



JasperReports® Server

User Guide

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Introduction to JasperReports Server

JasperReports® Server builds on JasperReports® Library as a comprehensive family of Business Intelligence (BI) products, providing robust static and interactive reporting, report server, and data analysis capabilities. These capabilities are available as either stand-alone products, or as part of an integrated end-to-end BI suite utilizing common metadata and provide shared services, such as security, a repository, and scheduling. The server exposes comprehensive public interfaces enabling seamless integration with other applications and the capability to easily add custom functionality.



This section describes functionality that can be restricted by the software license for JasperReports Server. If you don't see some of the options described in this section, your license may prohibit you from using them. To find out what you're licensed to use, or to upgrade your license, contact Jaspersoft.

The heart of the Jaspersoft® BI Suite is the server, which provides the ability to:

- Easily create new reports based on views designed in an intuitive, web-based, drag and drop Ad Hoc Editor.
- Efficiently and securely manage many reports.
- Interact with reports, including sorting, changing formatting, entering parameters, and drilling on data.
- Schedule reports for distribution through email and storage in the repository.
- Arrange reports and web content to create appealing, data-rich Jaspersoft Dashboards that quickly convey business trends.

For users interested in multi-dimensional modeling, we offer Jaspersoft® OLAP, which runs as part of the server.

While the Ad Hoc Editor lets users create simple reports, more complex reports can be created outside of the server. You can either use Jaspersoft® Studio or manually write JRXML code to create a report that can be run in the server. We recommend that you use Jaspersoft Studio unless you have a thorough understanding of the JasperReports file structure. See [Adding Reports Directly to the Repository](#) and the Jaspersoft Studio User Guide for more information.

You can use the following sources of information to learn about JasperReports Server:

- Our core documentation describes how to install, administer, and use JasperReports Server and Jaspersoft Studio. Core documentation is available in PDF format on the [Product Documentation website](#). You can also access PDF and HTML versions of these guides online from the [Documentation section](#) of the Jaspersoft Community website.
- Our Ultimate Guides document advanced features and configuration. They also include best practice recommendations and numerous examples. You can access PDF and HTML versions of these guides online from the [Documentation section](#) of the Jaspersoft Community website.
- Our [Online Learning Portal](#) lets you learn at your own pace, and covers topics for developers, system administrators, business users, and data integration users. The Portal is available online from the Professional Services section of our [website](#).
- Our free samples, which are installed with JasperReports Library, Jaspersoft Studio, and JasperReports Server, are available and documented online. Please visit our [GitHub repository](#). See [Adding Reports Directly to the Repository](#) and Jaspersoft Studio User Guide for more information.
- If you have a subscription to our professional support offerings, please contact our Technical Support team when you have questions or run into difficulties. They're available on the web at <https://www.jaspersoft.com/support>.

JasperReports Server is a component of both a community project and commercial offerings. Each integrates the standard features such as security, scheduling, a web services interface, and much more for running and sharing reports. Commercial editions provide additional features, including Ad Hoc views and reports, advanced charts, dashboards, Domains, auditing, and a multi-organization architecture for hosting large BI deployments.

This chapter contains the following sections:

- [Logging In](#)
- [The Getting Started Page](#)
- [The Library Page](#)
- [Browsing the Repository](#)
- [Searching the Repository](#)
- [Using Repository Resources](#)
- [Sorting the Repository List](#)

Logging In

Launch JasperReports Server by entering `http://<hostname>:8080/jasperserver-pro` in a web browser, where `<hostname>` is the name of the computer that hosts JasperReports Server. The Login page appears.

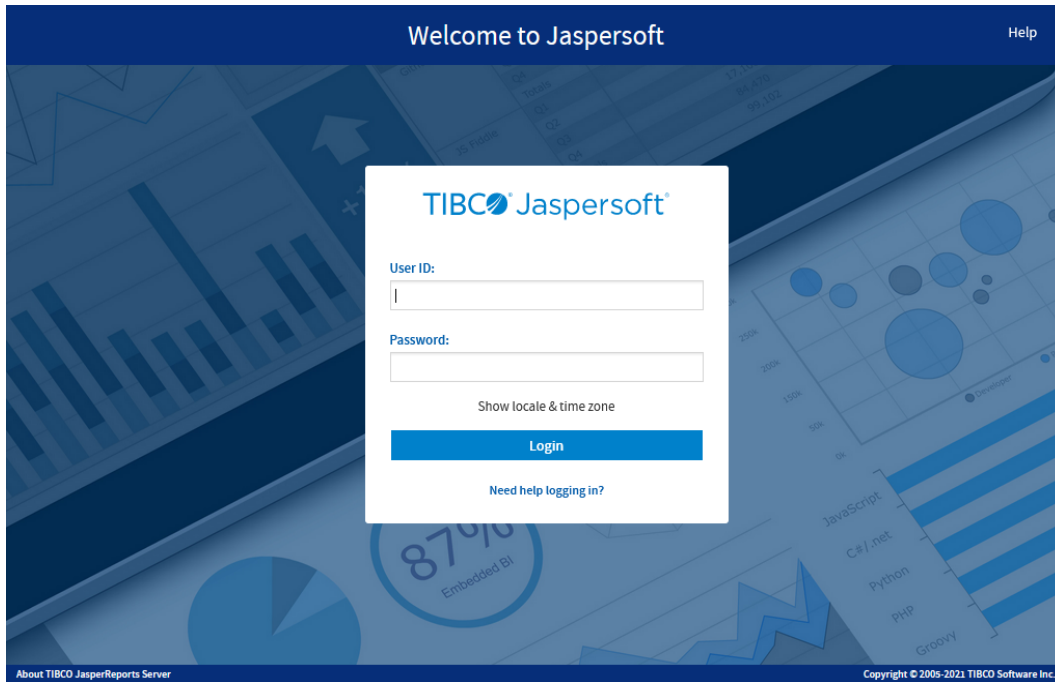


Figure 1: Jaspersoft Login Page



To log in to the server, JavaScript and cookies must be enabled in your browser.



