. A Summary report shows the totals without the detail records.
- *External* specifies that the report was created using third-party software, such as BIRT.
- *Reserve Legacy* is a query that returns the results of available resources only.
- *Reserve* is a query that acts like the *Reserve Legacy* query, but it also adds support for calendar sets to determine the availability of resources.
- *Hierarchy* uses a query to show information up and down a hierarchy.
- *Metric* aggregates data in a table or chart with drill paths, filters, and related reports. You can create metric reports based on instance data (business object data) or on Fact Tables (as done in the IBM Workplace Performance Management, IBM TRIRIGA Real Estate Environmental Sustainability, and IBM TRIRIGA Strategic Facility Planning products).

Complex Queries

When you build a complex query with multiple associated business objects, be aware of the limits of the database in use. One method of verifying a suitable query for the database is to export the SQL of the query. From the Advanced tab, select the Export SQL link. Run that SQL code on the database to verify that no errors occur.

System Report Tabs

The following sections in this chapter describe each tab in the Report form for a System Report. The discussion uses a `Report` for purposes of illustration and points out any unique requirements for the different report types.

- [General Tab](#)
- [Columns Tab](#)
- [Order & Group Tab](#)
- [Filters Tab](#)
- [Advanced Tab](#)
- [Where Used Tab](#)

General Tab

You define the report and its scope in the General tab of the report record.

Step

Complete identifying information about the report.

Step 1 Specify the *Name* of the report.

Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.

Step 2 Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.

Step 3 Specify the *Header (Title)*. This is the text that shows at the top of the report.

Step 4 To use an additional grouping for filtering, specify the *Tag*.

Step 5 Specify a complete *Description* of the report.

Step

Type indicates what sort of report this record will be. Standard choices are Report, Query, Graphic, Chart, Summary, External, Reserve Legacy, Reserve, Hierarchy, and Metric.

The fields that display in this tab and the other tabs in this form vary, based on your selection for *Type*.

If the report *Type* is Reserve, *Calendar Set* displays. Select a value for *Calendar Set*.

Step 6 Select Report from the drop-down box.

The *Data Scope* limits the data that are accessible to the report.

Step 7 Select a value for *Data Scope*.

The values include:

Active Project: The data available to the report is restricted to the active project. If the parent record is a capital project, the active project is the record itself. If the parent record is not a capital project, the active project is the project in which the parent record resides.

Company: Only data that exists outside a project is accessible to the report.

All Projects: The report includes all data, without regard to project or company.

Step 8 If this report is to be available in the Community tab, select *Show As Community Report*.

The Security sub-tab does not display when the *Show As Community Report* check box is deselected.

Business Objects Sub-Tab

The Business Objects sub-tab identifies the data available to this report record. The appearance and purpose of the Business Objects sub-tab are different for Metric reports. This section first describes the Business Objects sub-tab for [non-Metric reports](#), then [for Metric reports](#).

Non-Metric Reports

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step

Step 2 Select the *Module*.

Step 3 Select the Business Objects.

The *Business Object* specifies whether the report works with data from any business object in the module or if it will be constrained to work with data from specific business objects.

The list contains *-All-* and the names of the business objects in the specified module.

If you select *-All-*, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report works only with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and make your selections. If you select multiple business objects, you can select only fields from the base business object.

Step 4 Select the *Forms*.

The list contains *-All-* and the names of forms that you can use to edit the data from the specified business objects.

If you select *-All-*, the data included in the report will not be filtered by form.

If you select the name of one or more forms, only data associated with the specified forms are included in the report.

To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click **OK**.

Step 6 Click **Save**.

After you click **Save**, the **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

After you click **Save**, the **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab. To edit a business object line item, either click the hyperlink or select the radio button and click **Edit**.

Step 7 Optional: Select other business objects.

Step 8 Click **Add Business Object**.

To add a child business object, select the radio button of the parent business object before you click **Add Business Object**.

Step

Step 9 Select the *Module*.

Step 10 Select the *Business Object*.

To select multiple business objects, hold the Ctrl or Shift key and click your selections.

Step 11 Select the Associated Options.

To select multiple associated options, hold the Ctrl or Shift key and make your selections.

Step 12 Optional: Deselect *Show only Associations defined in Data Modeler*.

This check box is selected by default to help limit the number of associations that appear in drop-down boxes. If deselected, the form displays all modules, all business objects relative to the selected module, and all association types in the system.

Step 13 To designate this object as the *Primary Associated Business Object*, check the box.

The *Primary Associated Business Object* check box displays only for direct descendants, i.e., child associations. By default, it is selected for the first child business object added.

If you remove the designated primary associated business object, the system designates the next associated business object in the tree as the primary associated business object.

When an associated business object is the Primary Associated Business Object, it is denoted by a purple square ■ after the module name in the Module column.

Step 14 Click OK.

Step 15 To remove a non-primary business object, select its radio button and click **Remove**.

If you remove an associated business object, you cannot use the fields from that business object for the report.

The **Remove** action does not apply to the primary business object. To change the primary business object, edit its properties.

If you remove a business object that is part of a hierarchical list, the system also removes its children.

Step 16 Click Save.

Metric Reports

Step

Step 1 In the Business Objects sub-tab, select **Add Business Object**.

Step 2 Select the *Module*.

Step 3 Select the Business Objects.

The list contains *-All-* and the names of the business objects in the specified module.

If you select *-All-*, the report works with any data from any business object in the specified module.

If you select the name of one or more business objects, the report only works with data from the specified business objects.

To select multiple business objects, hold the Ctrl or Shift key and click your selections. If you select multiple business objects, you only can select fields from the base business object.

Step 4 Select the *Forms*.

The list contains *-All-* and the names of forms that you can use to edit the data from the specified business objects.

If you select *-All-*, the data included in the report will not be filtered by form.

If you select the name of one or more forms, only data associated with the specified forms are included in the report.

To select multiple forms, hold the Ctrl or Shift key and click your selections.

Step 5 Click **OK**.

Step 6 Click **Save**.

After you click **Save**, the **Run Report** action becomes available. Use **Run Report** any time you want to test your report design.

After you click **Save**, the **Edit** and **Remove** actions become available to manage the list in the Business Objects sub-tab.

Step 7 To edit a business object line item, either click the hyperlinked name or select the radio button and click **Edit**.

Step 8 Click **Save**.

Options Sub-Tab

The Options sub-tab contains elements that are unique to the report type.

Step

Report or Query

When the report type is `Report` or `Query`, the Options sub-tab presents the following options.

Step 1 For *Random Result Count*, specify a value or leave the 0 (zero) default.

Use *Random Result Count* if there are so many data records that including all of them in a report would not be useful or practical.

This field's default value is 0 (zero). If this field is set to a positive number, the report only includes the specified number of records randomly chosen from the complete set of data.

Step 2 To fix and not move five or less of the left-hand columns in the report as the user scrolls the report horizontally, specify the number of columns in *Fixed Column Count*.

Performance degrades as the number of fixed columns increases beyond 5.

After the report runs, users can identify the fixed columns because they have a thicker border to the right of the last column that is fixed.

The default value is 0 (zero).

Step 3 To specify the default size when the system runs the report, use *Result Size*.

The default value is empty, in which case the platform determines the result size.

Step 4 To specify an *Excel Template*, click the Search icon .

You can format the data displayed in a report as a Microsoft Excel spreadsheet by applying an Excel template retrieved from the Document Manager.

You can use the *Name* field to search for Excel templates that start with the text you specify. Use the % character in the *Name* field as a wild card to widen your search to any word in the name. For example, type %security to find a template with the word security anywhere in the name.

Step 5 Select the Excel template and click **Accept**.

Step

Step 6 To allow the report's user to specify runtime filters that specify initial criteria before the report executes, select *Prompt Before Query*.

When the *Prompt Before Query* check box is deselected, the report executes immediately when selected by the user.

Select *Prompt Before Query* for all performance-intensive reports.

Step 7 For *Editable*, select Yes or No.

Editable determines whether a user can edit the values in the records displayed in the report directly from the report.

Chart

When the report type is `Chart`, the Options sub-tab presents the following options.

Step 8 For *Graph X Title*, specify the text to use as the title for the X-axis of the chart.

Step 9 For *Graph Y Title*, specify the text to use as the title for the Y-axis of the chart.

Step 10 For *Graph Type*, select the **chart type**.

Step 11 To display the legend on the chart, select *Display Legend*.

By default, Display Legend is deselected, which optimizes the chart viewing area.

Charts honor the Display Legend value except when maximized. When maximized, the legend always displays.

For charts that display in a small area, leave the Display Legend property deselected.

Step 12 Optional: Specify a value for *Precision*.

Step 13 *Precision* specifies the number of decimal places to display in the chart and in the chart hover information. Precision must be greater than or equal to 0 and less than 13.

Step 14 See the descriptions above for [Excel Template](#), [Prompt Before Query](#), and [Editable](#).

Summary

When the report type is `Summary`, the Options sub-tab presents the following options.

Step 15 See the descriptions above for [Excel Template](#), [Prompt Before Query](#), and [Editable](#).

Step

Hierarchy

When the report type is `Hierarchy`, the Options sub-tab presents the following options.

Step 16 See the descriptions above for [Fixed Column Count](#), [Result Size](#), [Excel Template](#) and [Editable](#).

Step 17 Select the *Module*.

Step 18 Select the *Query*.

A report can contain hierarchical queries nested for multiple levels: 1) the original, 2) the associated query, and 3) the associated query of that associated query. Additional levels of associated queries are possible, but the typical limit is three levels.

Use hierarchical queries to display associated data in a hierarchical fashion. The top-level queries must have their `Type` property set to `Hierarchy` and point to the query (Associated Query) below them. Bottom-level (associated) queries need an Association Filter filtering by `$$RECORDID$$` representing the selected record. Mid-level queries combine both of these attributes.

Step 19 Select a *Child Column Display* value.

The parameters in *Child Column Display* configure the display and usability of hierarchical queries.

The default option of `Show headers` and `indent columns` displays child rows indented but not aligned, along with the corresponding column headers.

In cases like program and project hierarchies, where the child rows display similar data to the parent rows at all levels in the hierarchy, select `Suppress headers` and `align columns` to display the child rows aligned with their parent rows and hide the duplicated column headings.

Step 20 Optional: Select `Enable Project Switching`.

When selected, *Enable Project Switching* users experience quick and easy navigation through program and project hierarchies in a portal section. Users see the Portal Switching icon  before the hyperlinked project type.

The  icon displays only if the record is a Capital Project record and the user has appropriate project security permissions.

When a user clicks the  icon for a record in a non-default project, project context switches to that record's project.

When a user clicks the  icon for a record in a default project, project context switches to the Company Level, if not already there.

By default, *Enable Project Switching* is not selected.

Step

Metric

When the report type is `Metric`, the Options sub-tab presents the following options.

Step 21 See the descriptions above for [Graph Y Title](#), [Display Legend](#) and [Precision](#).

Step 22 Optional: Select the *Tabular Output* check box.

When selected, the metric chart displays as a tabular report instead of as a chart.

By default, Tabular Output is deselected.

Threshold / Scorecard Settings Section

Thresholds identify how to score metric values. Each threshold record contains values, ranges, and colors. A threshold record can support either three ranges (for example, low, medium, and high) or two ranges (for example, low and high).

In metric charts not based on Fact Tables, the threshold record sets the color used in the chart.

In metric charts based on Fact Tables, the threshold record defines the ranges and the count of values that fall within the ranges.

Find Threshold definitions in the Tools menu item on the first level of the menu bar.

Select **Tools>System Setup>General>Thresholds**. For more information, go to the IBM TRIRIGA 10 Knowledge Center and select *Administering IBM TRIRIGA>Reporting>Thresholds*.

Step 1 Click the Search icon  and select the *Threshold Record*.

Step 2 Select the *Scorecard Category* from the drop-down box.

Scorecard categories organize metrics into groups for display.

Step 3 Select `Low Threshold` or `High Threshold`.

This value indicates whether the target of the metric chart is a low value or a high value. The *Scorecard Target Value* can be based on any value that is set in the selected threshold record.

Step 4 Click **Save**.

Related Reports Sub-Tab

A related report is a self-contained report that has its own definition and format. Its usual purpose is to display additional information the viewer might find relevant. A main report can have more than one related report. A related report cannot have another related report. The system can pass values between a main report and a

related report using shared variables. Typically, a related report contains a reference back to the main report. You specify any related reports in the Related Reports sub-tab.

Step

The Related Reports sub-tab presents the following options.

Step 1 To add a related report, select **Add**.

Step 2 Click the Filter icon  on the section bar.

Step 3 To restrict the reports displayed to only that report type, select a report type.

The default is `Report`. To see all types of reports, select `All`.

The report types are explained [elsewhere](#) in this chapter.

Step 4 Select the *Module*.

Step 5 Select the check boxes of the related reports.

Step 6 Click **OK**.

When available, clicking a hyperlinked Name opens the definition of that report.

Step 7 To make the related report available at runtime, select *Apply Filters*.

Step 8 To change the sequence, click the arrows in the *Order* column and move a related report up or down in the list.

Step 9 Click **Save Order**.

Step 10 To delete a related report, select the check box and click **Remove**.

Step 11 Click **Save**.

Security Sub-Tab

The Security sub-tab only displays in a System report when the *Show as Community Report* check box is selected. The Security sub-tab defines which users have access to the report in their Community tab. The default is for all groups to have view access, which means that the report shows in the Community tab of every user who has security access to the data within the report. If you add groups, only users who have security access to the data within the report in the specified groups see the report in the Community tab.