Rhino JavaScript engine has been removed from JasperReports Server. With the removal of Rhino JS, reports created using JavaScript do not function unless you add Rhino JS back to your deployment. This can be done by stopping the web server, downloading version 1.7.14, which at the time of writing is not known to have any CVEs. This file can be replaced into the WEB-INF/lib folder, and reports that rely on JavaScript will again be functional.

Before logging in, review the information on the login page. There are links to the online help and additional resources.

You can log in as the following users:

- superuser/superuser to manage configuration and organizations .
- jasperadmin/jasperadmin to manage a single organization.
- joeuser/joeuser to see an end user's view.

- demo/demo to view the demo dashboard, if samples were installed.



For security reasons, administrators should always change the default passwords immediately after installing JasperReports Server, as described in the *JasperReports Server Administrator Guide*.

To log in to the server

Procedure

1. Enter your user ID and password.



If you installed an evaluation server with the sample data, you can log in with the sample user IDs and passwords. For more information, click [Need help logging in?](#)

If the Organization field appears in the Login panel, enter the ID or alias of your organization. If you don't know it, contact your administrator. For more information, see [Logging into a Server with Multiple Organizations](#).

The default administrator login credentials are superuser/superuser and jasperadmin/jasperadmin.

2. If you want to use a different locale and time zone than the server uses, click Show locale & time zone.

The Locale and Time zone fields appear in the Login panel. Select your locale and time zone from the dropdown menus.

3. Click Login.

If you entered a valid user ID and password, the server displays the Getting Started page, as shown in [Getting Started Page](#).

Logging into a Server with Multiple Organizations

If the administrator has configured your server to use the multi-tenancy feature, it supports multiple organizations. Each organization has its own private area for storing files and resources. The default Login dialog for a multi-tenant server has an additional field: Organization. The left side of [Login Methods for Multiple Organizations](#) shows this field. Enter the ID or alias of your organization. For example, enter the ID of the default organization: organization_1.

You don't have to enter the organization ID each time you log in. The first time you log in, include the organization ID in your login URL, as shown on the right side of [Login Methods for Multiple Organizations](#). Bookmark the URL and use it for subsequent logins. The Organization field does not appear in the dialog when you specify it in the URL.

http://<hostname>:8080/jasperserver-pro/login.html

The screenshot shows the login interface for JasperReports Server. At the top is the TIBCO Jaspersoft logo. Below it, the URL is http://<hostname>:8080/jasperserver-pro/login.html. The form includes an "Organization:" label above a text input field containing "organization_1". Below this are "User ID:" and "Password:" labels above their respective input fields. A link "Show locale & time zone" is positioned below the password field. At the bottom is a blue "Login" button and a link "Need help logging in?"

http://<hostname>:8080/jasperserver-pro/login.html?
orgID=organization_1

This screenshot shows the same login interface as the previous one, but with the URL http://<hostname>:8080/jasperserver-pro/login.html?orgID=organization_1. The "Organization:" field is absent from the form, and the "User ID:" and "Password:" fields are present. The "Login" button and "Need help logging in?" link are also visible.

Figure 2: Login Methods for Multiple Organizations

The superuser account does not specify an organization because it is the system-wide administrator. If the Organization field appears in the Login dialog when you log in as a superuser, leave it blank. If you try to log in as a superuser with an orgID in the URL, the server returns an error.

Disabled Accounts

Failed login attempts can disable an account. The number of remaining attempts is displayed after a failed login attempt.



Invalid credentials supplied.

Could not login to JasperReports Server.

User Account has been locked. Please contact the system administrator.

Organization:

User ID:

Password:

Show locale & time zone

Login

[Need help logging in?](#)

In the event of a disabled account due to multiple failed login attempts, contact your administrator to unlock the account.

Refer to the JasperReports Server Administrator Guide and JasperReports Server Security Guide for more information on disabling or limiting this feature.

The Getting Started Page

From the Getting Started page, you can quickly access the most frequently used features of the server.

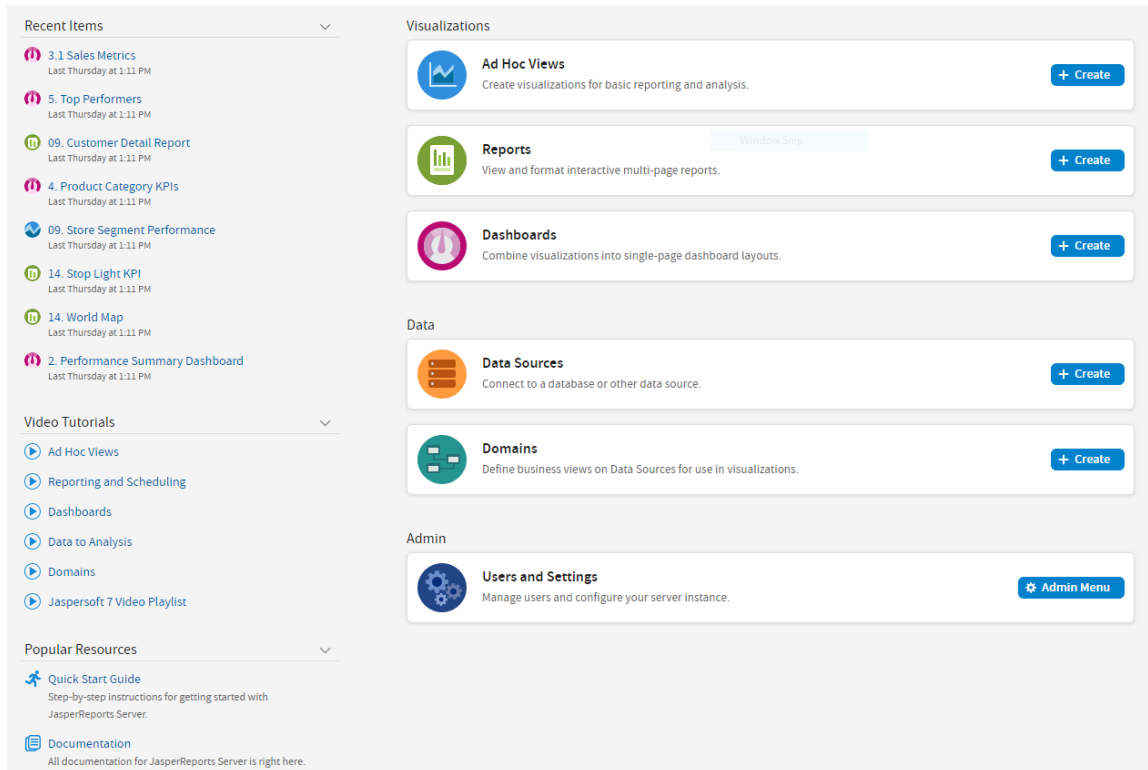


Figure 3: Getting Started Page

Core Workflows

The Getting Started page for standard users has multiple blocks that link to the core workflows of JasperReports Server that may include some or all the following options:

- Ad Hoc Views - Select or create a visualization for basic reporting and analysis.
- Reports – Create an interactive report from an Ad Hoc view, or select an existing report.
- Dashboards - Combine related visualizations into a single-page layout, or select from existing layouts.
- Data Sources - Select or define a connection to a database or other data source.

- Domains - Add structure to your data source for use in a visualization.
- Users and Settings - Configure your server instance and manage user settings. This block is visible only to users with administrator privileges.


Each workflow block on the Getting Started page may contain buttons linking to pages or wizards to create related elements. Each workflow block links to a filtered repository list containing relevant items. Click these blocks to access the resources. Users with administrator access may have more of these options available to them.


The Getting Started Column

On the left side of the page, there are two lists to help you locate and access relevant information and assets.

- Recent Items - Includes links to up to five recently viewed repository items, such as reports, Ad Hoc views, and dashboards.
- Video Tutorials - Includes links to video tutorials for various JasperReports Server features.
- Popular Resources - Includes links to educational and support resources.

Menu Items

The menu items along the top of the Getting Started page are available from every page on JasperReports Server. The Returns to the Getting Started page  and the Library, View, Manage, and Create menus offer the options described in the table below.

Menu	Description
	Returns to the Getting Started page.
Library	Displays a pared-down repository page that contains the Ad Hoc views, reports, and dashboards the currently logged in user has rights to
View	<ul style="list-style-type: none"> • Search Results - Displays the repository of resources filtered by criteria selected in the Filters panel.

Menu	Description
	<ul style="list-style-type: none"> • Repository - Displays the repository of files and folders containing resources, such as reports, report output, data sources, and images. • Schedules - Lists the reports that you have scheduled. • Messages - Lists system messages, such as an error in a scheduled report.
Manage	<ul style="list-style-type: none"> • Organizations - Opens the Manage Organizations page. • Users - Opens the Manage Users page. • Roles - Opens the Manage Roles page. • Server Settings - Opens the Server Settings Log Settings page.
Create	<ul style="list-style-type: none"> • Ad Hoc View - Launches the Ad Hoc Editor for designing views interactively. • Report - Launches the Create Report dialog for creating a report based on an Ad Hoc view and a report template. • Dashboard - Launches the Dashboard Designer for laying out multiple reports with input controls, labels, and images. • Domain - Launches the Domain Designer for setting up a Domain. • Data Source - Launches the New Data Source page for specifying the attributes of the new data source.

If you log in as an administrator, the Home page has additional options and menu items for managing users, roles, organizations, and settings, such as repository folder names. Administrator functions are documented in the *JasperReports Server Administrator Guide*. The links to the Online Help, Log Out, and a search field appear on all JasperReports Server pages. For more information about searching, see [Filtering Search Results](#).

JasperReports Server Keyboard Shortcuts

JasperReports Server provides keyboard shortcuts to help you navigate its web UI without the use of a mouse or other pointing device. These shortcuts are available on the Login page, the Home page, the Library Page, the Repository page, the Search Results page, and

the interactive Report Viewer, allowing you to log in, move between major navigational elements of these pages, select and open reports, and navigate tabular reports.

Shortcuts include:

Key	Action
Left Arrow	Navigate left one column, cell, or item.
Right Arrow	Navigate right one column, cell, or item.
Up Arrow	Navigate up one row, cell, or item.
Down Arrow	Navigate down one row, cell, or item.
Enter	Select an item or navigate into an inner control.
Escape	Cancel an action or navigate out to an outer control.
Tab	Navigate to the next major region or the form field. Focus moves from left to right.

Note that, on some pages, the Shift key can also be used with the arrow keys or Tab:

- When used with the arrow keys, Shift multi-selects items, such as reports listed in the Library page.
- When used with Tab, Shift changes the direction that focus moves from left to right to right to left.

In addition, the web UI has improved compatibility with screen readers, which assist visually impaired users in using computers. The implementation follows the WAI-ARIA (Web Accessibility Initiative Accessible Rich Internet Applications Suite) technical specification. WAI-ARIA has been certified for certain versions of JAWS (Job Access With Speech) with certain browsers:

- Microsoft Edge with JAWS 2018 - 2021
- Google Chrome with JAWS 2018 - 2021

For information on the compatible versions of browsers, see the *Jaspersoft Platform Support Guide*.