To remove a report from the Community tab, deselect *Show As Community Report*. If you reinstate the *Show As Community Report* check box, the prior settings display in the Security sub-tab.

Step

When available, the Security sub-tab presents the following options.

Use the **Add** action on the Security Access section bar to grant access to groups.

Step 1 Click **Add**.

Step 2 Select the check boxes of the groups for access to the report.

Step 3 Click **Accept**.

Only members of the selected groups will see the report in their Community tab.

Step 4 To delete groups, select the groups, and click **Remove**.

Step 5 Click **Save**.

Columns Tab

The appearance and purpose of the Columns tab are different for Metric reports. This section first describes the Columns tab [for non-Metric reports](#), then [for Metric reports](#).

Non-Metric Reports

The Columns tab defines which fields will be used in the report. The information in the Columns tab is organized into three sections. The *Business Object* section on the upper left indicates the source business objects. The *Columns* section on the lower left identifies which fields in the selected business object will be included in the report. The *Display Columns* section on the right specifies the order in which the selected fields will be presented and the labels used to identify them.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the General tab.

Step 1 Select the business object.

Step

Columns Section

The fields displayed in the *Columns* section depend on the business object selected.

Step 2 Select each field to include in the report.

When you select a different business object, the fields displayed in the Columns section change, but previously selected fields in the Display Columns section remain.

Display Columns Section

When you select a check box in the Columns section, the field appears in the list in the *Display Columns* section. Clearing a check box in the Columns section removes the field from the Display Columns list.

The *Field* column shows the field's label and system name.

Step 3 To change the sequence in which the fields will display, select a field's radio button and click **Move up**, **Move down**, **Move to top**, or **Move to bottom**.

Step 4 To change the label that will display for a field, edit the text in the *Report Label* text box.

Step 5 To specify a percentage of the display space for a field, specify a numerical value in the *Width* text box for the field.

Step 6 To remove a field, select its radio button and click **Remove**.

Step 7 Click **Save**.

Metric Reports

For Metric reports, the Columns tab specifies how to aggregate data for this report.

Step

Aggregation Settings Section

Step 1 On the Aggregation Settings section bar, click **Add**.

Step 2 Specify a *Label*.

Step 3 Select a *Function*.

Step

Step 4 To specify the order in which the aggregation setting applies when the metric report runs, specify a *Sequence* number.

Step 5 To specify the field upon which the aggregation occurs, select *Field1*.

Step 6 For *Target Axis*, select either *Primary Y-Axis* or *Secondary Y-Axis*.

Target Axis identifies where the aggregated data displays. Use *Secondary Y-Axis* to display a second data series next to the primary one.

Step 7 To specify a *Color* to represent this aggregation, click the Search icon .

The system offers *Basic* and *Advanced* palettes from which to select the *Color*.

When *Color* is blank, the system uses the color from the user's *My Profile* record. The default for *Color* is blank.

Step 8 Click *OK*.

Step 9 Optional: Add more aggregation settings.

Step 10 To delete an aggregation setting, select the check box and click *Delete*.

Step 11 Click *Save*.

Order & Group Tab

The appearance and purpose of the Order & Group tab are different for Metric reports. This section first describes the Order & Group tab [for non-Metric reports](#), then [for Metric reports](#).

Non-Metric Reports

The Order & Group tab defines the layout of the data in the report. You can organize the layout by group, into a specific sequence, or neither. The data, found in the left side of the *Group By* and *Order By* sections, comes from the selections made in the Columns tab.

Step

Group By Section

- Step 1** In the left column, select the field to *Group By*.
- Step 2** To move the selected field to the right column, use the Move Right arrow .
- Step 3** To arrange the fields, use the Move Up arrow  and Move Down arrow .
- Step 4** To return the selection from the right column to the left column, use the Move Left arrow .
-

Order By Section

- Step 5** In the left column, select the field to *Order By*.
- Step 6** To move a selected field to the right column, you can use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.
- Step 7** To arrange the fields, use the Move Up arrow  and Move Down arrow .
- Step 8** To return the selection from the right column to the left column, use the Move Left arrow .
-

Summary Columns Section

- Step 9** If a Sum applies to your report, select a field to be summed by checking the box in the SUM column.

Any Sum fields will have a subtotal at each Group By level. When displayed to a user, a report containing a Summary (total) row ignores the value of the Result Size property.

- Step 10** Click Save.
-

Metric Reports

The Order & Group tab defines the layout of the data in the metric. The information in the Order & Group tab is organized into three sections. The *Group By* section defines the fields that appear in the Group By area of the metric report and the graph type. The *Secondary Group By Properties* section provides a second level of group by. The *Order By* section specifies the fields by which the data will be sorted.

Step

Group By Section

Step 1 On the Group By section bar, click **Add**.

Step 2 Select the *Field*.

Field specifies the field upon which the Group By occurs.

The system pre-populates *Label* from the Field definition.

Step 3 Optional: Change the *Label*.

Step 4 Select *Hierarchy Definition*.

Step 5 To specify a *Root*, click the Search icon  and select from the choices.

Step 6 Select the *Chart Type*.

Step 7 Select the *Chart Template*.

Chart Template specifies the specific chart within the chart type.

Find *Chart Template* definitions in the Tools menu item on the first level of the menu bar. Select **Tools>System Setup>General>Chart Templates**. For more information, go to the IBM TRIRIGA 10 Knowledge Center and select *Administering IBM TRIRIGA>Reporting>Creating chart templates*.

The system displays a miniature representing the chart type and chart template.

The remaining fields in the Group By Properties form depend on the Chart Template that you selected.

When the *Chart Type* is *Bar*, the standard choices for *Chart Template* are: Horizontal Grouped Bar, Horizontal Stacked Bar, Vertical Grouped Bar, and Vertical Stacked Bar.

When the *Chart Type* is *Bar (Percent)*, the standard choices for *Chart Template* are: Horizontal Grouped Bar (percent) and Vertical Grouped Bar (percent).

When the *Chart Type* is *Line*, the standard choices for *Chart Template* are: Line and Spline.

When the *Chart Type* is *Pie*, the standard choices for *Chart Template* are: 3D Doughnut, 3D Pie, Doughnut, and Pie.

When the *Chart Type* is *Circular Gauge*, the standard choices for *Chart Template* are: Circular Bar Gauge and Circular Gauge.

Step

When the *Chart Type* is Linear Gauge, the standard choices for *Chart Template* are: Horizontal Linear Bar Gauge, Horizontal Linear Tank Gauge, Vertical Linear Bar Gauge, and Vertical Linear Tank Gauge.

When the *Chart Type* is Circular Gauge (Percent), the standard choices for *Chart Template* are: Circular Bar Gauge (percent) and Circular Gauge (Percent).

When the *Chart Type* is Linear Gauge (Percent), the standard choices for *Chart Template* are: Horizontal Linear Bar Gauge (percent), Horizontal Linear Tank Gauge (percent), Vertical Linear Bar Gauge (percent), and Vertical Linear Tank Gauge (percent).

When the *Chart Type* is Bubble, the standard choice for *Chart Template* is: Bubble.

When the *Chart Type* is Pyramid, the standard choice for *Chart Template* is: Pyramid.

When the *Chart Type* is Line-Bar Combo, the standard choices for *Chart Template* are: Line / Vertical Grouped Bar Combo and Line / Vertical Stacked Bar Combo.

Using a Bubble chart for purposes of illustration:

Step 8 If specified, the *Secondary Data Source* displays in the same chart as the primary data source. Click the Search icon  to select.

The secondary data source displays in the same chart as the primary data source for Bar, Line, and Bubble charts. For Gauge charts, the secondary data source displays as a separate gauge next to the primary gauge. For Line-Bar Combo charts, the secondary data source can be a different chart type than the primary data source.

Step 9 Click OK.

Step 10 When there is more than one group by, specify the *Default* by selecting its radio button.

Step 11 To change the sequence, click the arrows in the *Order* column to move a group by up or down in the list.

By default, the group bys appear in the presentation in the same order as they appear in the Group By section, from top to bottom.

Step 12 Click **Apply Order**.

Step 13 To delete a group by, select the check box and click Delete.

Step

Secondary Group By Properties Section

Step 14 To include a Secondary Group By, first identify the *Field*.

Step 15 Specify an appropriate *Label*.

Step 16 Select the *Hierarchy Definition*.

Step 17 To specify a *Root*, click the Search icon  and make selection.

Order By Section

Step 18 Optional: Select the field to *Order By*.

Step 19 Optional: Move a selected field to the right column. Use the Ascending arrow  for an ascending sort or the Descending arrow  for a descending sort.

Step 20 To arrange the fields, use the Move Up arrow  and Move Down arrow .

Step 21 To return the selection from the right column to the left column, use the Move Left arrow .

Step 22 Click **Save**.

Filters Tab

The appearance and purpose of the Filters tab are different for Metric reports. This section first describes the Filters tab [for non-Metric reports](#), then [for Metric reports](#).

Non-Metric Reports

The Filters tab uses fields, operators, and values to focus the results to display. The information in the Filters tab is organized into four sections. The *Business Object* section on the upper left indicates the source business objects. The *Columns* section on the lower left identifies which fields in the selected business object to use as filters. The *User Filter Columns* and *System Filter Columns* sections specify filters, so that only records with fields that contain values that meet the specified criteria are included in a report. For additional filtering, you can use the [Advanced tab](#) to filter records based on their association with other records.

The selected filters are executed sequentially from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is

specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Business Object Section

The business objects listed in the *Business Object* section are from the Business Objects sub-tab in the General tab.

Step 1 Select the business object. The fields in the selected business object display in the Columns section.

Columns Section

The fields displayed in the *Columns* section depend on the business object selected.

The columns in the Columns section are:

User: The filter value will be specified at runtime by the user. A user filter has no impact on the total results that the user sees.

System: The filter value limits the total results that the user sees. A system filter is applied by the system each time a report executes.

Field Label: The label for the field.

Field Name: The system name for the field.

Step 2 Select the check box in the User and System column for each field to be used as a filter.

The system adds the selected fields to the *User Filter Columns* section and the *System Filter Columns* section.

When you select a different business object, the fields displayed in the Columns section change but previously selected fields in the User Filter Columns section and System Filter Columns section remain.

User Filter Columns Section and System Filter Columns Section

When you select a User check box in the Columns section, the field appears in the list in the *User Filter Columns* section.

When you select a System check box in the Columns section, the field appears in the list in the *System Filter Columns* section.

Clearing a check box in the Columns section removes the field from the corresponding filter columns list.

The *Field* column shows the field's label and system name.

Any time you want to see the source of a field, hover your mouse over the hyperlinked label in the Field column.

Step

The system applies filters sequentially from top to bottom in the list.

Step 3 To change the sequence in which the filters will apply, select a field and click **Move up**, **Move down**, **Move to top**, or **Move to bottom** until each filter is ordered the way you want. Organize filters so that the filters that eliminate the most records are listed first.

Step 4 To change the label that displays for a filter, edit the text in the *Report Label* text box.

The report labels only apply if runtime filters are used, and then only if the field is not already displayed, or if the filter is a second runtime filter against the same field.

If the field is a Time field, the user must input the time in milliseconds or as a string in hh:mm:ss format.

Step 5 The choices presented in the *Filter Operator* drop-down box depend on the field type of the selected field. Select the desired comparison filter operator.

For more information about the available operators, see [Appendix A: Filter Operators](#).

For system filters:

Step 6 Select the *Conditional* option.

If you select **Yes**, the system filter is ignored in the query results when the filter input is empty.

The user provides the *Value* for user filters at runtime.

For system filters:

Step 7 Specify the *Value* that must be matched. To filter a Boolean field, use the values **TRUE** or **FALSE**.

For more information about the special values, see [Appendix B: Special Values](#).

For system filters:

Step 8 Select or deselect the *Localize* check box.

If you deselect the check box, the system filter applies the internal or non-localized value of the localizable field.

If you select the check box, the system filter treats the localizable field in the localized language of the user who runs the report.

Step

You can organize system filters in sets to further refine the order in which the filters will be applied. The join operator provides one layer of grouping.

Step 9 Select the *Join Operator*. For the first field, the choices are blank and NOT. For subsequent fields, the choices are AND, OR, AND NOT, and OR NOT.

Another layer of system filter grouping comes from the column to the right of the Join Operator column and the column to the right of the Value column. Together they provide the ability to define sets of filters. The filters in each group are applied as a unit before joining their result with the rest of the filters.

You can organize groups within groups. The innermost group will be applied first, all the way up to the outermost group.

Step 10 To organize nested filters use the selections in the numbered drop-down.

Step 11 Click **Save**.

If your filter groups are uneven, the system displays an error message and does not apply your changes. See the example in [Appendix D: Example of User Filters and System Filters](#).

Step 12 To copy an existing filter and create one with the same source, select the filter item and click **Copy**. A new identical row appears below the copied row.

The copy of a User filter appears in the User Filter Columns section. The copy of a System filter appears in the System Filter Columns section. The system clears any groupings in the System Filter Columns section.

Step 13 Adjust the values in the filter properties, as described above.

Step 14 To remove a row, select the row and click **Remove**.

If you click **Remove** and this is the only row that refers to a field in the Columns section, the system clears the field's check box in the Columns section.

If you clear the check box in the Columns section, the system removes all rows in both filter columns sections that refer to that field.

Step 15 Click **Save**.

Metric Reports

The Filters tab uses fields, operators, and values to reduce the search results to display. The entries in the Filter section define the filters applied at runtime.

The selected filters execute sequentially, from top to bottom. Plan the sequence ahead of time. Reports run faster if the filter that filters out the most records is specified first, followed by the one that filters out the next highest number of records, and so on.

Step

Step 1 Click **Add**.

Step 2 To specify the field to use as the filter, select *Field*.

The system displays fields in `SectionName::FieldName` format.

Step 3 Optional: Change the *Label* for your report.

Step 4 Select the *Hierarchy Definition*.

Step 5 To specify a *Root*, click the Search icon  and make a selection.

Step 6 Select the comparison filter operator.

For more information about the available operators, see [Appendix A: Filter Operators](#).

Step 7 Specify the *Value*.

The user specifies the filter *Value* at runtime. For more information about the special values, see [Appendix B: Special Values](#).

Step 8 Click **OK**.

Step 9 To change the sequence, click the arrows in the *Order* column and move a filter up or down in the list.

Step 10 Click **Apply Order**.

Step 11 To delete a filter, select the check box and click **Delete**.

Step 12 Click **Save**.

Advanced Tab

Using the Advanced tab, you can filter records based on their association with other records and to specify actions that users can perform on records from the presentation. Actions specified on this tab appear at the top of the presentation, along with any built-in actions.



Note - For system reports which are editable queries, the **Import State Actions** button is available and imports state family actions for use in the Actions section.



Note -Only administrative users will be able to add actions to a System Report. Non-admin users will receive a Security Warning message stating that they do not have permission to access the page.

For additional filtering, use the [Filters tab](#) to target the search results displayed using fields, operators, and values.

Step

Metric reports include the **Validate** action on the Advanced tab. You use **Validate** to debug the construction of your metric report.

Association Filters Section

Step 1 On the Association Filters section bar, click **Add**.

The system displays the Add Associations form where you can define the type of associated records by which you want to filter the results of the report.

To avoid potential report performance issues, avoid using **-Any-** for the module selection and **All** for the business object selection whenever possible.

Step 2 Select the *Module*. If it is necessary to include all modules, select **-Any-**.

Step 3 Select the *Business Object*. If it is necessary to include all business objects in the selected module, select **All**.

Step

Step 4 From the drop-down box, select the *Association Type*. This is the association type defined *from* the perspective of the filtering module and business object specified immediately above. To include all association types, select `ALL`.

Step 5 All new reports will have a *Reverse Association* set to `No`. If an existing report has a *Reverse Association* set to `Yes`, a warning message will display. If a report used in the association filter down the line has a *Reverse Association* set to `Yes`, a warning message will display. To remove the warning message, set the *Reverse Association* to `No`.

It is no longer possible to set the *Reverse AssociationFlag*. Only existing reports with the flag set will be able to show the flag in the association filter. When the *Reverse Association* is set to `No`, it is not possible to set it back to `Yes`.

Step 6 To specify which records to use to filter the result set of the report or query for which the association filter is defined, use the *Filter Type* and *Record / Query* fields.

A specific filtering record can be specified through the use of special name values. Multiple filtering records can be specified by choosing `Query` in the *Filter Type* field and then choosing a query that returns the desired filtering records in the *Record / Query* field. For more information about both of these fields, see [Appendix C: Special Names in Record Field](#), and the *Application Building for the IBM TRIRIGA Application Platform 3* book.

Step 7 Click **OK**.

Step 8 To delete an association filter, select the check box of the items to delete and click **Delete**.

Actions Section

Users can perform the actions specified in the Actions Section directly on records from the report.

Step 9 On the Actions section bar, click **Add**.

Step 10 Select the *Action Type*:

- `System Add` - Creates a new record that is the same type of record as the selected records in the presentation.
 - `System Delete` - Deletes the selected records in the presentation.
 - `Custom` - Allows actions that are related to the records in the presentation.
 - `Query` - Allows searches related to the records in the presentation.
-

Action Type = `System Add`

Step 11 If the Action Type is `System Add`, specify the internal *Name* of the action.

Step 12 Specify the presentation *Label* of the action.

Step

Step 13 If the `System Add` action requires a secondary action by the user, select *Secondary Action*.

A Secondary Action requires the user to select a second action after the primary one. Examples of secondary actions are **OK** and **Accept**.

Step 14 Click **OK**.

Action Type = `System Delete`

Step 15 If the Action Type is `System Delete`, specify the internal *Name* of the action.

Step 16 Specify the presentation *Label* of the action.

Step 17 If the `System Delete` action requires a secondary action by the user, select the *Secondary Action* check box.

A Secondary Action requires the user to select a second action after the primary one. Examples of secondary actions are **OK** and **Accept**.

Step 18 Click **OK**.

Action Type = `Custom`

Step 19 If the Action Type is `Custom`, specify the internal *Name* of the action.

Step 20 Specify the presentation *Label* of the action.

Step 21 Select the *Module* and *Form* to identify a form.

Step

When the Action Type is `Custom` and the specified action is performed, the system creates a new record of the type that is edited by the form. The physical creation of the record is followed by these optional activities in this order:

Association Type - If a value is specified for *Association Type*, an association with the specified name is created from the new record to selected records in the presentation.

Pre-Create Workflow - If a value is specified for *Pre-Create Workflow*, the specified workflow runs before the new record opens. This overrides the pre-create workflow set in the Data Modeler.

Popup - If the *Popup* check box is checked, the specified form pops up, so that someone can edit the new record and perform actions on it.

Secondary Action - If the *Secondary Action* check box is checked, the action requires the user to perform an additional action, such as **OK** or **Accept**.

Step 22 Click **OK**.

The label for the *Form* field is a hyperlink. Clicking it opens the Form Builder for editing the selected form. The label for the *Pre-Create Workflow* field is also a hyperlink. Clicking it opens the Workflow Editor for editing the selected workflow.

Action Type = **Query**

Step 23 If the Action Type is `Query`, specify the internal *Name* of the action.

The label for the *Query* field is a hyperlink. Clicking it opens the Report Builder for editing the selected query. Specify the presentation *Label* of the action.

Step 24 Select the *Module* and *Query* to identify a query.

For module-level queries, make sure that the business object fields referenced in the query are fields that are common to all business objects queried from the module.

Step 25 Click **OK**.

Step 26 To change the sequence, click the arrows in the *Order* column and move an action up or down in the list.

By default, the actions appear in the report's presentation in the same order as they appear in this list, from top to bottom.

Step 27 To edit an action, click the hyperlink in the *Action* column to open the definition of the item.

Step 28 To delete an action, select the check box and click **Delete**.

Step 29 Click **Apply**.

Where Used Tab

The Where Used tab shows what references or uses the report. The Where Used tab has two sections: Other Usage, and Workflows.

The fields displayed in the Other Usage section are: Name, Type, Module, Object, Action, Form, and Additional Information.

The fields displayed in the Workflows section are: Name, Revision, Object, Action, Status, Task, Type, and Usage. The workflows listed reference this query in a Query task. The Status, Type, and Usage columns have filters to refine the displayed information.

If you want to export the information in the Where Used tab, click the **Export Usage** action. You can save or open a `.CSV` file. Clicking the linked object opens the builder for the reference for most object types.

The following table lists the references found by Where Used.

Type	References
Business Object Field	<ul style="list-style-type: none"> ▪ Query (Display Columns, Order By, Group By, Sum, Filter) ▪ Smart Sections ▪ Locator ▪ Form ▪ Regular Formulas ▪ Extended Formulas ▪ Workflow Create Record Task (Map - Field, Source or Target)* ▪ Workflow Modify Records Task (Map - Field, Source or Target)* ▪ Workflow Schedule Task (Map - Field, Source or Target)* ▪ Workflow Conditions - Start Task, Switch Task, Break Task* ▪ Workflow Retrieve Records Task (Filter)* ▪ Workflow Create Record/Modify Records/Schedule Tasks (Map - Field as part of Expression)* ▪ Workflow Populate File Task* ▪ Workflow Distill File Task* ▪ Workflow Variable Assignment Task (Value is from an expression)*

Type	References
Form	<ul style="list-style-type: none"> ▪ Form Field Action ▪ Form Section Action - Popup Form, non Popup Form ▪ Portal Section, Record Add ▪ Navigation Item (Master Detail Report, Record Add, Master Detail Default) ▪ Navigation Item Action ▪ Navigation Item Security Override ▪ Query ▪ Query Action ▪ Workflow Modify Metadata Task* ▪ Workflow Create Task* ▪ State Transitions (Form) ▪ System Add ▪ System Delete
Query	<ul style="list-style-type: none"> ▪ Form Section Find Action ▪ Form Field Action (onClick, onChange) ▪ Form Popup Section Action ▪ Form Query Section (Query, Availability, Availability Legacy, Calendar, Gantt, Group By) ▪ Portal Section Query ▪ Scorecard ▪ Navigation Item (Master Detail Report, Record Open, Report, Master Detail Hierarchy, Scorecard) ▪ Navigation Item Dynamic Labels ▪ Navigation Item Security Override ▪ Query Action ▪ Query in a Sub Report ▪ Query in an Associated Query (Hierarchical Query) ▪ Query Association Filters ▪ Workflow Query Task* ▪ Extended Formulas
Workflow	<ul style="list-style-type: none"> ▪ Query Action (Pre-Create Workflow) ▪ Form Field Action ▪ Form Field Action (Pre Form and Post Form Workflows) ▪ Form Section Action (Pre Form and Workflow) ▪ Form Section (Select and Stack Pre-Move) ▪ Form Section (Synchronous and Stack On-Save) ▪ Form (Pre-Load Workflow) ▪ State Transition (BO Sub Action - Workflow Select)

Type	References
	<ul style="list-style-type: none"> ▪ BO (Pre-Create Workflow) ▪ Smart Section (Initialize Record) ▪ Call Workflow* ▪ Portal Section, Record Add ▪ Navigation Item (Record Add) ▪ Navigation Item Action ▪ Navigation Item Security Override
<p>* Workflow references (marked by an asterisk (*) above) note the latest workflow version containing the reference. The system checks workflows in the following statuses: Revision In Progress, Retired, Published and In Progress.</p>	

Administration

The *Administration* tab of the Report Manager contains all the reports in all My Reports tabs in the system. Most installations restrict access to the Administration tab to system administrators.

You may not have access to the Administration tab. If you have access to the Administration tab, your view may be different from that described in this user guide. Depending on your system security, you may see some or all of the features.

The column headings displayed in the Administration tab follow. To open the Report Builder definition of a report, click the hyperlink. Use the filters in the column headings to find the report of interest.

Column Heading	Description
Blank	Displays the Run Report icon  . When you click the icon, the system generates the report and displays it in a separate window.
Title	The title of the report.
Name	The system name of the report.
Tag	A name that can be filtered from the Report Manager. Use this field to build collections of related reports.
Form	The display for the report. If it is a module- or business object-level report, this field shows a comma-separated list of the forms.

Column Heading	Description
Display Type	The type of report. Values include <i>-All-</i> , <i>Report</i> , <i>Graphic</i> , <i>Summary</i> , <i>Chart</i> , <i>Hierarchy</i> , and <i>Metric</i> .
Owner	The user who built the report.
Shared Groups	Lists the groups with which the report is shared.

The actions available on the Administration tab in the Report Manager follow.

Action Name	Description
Change Owner	Changes the owner of the selected reports from one user to another.
Copy	Makes a copy of a selected report and pastes the copy into the Administration tab. The copied version has the words "Copy of" at the beginning of the Name. To copy a report, select the check box and click Copy .
Delete	Removes the selected report permanently from the Report Manager. To delete a report, select the check box and click Delete . In the delete confirmation window, click OK .
Share Report	Changes the shared groups of the selected reports.

Change Owner

To change the owner of one or more reports:

Step

Step 1 Select the check boxes of the reports to move to a different owner.

Step 2 Click **Change Owner**.

Step 3 Select the user who is the new owner of the report.

Step 4 Click **OK**.

Unless the prior owner is a member of a shared group for the reports, the system removes the reports from the prior owner's My Reports.

Share Report

Follow these steps to share one or more reports with one or more groups.

Step

Step 1 Select the check boxes of the reports to share.

Step 2 Click **Share Report**.

Step 3 Select the check boxes of the groups to have access to the report.

Step 4 Click **Accept**.

Each group receives View security access to the reports.

The change reflects in the *Shared Groups* column in the Administration tab.

The system adds the reports to the My Reports tab of all members of the shared groups.

To grant more than View security access to a shared group, or to remove a shared group:

Step 5 Click the hyperlinked name of a report.

Step 6 Select the Security sub-tab.

Step 7 Adjust the security access. For more information, read about the [Security sub-tab](#) elsewhere in this guide.

Step 8 Click **Save & Close**.

Exporting a Report

You can export the report only after it displays in the Report window. You can export the report to a specific file format (such as a Microsoft Excel spreadsheet or Microsoft Word document).

Step

Step 1 Click the Export icon  in the upper left corner of the report.

Step 2 Select the *File Format*.

Step 3 The choices in *Page Range* depend on the file format selected. Select either *All Pages* or *Select Pages* to specify the specific page numbers.

Step 4 Click **Export**.

Step

Step 5 To immediately open the file, click **Open**.

The report displays in the appropriate viewer or application.