To increase JasperReports Server's accessibility further, we recommend that you enable the Easy Access theme, which increases color contrast and highlighting in the web UI. It can improve the user experience of those with visual impairment. For more information on the themes, see the JasperReports Server Administrator Guide.

The Library Page

The Library page offers a more focused view of the repository objects. It contains only the Ad Hoc views, reports, and Dashboards that the currently logged-in user has the rights to view and work with.

Click Library to view your Library list.

Library				
Name	Description	Type	Created Date	Modified Date
01_Geographic Results by Segment	Sample Multi-axis column chart from Domain showing Sales, Units, and \$ Per Square Foot by Country and S...	Ad Hoc View	Today	10/16/2019
01. Geographic Results by Segment Report	Sample Report containing hyperlinks and a map	Report	Today	10/17/2019
02. Sales Mix by City	Sample Spider chart from Domain data source and multi-select filter	Ad Hoc View	Today	8/28/2019
02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with an in page multi-select Filter panel	Report	Today	8/28/2019
03. Store Segment Performance	Sample Gauge Chart with multi-select filter from a Domain	Ad Hoc View	Today	10/11/2019
03. Store Segment Performance Report	Sample Gauge Report Created from an Ad Hoc View with multi-select pop-up filter	Report	Today	10/11/2019
04. Product Results by Store Type	Sample Filtered Table Report Showing Multiple Measures	Ad Hoc View	Today	8/28/2019
04. Product Results by Store Type Report	Sample Filtered Table Report Showing Multiple Measures. Created from Sample Ad Hoc View	Report	Today	8/28/2019
05. Accounts Report	Basic interactive Table Component report with Bookmarks Panel	Report	Today	8/28/2019
05. Unit Sales Trend	Sample HTML5 Time Series chart from Topic for Unit Sales data over relative rolling period with advanced c...	Ad Hoc View	Today	10/11/2019
06. Profit Detail Report	Sample report containing containing interactive HTML5 Chart and Table data with input controls. This repor...	Report	Today	8/28/2019
06. Sales Mix by Gender	Sample HTML5 percent bar chart from a Topic showing Sales Mix by Gender across Countries and Product F...	Ad Hoc View	Today	10/11/2019
07. Brand Sales Analysis	Sample HTML5 Scatter Chart providing multi-level price point analysis by Brand and Store Type	Ad Hoc View	Today	10/15/2019
07. Revenue Detail Report	Sample report containing containing interactive HTML5 Chart and Table data with input controls. This repor...	Report	Today	8/28/2019
08. Key Performance Metric Trend	Sample HTML5 Dual-axis column-line chart showing Sales and Margin results	Ad Hoc View	Today	10/11/2019
08. Unit Sales Detail Report	Sample report containing containing interactive HTML5 Chart and Table data with input controls. This repor...	Report	Today	8/28/2019
09. Customer Detail Report	Sample report with multiple charts, interactive table, and input controls. Also called as drill-through from th...	Report	Today	8/26/2019
09. Store Segment Performance	Sample HTML5 Bubble Chart with basic user defined calculations	Ad Hoc View	Today	11/24/2014
10. Calculated Fields and Measures	18 Sample Calculations	Ad Hoc View	Today	6/10/2016
10. Performance By Store Type	Sample report with Donut Pie Charts and crosstab showing sales performance by store type and product cat...	Report	Today	10/11/2019

Figure 4: Library Page

From the Library page, you can:

- Run and schedule reports.
- Open Ad Hoc views and generate reports from them.
- Run and edit dashboards.
- Run OLAP views.

All of these functions are available by right-clicking the item that you want to work with and selecting an action from the context menu.

Created vs. Modified Dates

The Library table has two columns that refer to when the repository items were created and last modified.

Generally, the created date is earlier than the modified date. In some situations, however, the created date may be after the modified date. This can happen for one of two reasons:

- When an existing report (A) is modified, then subsequently copied into a new report (B). In the Library list, report B's created date is the day it was created, but its modified date reflects the last time report A was changed.
- An existing report is exported from one system and imported into another. In the Library list, the reports created date is the date it was imported into the new system, and the modified date is the date it was last modified in the original system.

Browsing the Repository

The repository is the server's internal storage for reports, analysis views, and related files. The repository is organized as a structure of folders containing resources, much like a file system. However, unlike a file system, the repository is stored as a private database that only JasperReports Server can access directly.

To browse the repository, select View > Repository. From the repository page, you can access the reports, themes, and other files stored on the server. You can browse the repository contents that you have permission to view by expanding the icons in Folders. Click a folder name to view its contents to see the Repository page as shown in [Repository Folders Panel](#).

Folders		Repository				Sort By: Name Modified Date		
		Run	Edit	Open	Copy	Cut	Paste	Delete
		Name	Description	Type	Created ...	Modified ...		
		All Accounts Report	All Accounts Report	Report	April 28	April 28		
		Cascading multi select topic	Shows cascading input controls. Multi-select and ...	Report	April 28	April 28		
		Customers Report	Parameterized Report with no default values for ...	Report	April 28	April 28		
		demo for adhoc	Topic containing shipping costs for orders	Report	April 28	April 28		
		Employees	Employee List topic based on Employee List repo...	Report	April 28	April 28		
		foodmart data for crosstab	foodmart data for crosstab	Report	April 28	April 28		
		i18n columns	Columns are Internationalizable. Default su...	Report	April 28	April 28		
		MDX example	Example of topic with MDX query	Report	April 28	April 28		
		Parameterized Report	Parameterized Report	Report	April 28	April 28		
		Simple Domain Topic	Simple example of Domain saved as Topic	Domain Topic	April 28	April 28		
		SuperMart Products	Information about all of the products sold by Su...	Report	April 28	April 28		
		SuperMart Stores	Simple Topic. Good for trying calculations (sales...	Report	April 28	April 28		

Figure 5: Repository Folders Panel

Searching the Repository

You can search the entire repository, subject to permissions, or narrow the search using filters. Filters restrict a search by name, who changed the resource, type of resource, date of the resource, and schedule.