Step 6 To save the file to a specific location, click **Save**.

Select the location to which the file will be saved.



Note - If you experience display issues with the Adobe PDF option, you might need to download and install the correct font package from adobe.com.

Generating a Form Report

The TRIRIGA Application Platform can produce a different type of report that contains the contents of a single record, including the contents of its multi-record smart sections. This type of report is called a *form report*.

HTML and BIRT Form Reports

Form reports are available in a record's Reportstab. The platform provides the data while HTML or BIRT is used to provide the presentation.

This section focuses on HTML form reports. For more information about BIRT form reports, see the [IBM TRIRIGA Advanced Reporting](#) chapter.

The contents of a form report are based on the contents of a record in a business object. If an HTML form report is to include rows of data from associated records, the business object must have a multi-record smart section from which the form report can take the rows of data. HTML form reports cannot take data from query sections. However, BIRT can display data from query sections.

The steps to configure an HTML form report follow:

- [Download Form Template](#)
- [Format Form Template](#)
- [Install Form Template](#)
- [Present Form Template](#)

Download Form Template

Begin by navigating to the Form Builder and selecting the form on which to base the form report. Follow these steps in the Form Wizard:

Step

To select the form, specify the fields and download the form template:

Step 1 From the Form Builder, select the form on which to base the form report.

Step 2 On the Layout tab of the form, click **Report Header**.

Step 3 Select the fields you want to include.

Use the Export form to select the fields you want to include in the form report. The Export form has a check box for every field in every section of the business object, except query sections.

For a smart section, it also contains every section and field of the business object associated with the smart section.

Step 4 To rearrange the fields, use the Move Up arrow  and Move Down arrow .

Step 5 To download the HTML form template, click **Export**.

Step 6 Save the file.

Even though the HTML form template you download from the TRIRIGA Application Platform has a `.doc` extension, it is actually an HTML file. You could change the file extension from `.doc` to `.html` when you save the file.

Open and edit the file with an HTML editor. For example, you could use Word or Excel. If you use Word or Excel, be sure to save the file in web page format or HTML format. If you save the file as a Word or Excel file, the IBM TRIRIGA Application Platform cannot generate a form report from it.

Format Form Template

The downloaded file is a template for a form report containing data tokens that represent the fields you selected. At this point, you can use most HTML formatting tags to control the appearance of this report.

After you edit the HTML form template and install the edited template in the TRIRIGA Application Platform, the platform uses the template to generate a form report by substituting actual data values in place of the data tokens.

Step

Step 1

Open the file with your HTML editor.

Within the raw HTML is a data token that corresponds to each field. The data token begins and ends with two percent (%%) signs.

You use the data tokens to identify where in the form report the value for a particular field should appear.

The Export window does not provide a way to generate a data token for a number field's unit of measure. You can create such a data token yourself by adding `_uom` to the text of the number field's data token. For example, if a number field's data token is `%%General_Count%%`, the data token for the number field's unit of measure is `%%General_Count_uom%%`.

Step 2

Using most standard HTML tags, add surrounding text and formatting so that when the TRIRIGA Application Platform does its substitution, it looks like the form report you want.

Step 3

You can format data tokens that correspond to fields in a General section or in *single-record* smart sections in any way that you prefer.

There is a rule regarding what works for data tokens that correspond to fields in *multi-record* smart sections. Data tokens that correspond to fields in the same multi-record smart section should be in the same row of the same table but each one in a different column. This is because the TRIRIGA Application Platform will provide as many different substitutions for these data tokens as there are records in a smart section. If you do not follow the rule, it is likely that the form report will not look the way you intended.

Step 4

Save the file with an `.html` extension.

Next, you need to install the edited form template in the IBM TRIRIGA environment. There are two parts to this installation:

- [Install Form Template](#) - Bring your HTML template file into the IBM TRIRIGA environment using the Document Manager.
- [Present Form Template](#) - Arrange for your file to be use as a template for your records.

Install Form Template

After editing your form template, use the Document Manager to place the template file in the IBM TRIRIGA environment. The Document Manager is described more completely in the IBM TRIRIGA 10Knowledge Center under *Managing documents*.

The following procedure provides an example based on an application named “Facilities Management”.

Step

To prepare the folders and install the template file using the Document Manager:

Step 1 Open the Document Manager.

If you have not previously used the Document Manager to manage any files related to your application (for example, a Facilities Management application), folders related to Facilities Management will not be present, and you must create them.

In the Document Manager, there must be a folder (for example, Facilities Management) under the root folder for each application.

If the only files that the Facilities Management application will have are templates for its form reports, name the folder the same as the name of the application followed by the word “Forms” (for example, Facilities Management Forms).

Otherwise, create a folder with the same name as the application (Facilities Management) and a separate sub-folder (Facilities Management Forms) for the form report templates.

Step 2 If there is no folder for your application, create one:

- Select the *Document Management* folder.
 - Select **New Folder**.
 - Specify a *Name* (for example, Facilities Management) and (optional) description for the folder.
 - Click **Create**.
 - Click **Save & Close**.
-

Step 3 To create a sub-folder:

- In the left pane, select the *Facilities Management* folder.
 - Click **New Folder**.
 - Specify a *Name* (for example, Facilities Management Forms) and (optional) description for the folder.
 - Click **Create**.
 - Click **Save & Close**.
-

Step 4 Expand the *Facilities Management* folder.

Step 5 Click the *Facilities Management Forms* folder to select it.

Step 6 Select **New Document**.

Step

Step 7 Optional: Specify a name, number, description, and comment for the document.

Step 8 Click **Browse** to locate and select your HTML template file.

Step 9 Click **Upload** to upload the file to the IBM TRIRIGA Application Platform environment.

Step 10 When the upload process completes, click **OK**.

Step 11 In the right pane of the Document Manager, select the hyperlinked name of the file to edit its properties.

Step 12 Select the Description tab.

Step 13 In the Description tab, select the *Report* check box.

Step 14 Click **Publish**.

Present Form Template

There are three ways to make a form report template file available as a form report. The form report can be presented: 1) in its own tab, 2) in a report section of a form, or 3) embedded in an email. This section focuses on a form report presented in its own tab. For information about report sections or email, see the *Application Building for the IBM TRIRIGA Application Platform 3* book.

To make a form report template file available as a form report in its own tab, you must do two things:

- Ensure that a form used to edit the records has a Reports tab.
- Associate the template file with the Reports tab.

Begin by navigating to the Form Builder and selecting the form on which the form report is based. This causes the Form Wizard to open. The following procedure uses a form named Facilities. The edits you need to make are on the Layout tab.

Step

To make a form report template file available as a form report in its own tab:

Step 1 From the Form Builder, select the form (for example, Facilities) on which the form report is based.

Step 2 In the Layout tab, if the form is not in an editable state, click **Revise**.

Step 3 In the Navigation panel, select the form name (for example, Facilities) at the root of the tree.

Step

Step 4 In the Properties panel, to cause the form to display a Reports tab, select *Show Reports*.

Step 5 Click **Apply**.

To associate the form report template with the Reports tab:

Step 6 Select the Includes/Forms tab.

Step 7 On the Forms section bar, click **Add** to add.

Step 8 Search for and select your form report template (for example, Facilities).

Step 9 Click **OK**.

Step 10 Optional: Specify the *Label* to use to select the template.

If there is more than one template listed in the Forms section, when a user views the Reports tab of the form, the user first sees a list from which to select a template. The labels specified for the templates are what appear in this list. If only one template displays in the section, when a user views the Reports tab of the form, the user immediately sees the form report based on the template.

Step 11 Return to the Layout tab and click **Publish**.

3. IBM TRIRIGA Advanced Reporting

If you need a report presentation that is beyond the capabilities of the IBM TRIRIGA Report Manager, you can use the IBM TRIRIGA Advanced Reporting feature. This feature uses the Eclipse BIRT application as its enabling technology, and an IBM TRIRIGA plug-in for the BIRT application.

There are two different types of advanced reports: form reports and query reports. Form reports most often display the contents of a single record. Query reports most often display multi-record reports. You can use the IBM TRIRIGA Advanced Reporting feature to create form reports as well as query reports.

The BIRT application is a popular, open-source reporting tool that offers rapid report development and has powerful formatting capabilities. The BIRT application layout is grid-based, and every element must exist in an element of the BIRT layout grid. Grid layouts automate the tasks of aligning report elements onto lines, aligning elements vertically into columns, and sizing the columns to fit the contents. Grids also make it easy to create a report by dragging elements into the report design.

Before you can develop BIRT reports for an IBM TRIRIGA application, you must install the BIRT Report Designer and configure it to work with IBM TRIRIGA.

Install the BIRT Application

You need to install the BIRT Report Designer only once on a report writer's computer. Before you begin the installation, ensure that a supported version of the Java JRE is installed locally. For the supported versions, see the Client Compatibility section of the IBM TRIRIGA Support Matrix:

<https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/IBM+TRIRIGA1/page/Client+Compatibility>

To install the BIRT Report Designer:

- Step 1** Go to BIRT 4.3.1 in the IBM Integrated Service Management (ISM) library website:
<http://www.ibm.com/software/ismlibrary?NavCode=1TW10MA5K>.
- Step 2** Download the BIRT Report Designer - All-in-One version to a local directory. The directory name cannot include any spaces
- Step 3** In the folder where you downloaded BIRT, unzip the `birt-report-designer-all-in-one-4_3_1.zip` file, open the Eclipse folder, and double-click the `eclipse.exe` file.

Step 4 Select the Workplace location where Eclipse will store your project files and information and click **OK**.

Configure a BIRT Process Server

You can specify that BIRT reports be offloaded and processed by a separate BIRT process server, which is a second IBM TRIRIGA server that you configure as the BIRT process server. If you do not configure a separate process server, the BIRT report processing is done on the application server.

To designate an IBM TRIRIGA server as a BIRT process server:

Step 1 Locate the `TRIRIGAWEB.properties` file.

Step 2 Set the `BIRT_PROCESS_SERVER_LISTENING_PORT` property to the TCP port that will handle the communication that occurs between the two IBM TRIRIGA servers. The server listens for BIRT requests on this port.

For example, `BIRT_PROCESS_SERVER_LISTENING_PORT=47074`

By default, this property value is blank, which means that all processing is done on the application server.

Step 3 Set the `BIRT_PROCESS_SERVER_HOST_NAME` property to the host name or IP address of the BIRT process server.

For example,

`BIRT_PROCESS_SERVER_HOST_NAME=BIRTProcessServerHostName.`

By default, this property value is blank, which means that all processing is done on the application server.

Step 4 Set the `BIRT_PROCESS_SERVER_PORT` property to the listening port that you configured on the BIRT process server.

For example, `BIRT_PROCESS_SERVER_PORT=47074.`

By default, this property value is blank, which means that all processing is done on the application server.

Step 5 Save the `TRIRIGAWEB.properties` file.

Step 6 Restart the BIRT process server.

Install the IBM TRIRIGA Plug-In

You need to install the IBM TRIRIGA plug-in for BIRT on a report writer's computer.

To install the plug-in:

- Step 1** Open the BIRT application, and navigate to Help > Install New Software.
- Step 2** In the Work With field, specify the URL to the IBM TRIRIGA plug-in software site: `http://[server:port]/[context path]/eclipse`, where `[context path]` is required only if the server is configured with a context path.
- Step 3** Select IBM TRIRIGA BIRT Features.
- Step 4** Select the Details.
- Step 5** Click Next.
- Step 6** Review the Install Details and click Next.
- Step 7** Review and accept the licenses, and click Finish.
- Step 8** When prompted, restart the BIRT application.
- Step 9** In the Workspace field, select the workspace and click OK.
- Step 10** When the Eclipse application opens, select Window > Preferences and select IBM TRIRIGA BIRT Preferences.
- Step 11** Specify the information for connection to the IBM TRIRIGA server:
- *IBM TRIRIGA App Server*: Path used for communication to the IBM TRIRIGA Application Server, in the format `http://[server:port]/[context path]/remote`, where `[context path]` is required only if the server is configured with a context path.
 - *Username*: User name to access the IBM TRIRIGA Application Server.
 - *Password*: Password to access the IBM TRIRIGA Application Server.
 - *Project ID*: [Optional] Project ID to specify that the system runs reports in a particular project context. This specification can be useful when you perform BIRT-Eclipse previews for Active Project query reports.
- Step 12** Click Test Connection.
- Step 13** In the Connected dialog box, click OK.
- Step 14** Click OK.
- Step 15** To have BIRT notify you of updates, select Windows > Preferences.
- Step 16** Expand the Install/Update folder, and select *Automatic Updates*.
- Step 17** In the right pane, select Automatically Find New Updates and Notify Me.

Step 18 Select the Update Schedule, Download Options, and When Updates are Found options.

Step 19 Click **Apply**, and click **Update**.

Upgrade the IBM TRIRIGA Plug-In

When a new IBM TRIRIGA release is available, you need to update the IBM TRIRIGA plug-in inside the BIRT Eclipse environment. You need to install the IBM TRIRIGA plug-in for BIRT on a report writer's computer.

To upgrade the plug-in:

Step 1 Open the BIRT application, and navigate to Help -> About Eclipse.

Step 2 Select About Eclipse.

Step 3 Click **Installation Details**.

Step 4 In the Installed Software tab, select IBM TRIRIGA BIRT Feature.

Step 5 Click **Update**.