Searching the Entire Repository

To search the repository, select View > Search Results. The search results page appears. Instead of only viewing resources by folder, use intuitive search criteria, such as who modified the resource and when, to find pinpoint resources.

On the search results page, use either the Filters panel or Search field to find resources. The search results page displays results of searches and filters.

Repository					
Filters		Sort By: Name Modified Date			
Access Status	Name	Description	Type	Created ...	Modifie...
<ul style="list-style-type: none"> All available Modified by me Viewed by me 	01. Geographic Results by Segment	Sample Multi-axis column chart from Domain sh...	Ad Hoc View	July 15	10/16/2019
	01. Geographic Results by Segme...	Sample Report containing hyperlinks and a map	Report	July 15	10/17/2019
	02. Sales Mix by City	Sample Spider chart from Domain data source a...	Ad Hoc View	July 15	8/28/2019
	02. Sales Mix by City Report	Sample Spider Line Report created from an Ad H...	Report	July 15	8/28/2019
	03. Store Segment Performance	Sample Gauge Chart with multi-select filter fro...	Ad Hoc View	July 15	10/11/2019
	03. Store Segment Performance ...	Sample Gauge Report Created from an Ad Hoc V...	Report	July 15	10/11/2019
	04. Product Results by Store Type	Sample Filtered Table Report Showing Multiple ...	Ad Hoc View	July 15	8/28/2019
	04. Product Results by Store Typ...	Sample Filtered Table Report Showing Multiple ...	Report	July 15	8/28/2019
	05. Accounts Report	Basic interactive Table Component report with ...	Report	July 15	8/28/2019
	05. Unit Sales Trend	Sample HTML5 Time Series chart from Topic for ...	Ad Hoc View	July 15	10/11/2019
	06. Profit Detail Report	Sample report containing containing interactive...	Report	July 15	8/28/2019
	06. Sales Mix by Gender	Sample HTML5 percent bar chart from a Topic s...	Ad Hoc View	July 15	10/11/2019
	07. Brand Sales Analysis	Sample HTML5 Scatter Chart providing multi-lev...	Ad Hoc View	July 15	10/15/2019
	07. Revenue Detail Report	Sample report containing containing interactive...	Report	July 15	8/28/2019
	08. Key Performance Metric Trend	Sample HTML5 Dual-axis column-line chart sho...	Ad Hoc View	July 15	10/11/2019
	08. Unit Sales Detail Report	Sample report containing containing interactive...	Report	July 15	8/28/2019
	09. Customer Detail Report	Sample report with multiple charts, interactive t...	Report	July 15	8/26/2019
	09. Store Segment Performance	Sample HTML5 Bubble Chart with basic user def...	Ad Hoc View	July 15	11/24/2014
	1. Supermart Dashboard	Sample Dashboard containing filter pop-up, Das...	Dashboard	July 15	10/16/2019
	10. Calculated Fields and Measures	18 Sample Calculations	Ad Hoc View	July 15	6/10/2016
	10. Performance By Store Type	Sample report with Donut Pie Charts and crosst...	Report	July 15	10/11/2019
	11. Sales By Month Report	Sample multi-panel report	Report	July 15	10/16/2019
	11. Top 5 Products by City	Sample from Domain data source with nested to...	Ad Hoc View	July 15	9/4/2019

Figure 6: Search Results Page

To search all resources in the repository


Procedure

1. Select one of these filters: All available, Modified by me, or Viewed by me.
2. Click the ✖ icon in the search field to clear the search term if there is one.
3. Select All types, as shown in [Search Results Page](#).
4. Click 🔍.


The search results appear listing files that your user account has permission to view. Click a resource in the list to view it or right-click a resource to see what functions are available from the context menu.

The server remembers your settings on the Search Results page, so the most commonly needed resources remain visible when you return to the page.

Filtering Search Results

If you enter a search term and click  at the top of any server page, the server does not use filters. The search uses these default settings:

- Include subfolders.
- Start at the top-most folder visible to the user.
- Search for reports, report outputs, OLAP views, or other resources.
- Sort alphabetically by name.

If you click View > Search Results and click  the search results page, the server uses the filters you set in the Filters panel.


In [Search Field and Search Results](#), you can see the results of a search for the term “account” using the filters All available and All types.

Repository

Filters		account	X Q	Sort By: <u>Name</u>	Modified Date
Access Status	Name	Description	Type	Created ...	Modifie...
<ul style="list-style-type: none"> • All available Modified by me Viewed by me 	05. Accounts Report	Basic interactive Table Component report with B...	Report	July 15	8/28/2019
	20.1 Account List	Sample Report used for basic Visualize.js demo	Report	July 15	5/16/2014
	All Accounts Report	All Accounts Report	Report	July 15	July 14
<ul style="list-style-type: none"> File Type • All types Reports Content resources 	Employee Accounts	List of Accounts per Employee	Report	July 15	July 14
	SugarCRM Sample Analysis View	Sample SugarCRM Analysis View: Sales Performa...	OLAP View	July 15	July 14
	SugarCRM Sample XMLA Analysis ...	Sample SugarCRM Analysis View (XMLA): Sales Pe...	OLAP View	July 15	July 14

Figure 7: Search Field and Search Results



The search term that you enter in the search field is not cleared automatically. To clear the search term, click the  icon in the search field.