Report Writer Flow

The typical steps that a report writer takes to develop and deploy an IBM TRIRIGA BIRT report include:

Step 1 [Create a starter report in IBM TRIRIGA](#).

Step 2 [Import a starter report to the BIRT Report Designer](#).

Step 3 [Develop a BIRT report](#).

Step 4 [Preview a BIRT report](#).

Step 5 [Export a BIRT report](#).

Step 6 [Upload a BIRT report to IBM TRIRIGA](#).

Step 7 [Associate the BIRT report to an IBM TRIRIGA access point](#).

Create a Starter Report in IBM TRIRIGA

You download the starter report files from the IBM TRIRIGA application. These files contain an entire starter report, not just data sources. You model a new report from either an existing IBM TRIRIGA Report/Query or an IBM TRIRIGA Form.

Create a Starter Report from an IBM TRIRIGA Query Report

You can create a starter report by modeling it from a new or existing IBM TRIRIGA query report.

Query reports can contain data from any number of top-level records. They can also contain multiple levels of detail that are accessible through associated business objects and records. Most often, query reports display multi-record reports.

To create a starter report:

- Step 1** In the IBM TRIRIGA Report Manager, navigate to the report or query to use as a model.
- Step 2** Select the Advanced tab.
- Step 3** Select the BIRT Report link.
- Step 4** At the prompt, click **Save**.
- Step 5** Select the starter file download location and click **Save**.

The zipped starter report file contains the following files:

- The starter report design. This file has an extension of `.rptdesign`.
- Labels that you can use in the report. This file has an extension of `.tririgalabels.properties`.

Create a Starter Report from an IBM TRIRIGA Form

You can create a starter report by modeling it from a new or existing IBM TRIRIGA form.

Form reports typically contain data from one top-level record. They may contain data from one or more associated records. Users can select form reports in a record's Reports tab.

You can also run a form report to display the form for multiple top-level records. This is called a bulk report.

To create a starter report from an existing form:

- Step 1** In the IBM TRIRIGA Form Builder, select the Layout tab.
- Step 2** Select the BIRT Report link.
- Step 3** At the prompt, click **Save**.

Step 4 Select the starter file download location and click **Save**.

The zipped file contains the following files:

- The starter report. This file has an extension of `.rptdesign`.
- Labels that you can use in the report. This file has an extension of `.tririgalabels.properties`.

Import the Starter Report into BIRT

You import the starter report from IBM TRIRIGA into the BIRT Report Designer (Report Design window). As an alternative to the following procedure, if your zip extraction tool allows it, you can open the `.zip` file directly and drag the files into a particular report project in the BIRT Report Designer's Navigator pane.

To import the starter report into BIRT:

Step 1 In BIRT, you need a report project to use for this starter report.

- If you already have a report project to use for this report, go to Step 2.
- To create a report project:
 - Select **File > New > Project**.
 - Expand the **Business Intelligence** folder, select **Report Project** and click **Next**.
 - Specify a project name and click **Finish**.

Step 2 In the Report Design window, select the Navigator tab.

Step 3 Right-click the project and select **Import**.

Step 4 Expand the **General** folder, select **Archive File**, and click **Next**.

Step 5 Select the `.zip` file that you downloaded in the [Create a Starter Report in IBM TRIRIGA](#) section, and click **Finish**.

Step 6 Verify that the starter report displays in the Navigator tab.

An imported starter report contains the following:

- One data source
- One or more data sets
- Zero or more data set parameters for each data set
- Zero or more report parameters, each one corresponding to a data set parameter
- Link to the `tririgalabels.properties` file in the Report Layout Resource section of the Report Designer

Develop a Report in BIRT

To develop a BIRT report, you use the BIRT Report Designer to modify the imported `.rptdesign` file. The BIRT design specifics are beyond the scope of this guide. For detailed information about developing a BIRT report, see the Eclipse - BIRT documentation.

When you develop a report in BIRT, be aware of the following IBM TRIRIGA/BIRT-specific information.

Data Source

All data access in a BIRT report is through data sources. A starter report includes a single data source named TRIRIGA. TRIRIGA is a scripted data source and all data sets that obtain their data from an IBM TRIRIGA server need to use this data source. Use this data source as much as possible for all your data access because it goes through the IBM TRIRIGA meta-layer and includes built-in business logic around security and other features.

If the TRIRIGA data source does not provide all the needed data, you can use any of the data access methods that BIRT supports, including JDBC and XML. For direct database access to the TRIRIGA database, you can use a JDBC data source. You must add this data source manually, and it must be named TRIRIGA_DB. By naming it TRIRIGA_DB, at runtime the IBM TRIRIGA Platform dynamically modifies the report so that it interacts with the IBM TRIRIGA database associated to the server within which the report is running.

To connect to a database:

- Step 1** In BIRT, select the Data Explorer tab.
- Step 2** Right-Click the **Data Sources** and click **New Data Source**.
- Step 3** Select *JDBC Data Source*.
- Step 4** In the *Data Source Name* field, specify TRIRIGA_DB. The value "TRIRIGA_DB" is required.
- Step 5** Click **Next**.
- Step 6** Optional: Select the *Driver Class*.
- Step 7** Specify the *Database URL*, *User Name*, and *Password*.
- Step 8** In the *JNDI URL* field, specify `jdbc/local/Datasource-TRIRIGA-data`.
- Step 9** Click **Finish**.
- Step 10** In the left pane, right-click **Data Sets**, and click the new data set name.

Step 11 Specify the SQL statement.

Step 12 Optional: Add the parameters.

Step 13 Click **Finish**.

Data Sets

A starter report contains at least one data set. This data set models the IBM TRIRIGA report or form from which the BIRT Report was originally created. The name of the data set is encoded to represent the IBM TRIRIGA report or form. For example, a data set that models the report *triFiscalPeriods_-_Find_-_Years* is named `[v2QRY]Classification_triFiscalPeriods_triFiscalPeriods_-_Find_-_Years`.

Query Reports

A starter report exported from an IBM TRIRIGA query has exactly one data set. This data set has columns that correspond to display columns in the IBM TRIRIGA query. For example, the IBM TRIRIGA report *triFiscalPeriods - Find -Years queries* has a particular set of display columns (Name, Start Date, End Date, and Hierarchy Path), so the data set in the starter report has those fields exposed as output columns of the data set.

Form Reports

A starter report exported from an IBM TRIRIGA form can have multiple data sets. Exactly one data set exists in the starter report with a prefix of `[v2BO]`. This data set represents the top-level data of the form and has columns corresponding to the business object fields for the form's top-level business object. The built-in `system__recordIds` input parameter controls the records to retrieve.

Every Smart Section in the form's business object is represented as a data set with a prefix of `[v2SS]`. These Smart Section data sets have columns that correspond to the business object fields in those sections. The built-in `system__parentRecordId` input parameter controls the data to retrieve for this data set.

Every Query Section in the form is represented as a normal query data set with a prefix of `[v2QRY]`. The built-in `system__parentRecordId` input parameter controls the data to retrieve for this data set.

In the starter report, the `system__parentRecordId` input parameters are not bound to the top-level business object data set. You must bind the parameters inside the report layout. For more information, see the [Subreports](#) section.

Organization Access

To present data in a report from the system's root organization record, you can use the BIRT custom function named `getRootOrganizationId()`. This function returns the ID of the root organization. You can pass the value to the `system__recordIds` input parameter of an organization business object data set.

Project Access

To present data in a report for a Capital Project that a particular record resides within, you can use the BIRT custom function named `getProjectIdForRecord()`. When provided with a particular record ID, this function returns the ID of the Capital Project that the record resides within. If the result is NULL, it indicates that the record is at the Company Level, not in a Capital Project. You can pass a non-null result value to the `system__recordIds` input parameter of a project business object data set.

Event Handler

In a starter report, every IBM TRIRIGA-BIRT Data Set has an event handler named `com.tririga.platform.birt.dataset.TriDataSetEventHandler`. All IBM TRIRIGA BIRT data sets require this event handler, which has the code needed to retrieve the data at runtime. Do not change the event handler.

Performance Consideration

If you need data from multiple business objects, join the business objects into a single multi-business-object IBM TRIRIGA query rather than using BIRT to join the results of multiple IBM TRIRIGA queries.

Data Types

To preserve IBM TRIRIGA data in its most useful form, the system returns all business object field data from IBM TRIRIGA in the form of Java Objects.

IBM TRIRIGA data types include the following:

DateTime Example:

IBM TRIRIGA has a built-in approach to format date time strings by looking at the date time mask in the current user's profile record. By returning IBM TRIRIGA DateTime to BIRT as a Java object, IBM TRIRIGA makes both elements (the native DateTime and the preferred format of an IBM TRIRIGA DateTime) available to you. This provides a reasonable default behavior of displaying the DateTime according to the IBM TRIRIGA user preferences and allows you access to the native DateTime object in the event you need to work with the DateTime in a more structured way (for example, group by Year).

Number Example:

Most IBM TRIRIGA numbers have unit of measures associated to them and the IBM TRIRIGA unit-of-measure definition metadata specifies how to display a number of each type. By returning an IBM TRIRIGA Number to BIRT as a Java Object, IBM TRIRIGA makes both elements (the native BigDecimal and the IBM TRIRIGA-suggested display format) of an IBM TRIRIGA Number available to you. This provides a reasonable default behavior of displaying the Number in the IBM TRIRIGA-configured format and allows you access to the native BigDecimal object in the event that you need to work with the value in a more structured way (for example, sum all the values).

Java Objects

All starter reports have all of the output columns modeled as Java Objects. Using Java objects as the data types for IBM TRIRIGA data provides you with increased flexibility in developing reports.

When you use Java objects, keep the following in mind:

- When you look at a data set in the BIRT Report Designer, you cannot look at the Type column to see the data type.
- When you use a native value in the report, you need to know the BIRT Type to map it to.
- Frequently use of native values requires more scripting.

When you drag an IBM TRIRIGA element directly onto a report, the element displays in the report.

To use the output column for something other than display, you can:

- Access the output column's native SQL value in any BIRT expression by using the object's `getNativeValue()` method. For example, in the Expression Builder, you can type `row["Classification_triFiscalPeriods_triStartDA"].getNativeValue()`.
- If the Java object has additional methods, you can access them by using any BIRT expression. When binding one of these expressions results to a report element, select the appropriate BIRT native type in order to access all the built-in BIRT functionality.

When you put the output column on the report, BIRT automatically calls the `toString()` method and renders the result. To access the native value, you need to write a minor script like the following:

```
row["Classification_triFiscalPeriods_triStartDA"].getNativeValue()  
()
```

When you export a starter report, all data is mapped to Java Objects inside BIRT. Every Java Object minimally has the `getNativeValue()` and `toString()` methods.

The following table provides information for additional methods, by business object field type.

Business Object Field Type	getNativeValue() Result	Considerations for toString()	Additional Methods	Suggested BIRT Binding if Native Value Used
Text	java.lang.String	N/A	N/A	String
Number Financial Rollup	java.math.BigDecimal	UOM metadata and BO Field masks	getUom().getUom TypeCode() getUom().getUom Value() hasUom() returns false if there is no UOM.	Decimal
Classification Rollup	java.math.BigDecimal	BO Field masks	N/A	Decimal
Date	java.sql.Date	User's timezone and preferred display format	N/A	Date
DateTime	java.sql.Date	User's timezone and preferred display format	N/A	Date Time
Time	java.sql.Time	Displays as hours/minutes/seconds with no timezone considerations (more like a duration than a SQL time).	N/A	Time (For meaningful results from this native value, use it in the context of a GMT* calendar.
Locator	java.lang.String	N/A	N/A	String

Business Object Field Type	getNativeValue() Result	Considerations for toString()	Additional Methods	Suggested BIRT Binding if Native Value Used
Duration	java.lang.Long (A single value that encodes the various Duration components in to a single value. It is stored in the IBM TRIRIGA database to represent a particular duration value. Be careful when using this value for anything because it may not represent the total number of milliseconds for the particular duration.)	Formats using IBM TRIRIGA-preferred format (e.g. 2 weeks, 3 days) and considers user's language	N/A	Decimal
Classification	java.lang.String (non-translated value)	BO Field option full hierarchy path and user's language	N/A	String
List	java.lang.String (non-translated value)	User's language	N/A	String
Boolean	java.lang.Boolean	N/A	N/A	Boolean
Image	byte[]	Returns path to image as stored in IBM TRIRIGA database (e.g. //Company-1/file1309476206460.gif)	N/A	Image
Binary	byte[]	String representation of the content ID, the key of the DM_CONTENT table	N/A	Blob

Business Object Field Type	getNativeValue() Result	Considerations for toString()	Additional Methods	Suggested BIRT Binding if Native Value Used
UOM	java.lang.String (non-translated value, same as getUomValue())	getUomValue() translated to the current user's language	getUom().getUomTypeCode() getUom().getUomValue() getUomValue() is NULL if there is no value	String
Password	java.lang.String	N/A	N/A	String
SystemField_BoRecordId	java.lang.Long	N/A	N/A	Decimal
SystemField_FormId	java.lang.Long	N/A	N/A	Decimal
SystemField_ModifiedDate Time	java.sql.Date	User's timezone and preferred display format	N/A	Date Time
SystemField_CreatedDate Time	java.sql.Date	User's timezone and preferred display format	N/A	Date Time
SystemField_ModifiedDate TimeNumber	java.sql.Date	User's timezone and preferred display format	N/A	Date Time
SystemField_CreatedDate TimeNumber	java.sql.Date	User's timezone and preferred display format	N/A	Date Time
SystemField_ProjectId	java.lang.Long	N/A	N/A	Decimal
SystemField_BoTypeId	java.lang.Long	N/A	N/A	Decimal
SystemField_Parent	java.lang.Long	N/A	N/A	Decimal

* The following example is an expression that gets the Minute value from an IBM TRIRIGA Time's native-value:

```
importPackage(Packages.java.util)

sqlTime = dataSetRow["loTestQuery__MainBO_____qtTime"].getNativeValue()

cal = Calendar.getInstance(new SimpleTimeZone(0, "GMT"))

cal.setTimeInMillis(sqlTime.getTime())

cal.get(Calendar.MINUTE)
```

Parameters

In IBM TRIRIGA, query/report input parameters filter the data returned from the defined query. In the IBM TRIRIGA Report Manager, you use the User Filters area in the Filters tab to configure the query/report filters. Filtering the data as much as possible in the Report Manager allows BIRT to deal with as little data as possible.

If a BIRT data set models an IBM TRIRIGA query and that query has user-input filters, each filter displays in two places in the starter report:

- In the Data Explorer tab, as a top-level entry in the Report Parameters folder. This top-level report parameter defines the user prompt that displays prior to the report execution.
- In the Parameters section, as a parameter of the data set that models the IBM TRIRIGA query. This entry passes the report parameter value specified by the user to the data set.

When a filter is required, the IBM TRIRIGA Query user filter presents as a user prompt when the report executes, then passes through to the IBM TRIRIGA query engine, filtering the results based on the IBM TRIRIGA query definition.

The default label for these fields is the Business Object Field's label. You may want to add a custom label and Help Text for these report parameters.

If a report has multiple user filters on the same field (for example, Start Date (`triStartDA` with a Filter Operator of More Than or Equals), and Start Date (`triStartDA` with a Filter Operator of Less Than or Equals)), they will both appear in the report. BIRT uniquely identifies them with a suffix corresponding to their position in the query. For example, a parameter named `Classification_triFiscalPeriods_triStartDA`, and a parameter named `Classification_triFiscalPeriods_triStartDA_2`.

When you work with filters and parameters in a BIRT report, be aware that:

- BIRT provides no means to differentiate between a filter to ignore and a NULL filter value. IBM TRIRIGA supports ignoring a filter, so if you select NULL for a report parameter that maps to an IBM TRIRIGA query filter, the IBM TRIRIGA system ignores the filter.

- For Text parameter types, you can specify a value of NULL and the IBM TRIRIGA query engine treats the filter value as NULL.
- The IBM TRIRIGA-BIRT integration does not process the Time parameter filter correctly if it is set as a Time data type. The TRIRIGA BIRT viewer does not display an error, but it does not filter the results properly. For correct results, use a String data type for the Time parameter.
- The IBM TRIRIGA-BIRT integration does not process non English date/date time formats on Date and Date Time filter parameters correctly if they are set as a date or date time types, respectively. For correct results, use a String data type for the Date and Date Time filter parameters.

Context

A data request from IBM TRIRIGA needs context. Current user is required context for the request. There may also be record and project context.

User

The BIRT preview environment provides the user context from the IBM TRIRIGA BIRT Preferences.

The IBM TRIRIGA runtime environment implicitly gets the user context from the currently signed-in user.

Record

In both the BIRT preview and IBM TRIRIGA runtime environments, record context passes through the BIRT report as a report parameter and down to the data sets.

Be aware of the following:

- A starter report for a query has a non-required, hidden *system__parentRecordId* report parameter. For the query data set, it has a *system__parentRecordId* input parameter. When the report executes, if a non-zero value is passed through the parameter to IBM TRIRIGA, it becomes the \$\$RECORDID\$\$ value when the IBM TRIRIGA query runs.
- A starter report for a form has a required report parameter named *system__recordIds*. This is a comma-delimited list of record ids that the form report renders. You can use multiple IDs for the bulk-reporting requirements.
- In a BIRT preview environment, a prompt asks for the *system__recordIds* value in order to preview the form report. For example, *system_recordIds* 1590609, 1345105, 1295530.
- Even though the report has a parameter configured as not-hidden in the report definition, this particular prompt does not present inside an IBM TRIRIGA

runtime environment because the IBM TRIRIGA runtime environment provides the value.

Project

In the BIRT preview environment, you can specify a project context in the IBM TRIRIGA BIRT Preferences using the Project ID input. The BIRT preview environment uses the Project ID input to provide project context for any IBM TRIRIGA requests.

In the IBM TRIRIGA runtime environment, the project context uses standard IBM TRIRIGA conventions of looking at both the Home Page project context and any applicable parent record.

System Fields

Some fields built in to a BIRT report are not backed by IBM TRIRIGA Business Object fields. These are system fields, with special names that have special meaning to the IBM TRIRIGA-BIRT integration.

System Field	Where Used	Description
system__recordIds	Data Set Input Parameter for Business Object data sets Report Input Parameter for Form Reports	Comma-delimited list of record IDs that control the records returned from Form reports. Required if you do not use the <code>system_recordId</code> input parameter.
system__recordId	Data Set Input Parameter for Business Object data sets	Numeric value representing a single record to return from a Business Object data set. For a query report, this field is required. For a form report, this field is required if you do not use the <code>system_recordIds</code> input parameter.
system_parentRecordId	Data Set Input Parameter for query data sets Data Set Input Parameter for smart section data sets Report Input Parameter for Query Report	Provides record context to reports and data sets. For Smart Sections, this is a required value that controls which record's section data to return. For Query data sets, this drives <code>\$\$RECORDID\$\$</code> and <code>\$\$PARENT</code> variables used within an IBM TRIRIGA Query definition.

System Field	Where Used	Description
system__recordId	Output Column for all types of IBM TRIRIGA data sets	Every IBM TRIRIGA data set has an output column named <code>system_recordId</code> . This column contains the record ID of the returned record. The only case where this column is returned with a NULL value is for a non-pass through reference with modify smart section. In that case, there is no backing IBM TRIRIGA record.
system__sourceRecordId	Data Set Output Column for smart section data sets	Every smart section data set has an output column named <code>system_sourceRecordId</code> . This value holds the data that a smart section record was initialized from, the source record. For some section types, this helps to differentiate the section record from the source record.

Globalization

The starter report and the IBM TRIRIGA-BIRT integration have features to assist with the globalization of reports. Before you export labels for BIRT reports, make sure that these reports are set up in IBM TRIRIGA. For more information, go to the IBM TRIRIGA Application Platform 3 Knowledge Center and select *Administering IBM TRIRIGA Application Platform > Globalizing applications*.

Sub-reports

The IBM TRIRIGA-BIRT interface supports one-to-many nesting of IBM TRIRIGA data sets. You can build the sub-reports into the top-level report or have them reside in separate reports (separate `.rptdesign` files).

For example, a report might need to show purchase order headers and, for each header, to show the line items for that particular purchase order. In this case, the purchase order line items display as a sub-report of the purchase order header data.

Single Report

You can build sub-reports into the same report (`.rptdesign` file) as the main report. A single report might show fiscal years and fiscal quarters, where fiscal years are the parent records and the report displays the fiscal quarters for each fiscal year. Fiscal years appear on the left side and each year's quarters appear on the right side.

Be aware that:

- The parent data set has the record's ID returned on each result. This functionality is built in to all IBM TRIRIGA query data sets as part of every starter report.
- The child IBM TRIRIGA query filters results based on the parent record.
- The child data set takes a parent ID as a parameter. All IBM TRIRIGA query data sets include this functionality as part of every starter report. Be aware that if BIRT sends a `system_parentRecordId` with its default value of 0, the IBM TRIRIGA system ignores it.
- In the report layout's child table, the Data Set Parameter Binding binds the parent record's ID to the child data set's input parameter.

Separate Report Files

You can build sub-reports into different `.rptdesign` files. For example, you can show all fiscal years in a single list, and use a hyperlink to take the user to a pop-up of the quarters for the selected year. In this case, the Fiscal Quarters is a separate `.rptdesign` file.

Be aware that:

- At the top-level of any zipped file that you import back into IBM TRIRIGA, there must be at most one `.rptdesign` file. This tells IBM TRIRIGA runtime which `.rptdesign` file to use when a report or form references the zipped file. Any sub-reports in other `.rptdesign` files must be in a child directory. For example, if the sub-report exists in a child directory named `Subreports`, the name of the directory is unimportant as long as the sub-report files are not at the top level of the project.
- When you configure the hyperlink, the `system__recordId` from the top-level report (for example, Fiscal Years) must be bound to the `system__parentRecordId` report parameter of the sub-report (for example, Fiscal Quarters).

Performance Considerations

When you use the nested IBM TRIRIGA query approach to implement sub-reports, it is important to understand that the child IBM TRIRIGA query re-executes for each parent record. For example, if the report presents 50 fiscal years, 50 queries will execute to get the fiscal quarters, one for each fiscal year.

Consider the following factors when you design sub-reports:

- **The requirements:** For a particular report, is it more important to get the entire report to the user as quickly as possible or is it more important to minimize impact (CPU and memory) on the BIRT engine? If minimizing CPU and memory impact is of critical importance, the nested IBM TRIRIGA query

approach could be a good option since it places most of the burden on the database.

- **The anticipated number of parent records:** When a child query will execute once for each parent record, the anticipated number of parent records becomes a very important design consideration.
- **The complexity of the child query:** If the child query is very complex, running it repeatedly may be overly-taxing to the database.

Alternatives to the nested IBM TRIRIGA query approach include:

- Use IBM TRIRIGA multi-business object queries combined with a BIRT grouping. For example, a single IBM TRIRIGA multi-business object query might join Fiscal Years and Fiscal Quarters. The BIRT report could then group on Fiscal Year, and display the quarters for each year.
- Fetch all the fiscal years and quarters at once, one query each, and then join them inside the BIRT report. For example, you could display the parent records from the Fiscal Years data set and display the child records (such as quarters) from the in-memory join on years and quarters.

Custom Functions

Custom functions assist you with particular use cases. The custom functions reside in the TRIRIGA sub-category of the BIRT Expression Builder.

The following table describes the custom functions.

Name	Description	Inputs	Return
formatNumber	Uses IBM TRIRIGA to format a Number.	number - BigDecimal: Number value to format unitOfMeasure - TriResultUom: Unit of Measure on which to base formatting. Can use a NULL value if no UOM is available, but must use the encodedBoFieldName input. encodedBoFieldName - String [optional]: BO Field from which this number came. Use where applicable, because a field metadata can affect number formatting.	String: the formatted number

Name	Description	Inputs	Return
formatDate	Uses IBM TRIRIGA to format a Date. Takes into account the user's preferred format, as specified in the user profile record.	date - java.util.Date: Date to format	String: the formatted date
formatDateTime	Uses IBM TRIRIGA to format a DateTime. Takes into account the user's preferred format, as specified in the user profile record.	dateTime - java.util.Date: DateTime to format	String: the formatted DateTime
getProjectIdForRecord	Returns record ID of the project that the specified record resides within. Returns NULL if the record is not in a project.	ID of the record. This is typically the system__recordId value of an IBM TRIRIGA result record.	Decimal: the ID of the Project the record resides within
getRootOrganizationId	Returns record ID of the root Organization.	N/A	Decimal: the ID of IBM TRIRIGA's root organization record
getCompanyLogId	Returns the ID of the Company Logo document.	N/A	Decimal: the ID of the company logo document
getProjectLogId	Returns the ID of the current project's logo document.	N/A	Decimal: the ID of current project's logo document
getUserId	Returns the ID of the currently signed-in user.	N/A	Decimal: the ID of the current user
getProjectId	Returns the ID of the current project. Returns NULL if the user is not currently in a project.	N/A	Decimal: the ID of current project

FormatNumber

When you aggregate numbers inside of BIRT, you use the `formatNumber()` function to format those numbers so that the aggregate displays in the IBM TRIRIGA user-preferred format.

For example:

```
TRIRIGA.formatNumber(  
    row["triPeople_triPeople_triApprovalAmountNU"].getNativeValue(),  
    row["triPeople_triPeople_triApprovalAmountNU"].getUom(),  
    "triPeople_triPeople_triApprovalAmountNU")
```

FormatDate and FormatDateTime

To format a date that did not originate inside IBM TRIRIGA, you use the `FormatDate` and `FormatDateTime()` functions.

For example:

```
TRIRIGA.formatDateTime(BirtDateTime.now())
```

GetProjectIdForRecord

To access the Project data for a particular record, you use the `GetProjectIdForRecord()` function.

For example:

```
getProjectForRecord(row[system__recordId])
```

GetRootOrganizationId

To access the root-org, you use the `GetRootOrganizationId()` function.

For example:

```
getRootOrganizationId()
```

GetCompanyLogoid

To access the ID of the Company Logo document, you use the `GetCompanyLogoId()` function.

For example:

```
getCompanyLogoId()
```

GetProjectLogoId

To access the ID of the current project's logo document, you use the `GetProjectLogoId()` function.

For example:

```
getProjectLogoId()
```

GetUserId

To access the ID of the currently signed-in user, you use the `GetUserId()` function.

For example:

```
getUserId()
```

GetProjectId

To access the current project, you use the `GetProjectId()` function.