You can refine a search using filters. For example, filters can help you find your most recently viewed reports. You can set each filter independently. You can set the following types of filters:

- User

- Resource
- Access time
- Scheduled report

The user filter has the following settings:

Filter Setting	Description
All Available (default)	All resources.
Modified by me	Selects only resources that were last modified by the user who is logged in.
Viewed by me	Selects only resources that were run and viewed by the user who is logged in. This filter not only applies to visualization types, but also to resources that are included in reports such as images.

The resource type filter has the following settings:

Filter Setting	Description
All types (default)	All resources.
Reports	Displays only reports, both JRXML reports and Ad Hoc reports.
Report outputs	Displays only the output from reports that were scheduled or run in the background. Report output can be any of the supported export types, such as HTML and PDF.
Dashboards	Displays only dashboards.
OLAP views	Displays only analysis views (if you implement Jaspersoft OLAP).
Domains	Displays only Domains.
Data sources	Displays only data sources.

The access time filter has the following settings. All times are relative to the user's effective time zone:

Filter Setting	Description
Any time (default)	All resources.
Today	Resources viewed or modified since the previous midnight.
Yesterday	Resources viewed or modified during the previous day ending at midnight.
Past week	Resources viewed or modified during the past 7 days, including today.
Past month	Resources viewed or modified during the past 30 days, including today.

The scheduled report filter has the following settings:

Filter Setting	Description
Any schedule (default)	All resources.
Scheduled	Only reports that have scheduled jobs.
Scheduled by me	Only reports that have jobs scheduled by the currently logged in user.
Not scheduled	Only reports that do not have scheduled jobs and all other resource types.

Remember these do's and don'ts when searching for resources:

- Do use word fragments.
- Do search for the display name or part of the display name of a resource.
- Do search for words or fragments in the description of a resource.
- Do use multiple words.
- Don't search for folder names.
- Don't enter quotes around terms or symbols between terms.
- Don't worry about using upper- or lower-case letters in search terms.

Using Repository Resources

After finding a resource in the repository, naturally you want to do something with it. Options are:

- Click the name of a report to run and view it.
- Right-click the name of a resource to access other operations on the context menu, for example Edit or Open in Designer. Items appear on the context menu according to your permissions.
- Click anywhere in the row except the resource name to select a resource. Ctrl-click anywhere in the rows to select multiple resources. Use the context menu or buttons above the results list: Run, Edit, Open, Copy, Cut (move), or Delete. If the button is unavailable, the resource does not support the operation or you do not have permission for the operation. For example, the Open button is available when you select a dashboard or an Ad Hoc report if you have permission to write to it. You might also need permission to access the folder or dependent file, such as an image of a resource. For example, to schedule a report, you need to have read/write/delete permission on the folder where the server saves the report output. For more information about permissions, see the JasperReports Server Administrator Guide.
- Open In Editor is available on the context menu when you right-click the reports and files. This editor opens text files like .css, .properties, .json, .xml, .csv, .jrtx, and .jrxml. In the case of the report unit, it shows a dialog with all the files from the report unit that you can open by clicking the file. For more information on the report unit, see [Overview of a Report Unit](#). You can edit most of the files in the text editor while in the case of .jrxml files, a JRXML editor opens. For more information on JRXML editor, see [Jaspersoft Community Site](#).

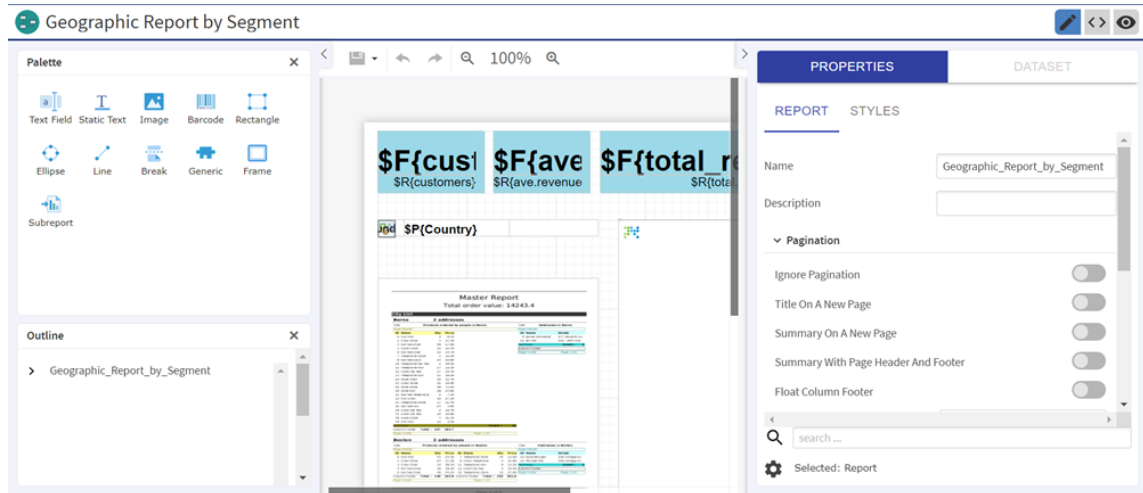





Figure 8: JRXML Editor for JRXML File

The following two icons may appear in the Repository panel:

-  - Indicates that the report has saved options for its input controls. Click the  icon to list the saved options. For more information, see [Running a Report with Input Controls or Filters](#).
-  - Indicates that the report is scheduled to run or is running in the background. Click this icon to view the list of jobs scheduled for the report. For more information, see [Scheduling Reports and Dashboards](#).

Moving Folders

If you have read permission on folders and resources, you can copy and cut them from one folder and paste them to another if you have write permission on the destination folder. The server pastes all contents of the folder into the new location.

You can drag-and-drop the objects instead of using the paste menu item. Move folders one at a time. You can move other resources in batches.



Relocated objects inherit permissions from the destination folder, losing the permissions in place before the move. To change permissions on an object, set the permissions explicitly.