For example:

```
getProjectId()
```

Preview Report

To preview a report, you use the Preview tab in the BIRT Report Designer. The values you set as the IBM TRIRIGA BIRT Preferences in the BIRT application allow you to pass context from IBM TRIRIGA to a BIRT report during preview execution. You set these preference values when you specify the connection information to the IBM TRIRIGA server, as described in the [Install the IBM TRIRIGA Plug-In](#) section.

You can pass these types of context:

- **Current user**– Set when you specify the IBM TRIRIGA App Server, Username, and Password field values.
- **Active project**– Set when you specify the record ID of a particular project. This causes the preview to simulate execution within the context of the specified Capital project.
- **Input parameters** – Prompted by the BIRT application. When you preview the report, the BIRT application prompts for any input parameters that are defined on the report. Those values also serve as context to the report execution.

Export the BIRT Report

You need to export the BIRT report back to IBM TRIRIGA so the IBM TRIRIGA environment can use it.

Package the Report

Before you export the BIRT report back to IBM TRIRIGA, you package the report as a `.zip` file:

- Step 1** In BIRT, right-click the Report Project and select **Export**.
- Step 2** Expand the General folder, select **Archive File**, and click **Next**.
- Step 3** In the left pane, select **ReportBuilding**.
- Step 4** In the right pane, select the `.rptdesign` and `tririgalabels.properties` files.
- Step 5** In the *To Archive File* field, name the new `.zip` file, and select the upload location.
- Step 6** In the *Options* area, select the options to use.
- Step 7** Click **Finish**.

Upload the Report to IBM TRIRIGA

To upload the report, sign in to IBM TRIRIGA, navigate to the Document Manager, and upload the packaged `.zip` file. For more information, go to the IBM TRIRIGA 10Knowledge Center and select *Managing documents*.

To upload the report to IBM TRIRIGA:

- Step 1** In IBM TRIRIGA, open the Document Manager.
- Step 2** Expand the IBM TRIRIGA folder.
- Step 3** Select or create the upload folder. You can use a folder name that corresponds to the module of the starter report and IBM TRIRIGA query.
- Step 4** Click **New Document**.
- Step 5** Click **Browse** and select the BIRT report file.
- Step 6** Specify a Document Name.
- Step 7** Optional: Specify additional field values.
- Step 8** Click **Upload**.

Step 9 When the upload process completes, click **OK**.

Upload Report Libraries

A report library is a BIRT construct that holds reusable components that you want to share across multiple reports. The IBM TRIRIGA-BIRT integration supports report libraries.

You upload a report library in the same way you upload a report (see [Upload the Report to IBM TRIRIGA](#)), with the following specifics:

- You must upload the report libraries separately to the IBM TRIRIGA Document Management system directly under the folder `\ROOT\TRIRIGA\BIRT Libraries`. If this folder structure does not already exist in your system, you must create it.
- The report library can be uploaded either as a single `.rptlibrary` file or, if the library utilizes other resources (properties files, etc.), as a `.zip` file.
- The name of the IBM TRIRIGA document must be the same as the name of the publicly-accessible `.rptlibrary` file.
- If the report library contains labels, the IBM TRIRIGA-BIRT solution supports translation of the labels. The `.rptlibrary` file can reference a `tririgalabels.properties` file that can have translatable labels. For example, the library can contain a Master Page with header and footer information that needs to display on all reports.

Associate Document to an IBM TRIRIGA Access Point

The final step for making the BIRT report usable is to associate the IBM TRIRIGA document to an IBM TRIRIGA access point, either an IBM TRIRIGA query report or form report.

Associate to a Query Report

You need to create an IBM TRIRIGA query as an external query. This query will act as a link to the BIRT `.rpt` file that you uploaded to the Document Manager. You select the BIRT report from the Document Management catalog. You can use the report in many places throughout the IBM TRIRIGA system, such as Form sections and Portal sections.

To associate a BIRT report to an IBM TRIRIGA query:

Step 1 In IBM TRIRIGA, open the Report Manager.

Step 2 Select the System Reports tab.

Step 3 Click **New**.

Step 4 In the General tab:

- Specify the *Name* of the report. Names must be unique. Use the naming conventions described in the [Naming Conventions](#) section in this user guide.
- Specify the *ID* to further identify the report. Use `CUSTOM` or your company's numbering standards for reports.
- Specify the *Header (Title)*. This is the text that shows at the top of the report.
- To use an additional grouping for filtering, specify the *Tag*.
- Specify a complete *Description* of the report.
- In the *Type* field, select External.

Step 5 In the Business Objects sub-tab:

- Click **Add Business Object**.
- Select the *Module*, *Business Object*, and *Form* that correspond to the context of the report. This categorizes the report for future retrieval in the Report Manager.

Step 6 In the Options sub-tab:

- In the *Document* field, click the search  icon.
- Select the .zip file that you uploaded to the Document Manager in [Upload the Report to IBM TRIRIGA](#) and click **Accept**.
- Optional: To execute the report asynchronously and notify the user when the report is ready to view, select *Queued*. Consider running reports that take more than a minute to run asynchronously instead of synchronously. Running a report asynchronously lets the report run on the server when the server is not busy with other tasks.

If a queued report has runtime filters or BIRT filters, they present to the user before the report queues, as they are for a non-queued report.

You can launch from and access queued BIRT reports from the following places: My Reports, Manager query lists, Report Manager, and query sections. You cannot launch from and access queued BIRT reports from the following

places: Portal Sections (if a queued report is attached to a portal section, the system launches it in a non-queued manner) and form actions.

When a queued report finishes processing, the system sends a notification to the user's Notifications portal section. To access the report, the user clicks the hyperlinked Subject.

A queued BIRT report attached to a workflow notification executes along with the notification. However, if the report contains filters that do not have a default value, the report generation may error out because there is no user to provide the values. You need to set the default values for all filters when you define such a report.

Step 7 Click **Save and Close**.

Associate to a Form

You select the BIRT report from the IBM TRIRIGA Document Management catalog. You can use the report in many places throughout the IBM TRIRIGA system, such as Form sections, Portal sections, and the Reports tab in most forms.



Note - If you need to use a BIRT report in a form section, the report must be added to both the Layout tab and the Includes/Forms tab of the form. The Includes/Forms tab is where you associate the BIRT report to the IBM TRIRIGA form. As a result, all the labels on the BIRT report can be exported for translation from the Globalization Manager.

To associate a BIRT report to an IBM TRIRIGA form:

Step 1 In IBM TRIRIGA, open the General tab of the Form Builder.

Step 2 Open the form for which you developed the form report.

Step 3 Optional: Revise the form.

Step 4 To ensure that the report appears in the Reports tab of a form, select the Layout tab, and select *Show Reports*.

Step 5 Select the Includes/Forms tab.

Step 6 In the Forms area, click **Add**.

Step 7 Select the report file that you uploaded into the Document Manager in [Upload the Report to IBM TRIRIGA](#) and click **OK**.

Step 8 In the Forms area, select the report file.

Step 9 Select the Layout tab and click **Publish**.

Configure Bulk Print after Object Migration

In the IBM TRIRIGA application, "bulk print" report actions use URLs with hard-coded numerical document IDs (docId). As a result, there is a known issue that after you apply an object-migration package, the docId of a document can change and its "bulk print" action no longer works. To remedy this issue, you can manually update each docId, and associate each document with its related form.

Configure Bulk Print Actions in Maintenance Forms

To configure the actions in Maintenance forms:

- Step 1** Sign in to the IBM TRIRIGA application as an administrator.
- Step 2** In the Document Manager, navigate to **TRIRIGA > Task**.
- Step 3** Right-click a document name from the following table, then select **Properties**, to obtain the numerical docId of the document.

Repeat this step for each document in the following table.

Document Name	Bulk Print Action
Condition Assessment Work Task Record (BIRT)	Print Condition Assessment Work Task
Contract Review Record (BIRT)	Print Contract Review
Inspection Task Record (BIRT)	Print Inspection Task
Inventory Count Work Task Record (BIRT)	Print Inventory Count Work Task
Inventory Pick Work Task Record (BIRT)	Print Inventory Pick Work Task
Key Work Task Record (BIRT)	Print Key Work Task
Material Order Task Record (BIRT)	Print Material Order Task
Punchlist Task Record (BIRT)	Print Punchlist Task
Reserve Work Task Record (BIRT)	Print Reserve Work Task
Schedule Task Record (BIRT)	Print Schedule Task
Submittal Task Record (BIRT)	Print Submittal Task
Work Task Record (BIRT)	Print Work Task

- Step 4** From the **Tools** menu, select **Builder Tools > Form Builder**. Select the **triMaintenance** module. Open the **triMaintenanceManager** form and **Revise** the form.

- Step 5** In the form navigation, select **triSchedule > Work > My Tasks**.

- Step 6** In the **My Tasks** section properties, scroll to the bottom, and click one of the Bulk Print actions. In the action properties, replace the old docId with the new docId.

Repeat this step for each action in the previous table.

- Step 7** After all of the docId values are updated, **Publish** the form.

- Step 8** Return to the **Tools** menu, select **Builder Tools > Form Builder**. Select the **triTask** module. Open one of the Task forms from the following table and **Revise** the form. Select the

Includes/Forms tab. In the Forms section, click **Add**. Locate the proper document and **Publish** the form.

Repeat this step for each form in the following table.

Task Form	Document Name
triConditionAssessmentWorkTask	Condition Assessment Work Task Record (BIRT)
triContractReviewTask	Contract Review Record (BIRT)
triInspectionTask	Inspection Task Record (BIRT)
triInventoryCountWorkTask	Inventory Count Work Task Record (BIRT)
triInventoryPickWorkTask	Inventory Pick Work Task Record (BIRT)
triKeyWorkTask	Key Work Task Record (BIRT)
triMaterialOrderTask	Material Order Task Record (BIRT)
triPunchlistTask	Punchlist Task Record (BIRT)
triReserveWorkTask	Reserve Work Task Record (BIRT)
triScheduleTask	Schedule Task Record (BIRT)
triSubmittalTask	Submittal Task Record (BIRT)
triWorkTask	Work Task Record (BIRT)

Configure Bulk Print Actions in Invoice Forms

To configure the actions in Invoice forms:

- Step 1** Sign in to the IBM TRIRIGA application as an administrator.
- Step 2** In the Document Manager, navigate to **TRIRIGA > Contract**.
- Step 3** Right-click a document name from the following table, then select **Properties**, to obtain the numerical docId of the document.

Repeat this step for each document in the following table.

Document Name	Bulk Print Action
Asset Invoice Summary Bulk Print (BIRT)	Bulk Print Asset Invoices
RE Invoice Summary Bulk Print (BIRT)	Bulk Print RE Invoices

- Step 4** From the **Tools** menu, select **Builder Tools > Form Builder**. Select the **triPayment** module. Open the **triProcessInvoices** form and **Revise** the form.
- Step 5** In the form navigation, select **triGeneral > AR Invoices**.
- Step 6** In the **AR Invoices** section properties, scroll to the bottom, and click one of the Bulk Print actions. In the action properties, replace the old docId with the new docId.

Repeat this step for each action in the previous table.

Step 7 After all of the docId values are updated, **Publish** the form.

Step 8 Return to the Tools menu, select **Builder Tools > Form Builder**. Select the **triPayment** module. Open one of the Invoice forms from the following table and **Revise** the form. Select the **Includes/Forms** tab. In the Forms section, click **Add**. Locate the proper document and **Publish** the form.

Repeat this step for each form in the following table.

Invoice Form	Document Name
triAssetInvoice	Asset Invoice Summary Bulk Print (BIRT)
triREInvoice	RE Invoice Summary Bulk Print (BIRT)

Report Maintenance

You can make changes to existing reports that do not involve the data sets, and to reports that do.

Modify a Report without Data Set Changes

To modify a BIRT report that does not involve data set changes, you use the Document Manager to check out the report file, make the changes, and re-import the report file. This process is described in more detail. For more information, go to the IBM TRIRIGA 10Knowledge Center and select *Managing documents*.

To modify the report:

Step 1 In the Document Manager, locate the report file, select the file, and click the Check Out icon .

Step 2 Specify a *Comment*.

Step 3 Click **Check Out**.

Step 4 Follow the procedures in [Create a Starter Report in IBM TRIRIGA](#) and [Import the Starter Report into BIRT](#).

Step 5 Make any needed changes to the report and save the file.

If you made changes to a standard IBM TRIRIGA BIRT report, rename the report before loading it into the Document Manager. This protects your customized version in the case of an IBM TRIRIGA upgrade.

Step 6 To upload the new version, check the file back in to the Document Manager. Start by selecting the Check In icon .

Modify a Report with Data Set Changes

To modify a BIRT report that does involve data set changes, you use the Document Manager to check out the report file, make the changes, and re-import the report file. This process is described in detail in the IBM TRIRIGA 10Knowledge Center under *Managing documents*.

Report modification can occur for many reasons and there are many ways to accomplish those changes. This section describes one way.

To modify the report:

Step 1 Generate a starter report that is based on the same model you used for the existing BIRT report, as described in [Create a Starter Report in IBM TRIRIGA](#).

Step 2 Do one of the following, depending on the extent of your changes:

- Select the updates to include by comparing the script-data-set elements in the current BIRT report and the new `.rptdesign` file.

- Completely replace the script-data-set elements of the current `.rptdesign` file with those generated in the new `.rptdesign` file. To do this, you import the starter report into a project, copy the data set from the new starter report, and paste it in the data sets of the existing `.rptdesign` file.

If you add fields or user filters to the IBM TRIRIGA query, you must also change the report. After you update the data set, if that data set is used to join inside BIRT, you need to rejoin the data set, and rebind the elements in the BIRT report that reference that data set.

Appendix A – Filter Operators

The values available as filter operators depend on the field type of the selected field. The following table lists and describes the values that you can use.

Operator	Description
After	Available for date; date and time; and time fields. It is true if the value of the specified field is after the specified value.
Before	Available for date; date and time; and time fields. It is true if the value of the specified field is before the specified value.
Contains	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field contains the specified value.
Contains - Case Sensitive	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field contains the specified value, case-sensitivity included.
Does Not Contain	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field does not contain the specified value.
Does Not Contain - Case Sensitive	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field does not contain the specified value, case-sensitivity included.
End With	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field ends with the specified value.
End With - Case Sensitive	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field ends with the specified value, case-sensitivity included.
Equals	True if the value of the specified field is equal to the specified value.
In	True if the value of the specified field is one of the specified values. For string and numeric values, the specified values should be comma-separated literal values, wrapped in single quotes. For example: 'Tom','Jerry','Paul','1','2','3'.
Less Than	Available for number fields. It is true if the value of the specified field is less than the specified value.
Less Than or Equals	Available for number, date, date and time, and time fields. It is true if the value of the specified field is less than or equal to the specified value.

Operator	Description
More Than	Available for number fields. It is true if the value of the specified field is greater than the specified value.
More Than or Equals	Available for number, date, date and time, and time fields. It is true if the value of the specified field is greater than or equal to the specified value.
Not Equals	True if the value of the specified field is not equal to the specified value.
Not In	True if the value of the specified field is not one of the specified values. For string and numeric values, the specified values should be comma-separated literal values, wrapped in single quotes. For example: 'Tom','Jerry','Paul','1','2','3'.
Start With	Available for Text, UOM, and Boolean fields. It is true if the value of the specified field begins with the specified value.
Start With - Case Sensitive	<p>Available for Text, UOM, and Boolean fields. It is true if the value of the specified field begins with the specified value, case-sensitivity included.</p> <p>If this is a query that is used in a locator field or a smart section and you notice that autocomplete takes a long time to execute, consider changing the filter Operator from <code>Contains</code> to <code>Start With</code>.</p>

Appendix B – Special Values

In addition to using numbers and text in the *Value* field, there also are special values you can use. The following table lists and describes these special values.

Value	Description
\$\$TODAY\$\$	Used to compare a date to the current date. For example, if you do not want to display training courses that have started in the past, specify: <code>General::Start Date After \$\$TODAY\$\$</code>
\$\$THISWEEK\$\$	Used to compare a date to the current week. For example, to see training courses that start in the current week, specify: <code>General::Start Date Equals \$\$THISWEEK\$\$</code>
\$\$THISMONTH\$\$	Used to compare a date to the current month.
\$\$THISYEAR\$\$	Used to compare a date to the current year.
The preceding special values can be followed by a + or - and a whole number. For example, <code>\$\$TODAY\$\$+1</code> is tomorrow, <code>\$\$THISWEEK\$\$-1</code> is last week, and <code>\$\$THISYEAR\$\$+5</code> is five years after the current year.	
\$\$RUNTIME\$\$	<p><code>\$\$RUNTIME\$\$</code> tells the system that when the report is run the user will be able to specify a value for the filter. If the user does not specify a value, the system ignores the filter.</p> <p><code>\$\$RUNTIME\$\$</code> works well with most data types and comparison operators. However, for text data, the <code>\$\$RUNTIME\$\$</code> value works particularly well with the <code>Contains</code> operator.</p> <p>Instead of using <code>\$\$RUNTIME\$\$</code>, you can identify fields for user input by checking the User check box in the Filters tab.</p>
\$\$USERID\$\$	<code>\$\$USERID\$\$</code> is a valid field filter in queries. It tells the system that a record passes the filter if it represents the user who is currently logged in.
<code>\$\$USERID::SectionName::FieldName\$\$</code>	<code>\$\$USERID::SectionName::FieldName\$\$</code> is a valid filter in queries. Setting the Value field to <code>\$\$USERID::SectionName::FieldName\$\$</code> indicates that a value should be compared with the field name <code>FieldName</code> in the <code>SectionName</code> section of the record of the person who is currently logged in.

Value	Description
\$\$PERSONID\$\$	<p>\$\$PERSONID\$\$ is a valid field filter in queries. When this is used, it resolves to the Smart Object ID of the person that is associated to the current user. If the current user is not associated to a person, an error is displayed.</p> <p>Similar to \$\$USERID\$\$, it also supports section and field access. One example of valid notation to resolve the first name of the current person is: \$\$PERSONID::Detail::triFirstNameTX\$\$.</p>
\$\$PARENT::SectionName\$\$	<p>\$\$PARENT::SectionName\$\$ is a valid field filter in queries. Setting the Value field to \$\$PARENT::SectionName\$\$ indicates that a value should be compared with the SectionName section of the record that contains the query section or smart section.</p>
\$\$PARENT::SectionName::FieldName\$\$	<p>If you need a filter that compares a value in the record being filtered with a value in the record that contains the smart section, there is a special way of indicating it.</p> <p>To indicate that a value should be compared with the field named FieldName in the SectionName section of the record that contains the query section or smart section, you would put the following in the Value field: \$\$PARENT::SectionName::FieldName\$\$.</p> <p>If the value of \$\$PARENT is empty, it resolves to an IS NULL criteria.</p>

Formulas as Field Values in Numeric Query Filter

You can use a formula as a field value in a numeric query filter. For example, you can set a field value in a numeric filter to

\$\$PARENT::RecordInformation::triPlannedStartDate\$\$ - \$\$TODAY\$\$, and the value at runtime resolves to a duration of today subtracted from the parent's value of Planned Start Date.

The special values that you can use in a numeric query filter field value follow:

- \$\$PARENT\$\$, if the \$\$PARENT\$\$ field referenced resolves to a numeric value
- \$\$TODAY\$\$
- \$\$THISWEEK\$\$
- \$\$THISMONTH\$\$
- \$\$THISYEAR\$\$

The expression supports any expression that is supported by the extended formula builder. For information about extended formulas, see the *Application Building for the IBM TRIRIGA Application Platform 3: Calculations* book.

For example, the following formulas are valid:

- `AddDay($$TODAY$$, 5)`
- `AddYear($$PARENT::RecordInformation::triPlannedStartDate$$, 5)`

If you plan to use a formula as a field value in a numeric query filter, be aware of the following:

- Date-based special values resolve to the beginning of their ranges. For example, `$$TODAY$$` resolves to midnight of the current day in the server's time zone. `$$THISWEEK$$` resolves to midnight of Monday of the current week in the server's time zone.
- This functionality is not supported in a date query filter. Date query filters do not support these complex expressions.
- The +/- capability available in a date field behaves differently in a *numeric* filter field value than in a *date* filter field value. For example, `$$THISYEAR$$+5` in a *date* filter field means 5 years beyond the current year. `$$THISYEAR$$+5` in a *numeric* filter field value means 5 milliseconds after midnight of January 1 of this year.

Appendix C – Special Names in Record Field

The value of the Record / Query field must be the name of the other query to run . If the value of the Filter Type field is `Query`, set the Record / Query value by clicking the Search icon  and selecting the appropriate query.

If the value of the Filter Type field is `Record`, the value of the Record / Query field determines if the association that this filter requires is directly with the context record, with another record that is associated with the context record, or a totally unassociated record.

In the Record field, you can use some special names to filter for an association with some special records. The special names follow.

Value	Description
<code>\$\$USERID\$\$</code>	When the query is run, a value of <code>\$\$USERID\$\$</code> resolves to the record ID of the user that invoked the query.
<code>\$\$PERSONID\$\$</code>	When the query is run, a value of <code>\$\$PERSONID\$\$</code> resolves to the record ID of the People record that is associated to the user that invoked the query.
<code>\$\$RECORDID\$\$</code>	<p>This is useful for queries used in query sections and for Find action queries for data sections. Queries used in query sections and find queries are often required to return only records that are associated with the record that contains the section.</p> <p>Setting the Record field to <code>\$\$RECORDID\$\$</code> means that the top-level records pass this filter if they are associated directly with the context record.</p>
<code>\$\$GROUPID\$\$</code>	<p>Setting the Record field to <code>\$\$GROUPID\$\$</code> means that the top-level records pass the filter if they are associated with a record that represents a group of which the logged-in user is a member.</p> <p>If the Record field is set to <code>\$\$GROUPID\$\$</code>, the Module field should be set to <code>Group</code> and the Business Object field should be set to <code>All</code>.</p> <p>Groups are tools for administering security in the IBMTRIRIGA Application Platform.</p>

Value	Description
\$\$PROJECTID\$\$	<p>Setting the Record field to \$\$PROJECTID\$\$ means that the top-level records pass the filter if they are associated with a record that represents the active project.</p> <p>If the Record field is set to \$\$PROJECTID\$\$, the Module field should be set to <code>triProject</code> and the Business Object field should be set to <code>All</code>.</p> <p>Projects in IBM TRIRIGA provide a way to classify data for relevance to the tasks on which people work.</p>
\$\$PARENT\$\$	<p>Use \$\$PARENT\$\$ to specify that top-level records pass this filter if they are associated with a record that has a direct or indirect association with the context record. It works by specifying a path from the context record to another record through record sections or locator fields.</p> <p>For example, suppose that the context record is an Employee record and that the report only should include Employee records for employees who have the same supervisor as the context record.</p> <p>To specify a filter that does this, make use of the fact that Employee records have a locator field named <code>triReportsToTX</code> that references the record that corresponds to an employee's supervisor. If <code>triReportsToTX</code> were in the General section, the value of the Record field would be <code>\$\$PARENT::General::triReportsToTX\$\$</code>. If the reference was a smart section, the value of the Record field would be <code>\$\$PARENT::triReportsToTX\$\$</code>.</p> <p>If the value of \$\$PARENT\$\$ is empty, it resolves to an <code>IS NULL</code> criteria.</p>
\$\$PARENT::SECTIONNAME\$\$	<p>Used to filter a Find section based on values in another section. <code>PARENT</code> is always the word "PARENT". <code>SECTIONNAME</code> is the name of the section containing the values by which you want to filter. Make sure you use the Name and not the Label of the section.</p>
\$\$PARENT::SECTIONNAME::FIELDNAME\$\$	<p>Used to filter a Find section based on the value of a field in another section. <code>PARENT</code> is always the word "PARENT". <code>SECTIONNAME</code> is the name of the section containing the field by which you want to filter. <code>FIELDNAME</code> is the name of the field by which you want to filter. Make sure you use the Name and not the Label of the section and field.</p>
\$\$ORGANIZATIONID\$\$	<p>Used to filter a portal query section based on the Organizations of the user who is currently logged in.</p>

Value	Description
\$\$ORGANIZATIONIDWITHCHILDREN\$\$	Used to filter a portal query section based on the Organizations, including all dependent child Organizations, of the user who is currently logged in.
\$\$GEOGRAPHYID\$\$	Used to filter a portal query section based on the Geographies of the user who is currently logged in.
\$\$GEOGRAPHYIDWITHCHILDREN\$\$	Used to filter a portal query section based on the Geographies, including all child Geographies, of the user who is currently logged in.

Appendix D – Example of User Filters and System Filters

The following example illustrates how to use User filters and System filters to yield the desired result.

Assume that you want to query the `triEmployee` business object in the `triPeople` module for only users whose first name is Bob or John, to filter out John Doe, and to allow the end user the option to filter on the last name of the resulting list.

You define the query against `triEmployee` and specify that the `triNameTx` and `triLastNameTX` display to the end user. Next, you define a User filter on the last name field, so that the end users of this query can filter out Johns and Bobs, by last name. To do this, you select the check box in the User column of the Columns section next to the `triLastNameTX` field. The filter appears in the User Filter Columns section. The configuration is complete.

Next, you need to set up the system filters so that only Johns and Bobs display and that John Doe does not. To do this you need to create some filters. First, you lay out the requirements for the filters in order to accomplish the task:

First name is Bob OR first name is John.

Last name must not be Doe if the first name is John (Bob Doe is OK).

This looks like four filters, one for each of the clauses. It also looks like two groups, one for each bullet point. To write it out in a sentence form:

(First name is Bob OR first name is John) AND NOT (First name is John AND last name is Doe).

Notice that there are three filters against first name and one against last name.

You start by adding the first name and last name to the System Filter Columns list. Then, you copy the first name filter twice.

Now that the raw materials are ready, you can manipulate to match the sentence:

- Define the conditions.
- Create the groups. To do this, you use the drop-downs in the third and the last columns of the table. Since there is a parenthesis before the first condition in your sentence and after the second condition, you put those in. The number value in the drop-downs [i.e., the 1 in "1 - ("] is the number of parentheses added. This allows for groups within groups.

- Setting the left-most parentheses drop-down indicates how many open parentheses are in front of the filter but right after the operator. Setting the right-most parentheses drop-down indicates how many close parentheses are right after the filter.

Now that you have two groups, the next step is to set Boolean operators in the Join Operator column:

- Click **Save**. After the section reloads, the display reflects the groupings.
- If you change the grouping on a filter, the system removes the group visualizations to reduce confusion with pre-existing groupings.
- Run the report to verify the result.

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