To move folders and resources by cutting and pasting

Procedure

1. Log in to the server as a user who has these permissions:
 - Read permission on the folder or resource to move
 - Write permission on the destination folderFor example, log in as joeuser (use the password, joeuser).
2. Click View > Repository.
3. In the Folders panel, right-click Reports >Samples and select Add Folder.
4. In the Add Folder dialog, enter a name, such as Financial Reports, and click Add.
The Financial Reports folder appears as a subfolder of Samples and inherits Joe User's default permissions (read-write-delete) on the parent folder.

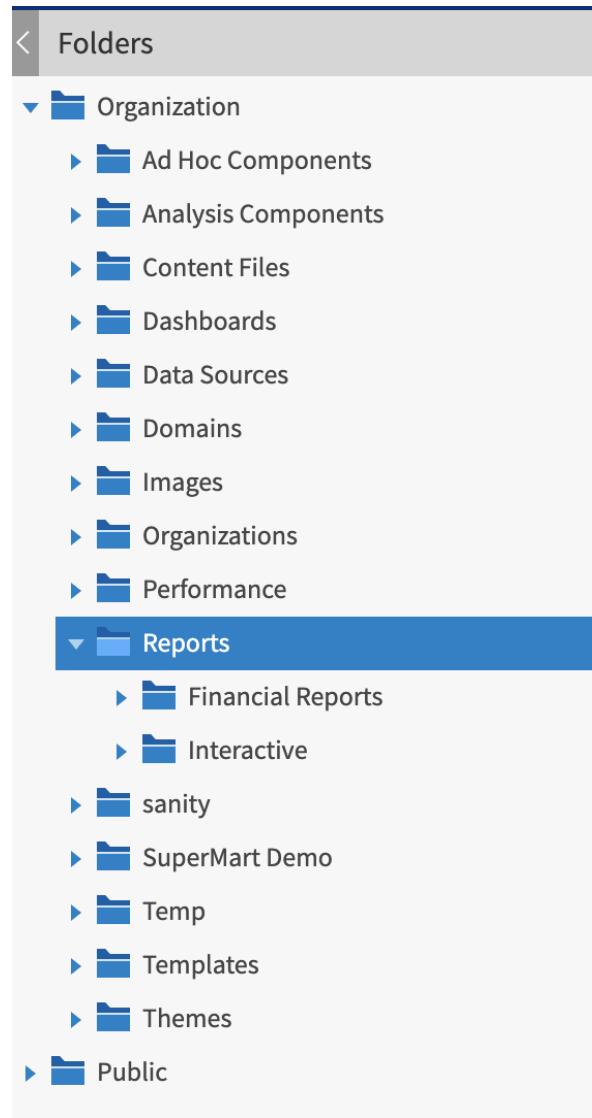


Figure 9: New Financial Reports Folder

5. The Financial Reports folder deserves a more prominent location. Move it up one level:
 - a. In Folders, right-click Financial Reports, and select Cut.
 - b. Right-click Reports, and select Paste.

The Financial Reports folder now appears in Reports at the same level as Samples.

**Note:**

You can relocate a folder, subject to permissions, anywhere in the repository with one exception: The server doesn't support copying and pasting a folder to the same location. If the Paste command is disabled when you right-click a destination folder, you don't have write permission on the folder.

Sorting the Repository List

To change the order of the list of reports and other resources, use the Sort By controls:

- Click Name to sort alphabetically (A at the top). This is the default sort order.
- Click Modified Date to sort by the latest modified time and date (most recent at the top).

Accessibility

Accessibility is the ability to access any application with ease. Websites, applications, tools, and technologies must be designed and developed in a way that makes it easy for everyone to use them. Accessibility enables people with special abilities to access, interact, and navigate through an application. This provides a better user experience and improves usability.

The main purpose of accessibility is to promote inclusivity among all users, including users with special abilities.

Organizations are keen to integrate accessibility. There are international guidelines of compliance that must be followed for web accessibility including:

- Web Content Accessibility Guidelines (WCAG) 2.1 also known as ISO/IEC 40500
- Country-based accessibility guidelines, such as 508c in the U.S.A.

Voluntary Product Accessibility Template (VPAT) is a template used to document the product's conformance with accessibility standards and guidelines.

For JasperReports Server, WCAG 2.1 level A and level AA are implemented. Assistive technology such as, screen reader and voice recognition systems, are used to access the

application. In addition, keyboard navigation is made easier for the ease of use while not using a mouse.

WCAG is implemented on the **Login, Home, Repository, Library, and Search Result** pages. The field that must be entered first, on any of these pages, is focused on and the control is already available on that field. You can use the **Tab** key, arrow keys, **Enter** key and the **Shift + Tab** keys, on the keyboard, to navigate around the page.

There are a few limitations of accessibility in JasperReports Server, including:

- **Library:**
 - Non-text elements are not read by the NonVisual Desktop Access (NVDA) screen reader.
 - Unable to navigate to the **Favorite** icon using the keyboard.
- **Repository:**
 - While navigating from **Folder > Add Folder**, the dialog name is not tagged as a heading.
 - Unable to navigate to the **Favorite** icon using the keyboard.
- **Favorites:**
 - **Favorite** button is not accessible using the **Tab** and arrow keys.
 - Interactive role missing for list items.
- **Search Results:**
 - Labels missing for the expandable/collapsible buttons in the **Filter** section.
 - Interactive role missing for list items in the **Filter** section.
- **Login and Home:**
 - Footer content overlaps at 400%.
- **Repository tree, List, and Toolbar:**
 - The screen reader does not provide the status message after selecting the Cut, Copy, and Paste options.
- The **End** button on the keyboard does not move focus to the last cell or last row where infinite scrolling is used.
- Touchscreen devices and mobile devices do not support accessibility.

- The **Favorite** icon is the last element read by the screen reader on each Repository List row, even though it is the first element.

Report Exporter and Viewer

In addition, when the reports are embedded in other applications, it is the HTML output produced by the JasperReports Library HTML exporter which is displayed there. The report exporter is enhanced to introduce semantic information in the output, so that the screen reader can understand the information in the report.

For images in the report, it is mandatory to include an alternate text for the screen reader to understand and read it out. For the tables in the report, the screen reader first introduces the report, reading out the number of rows and columns. It then follows it up by reading out the information in the table.

Working with Dashboards



This section describes functionality that can be restricted by the software license for JasperReports Server. If you don't see some of the options described in this section, your license may prohibit you from using them. To find out what you're licensed to use, or to upgrade your license, contact Jaspersoft.

A Jaspersoft dashboard displays several reports in a single, integrated view. A dashboard can include input controls for choosing the data displayed in one or more dashlets, and custom dashlets that point to URLs for other content. By combining different types of related content, you can create appealing, data-rich dashboards that quickly convey trends.

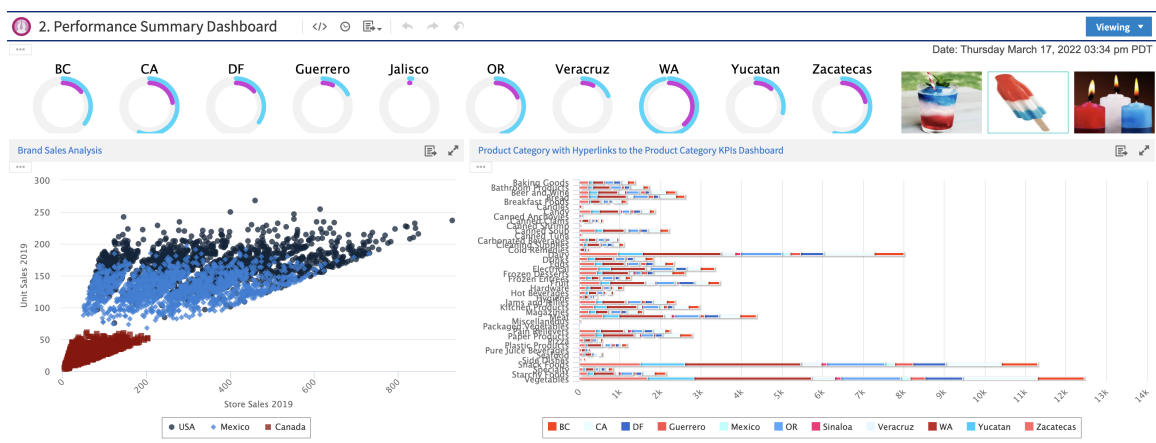


Figure 10: Sample dashboard

This chapter contains the following sections:

- [Viewing a Dashboard](#)
- [Overview of the Dashboard Designer](#)
- [Creating a Dashboard](#)
- [Specifying Parameters in Dashlets](#)
- [Editing a Dashboard](#)
- [Scheduling a Dashboard](#)
- [Getting the Embed Code for Visualize.js](#)

- [Exporting Dashboards and Dashlets](#)
- [Tips for Designing Dashboards](#)

Viewing a Dashboard

You can view a dashboard if you have the proper permissions. The following procedure walks you through opening one of JasperReports Server's samples, the Supermart dashboard.

To view the Supermart dashboard

Procedure

1. Log in as user demo, using the password demo.



Passwords are case-sensitive. Use the lowercase when you type demo.

The Supermart Top View dashboard opens in the dashboard viewer.



Figure 11: Supermart Dashboard Example

2. Click one of the USA gauges.

3. Select USA, then click Close to change the data displayed.
The two dashlets with Country data update to display data for USA only.



You can click the funnel icon to select one or more countries from a filter panel.

4. Click the Sales Metrics Dashboard.
A new dashboard opens. The Sales Metrics Dashboard includes reports on sales by region, state, and city.
5. On the Sales Metrics Dashboard, click Back ← to return to the Supermart Dashboard.



Use the Back button instead of the browser back button. This ensures the best experience with respect to the state of the previous page.

6. When done, click View > Repository to go to the repository page.



If a dashboard does not appear when you click its name in the repository, it may already be open in another window or tab of your browser.


If you have the proper permissions, you can easily switch from viewing a dashboard to editing it.

To edit the Supermart dashboard

Procedure

1. Open the Supermart dashboard in the dashboard viewer.
2. Click the Viewing button on the title bar and select Editing from the dropdown list.
3. Edit the dashboard by adding, removing, resizing, or dragging content.

For more information about working with dashboard content, see [Creating a Dashboard](#).

4. When you are satisfied with the dashboard, hover your cursor over  and select Save Dashboard. To create a new version of the dashboard, select Save Dashboard As and specify a new name.



If you close the dashboard without saving the changes, you are prompted to save or cancel the changes made to the dashboard.

Overview of the Dashboard Designer

The Dashboard Designer is a web-based UI for embedding reports, Ad Hoc views, and other BI objects into a single, interactive space. You can compile dashboards that include pre-existing elements, such as reports and views, and create new charts, tables, and crosstabs from your data sources directly from the designer.

Each element on your dashboard is called a Dashlet. Dashlets have unique names and resource IDs, and editable settings that vary depending on the Dashlet type.

Your permissions to access the repository may limit the content you can add and the location where you can save the dashboard.

This section includes:

- [The Dashboard Designer Interface](#)
- [Dashlets and Dashboard Elements](#)
- [Previewing a Dashboard](#)
- [Dashboard Settings](#)
- [Dashlet Settings](#)
- [Parameter Mapping](#)

The Dashboard Designer Interface

The following figure shows the basic layout of the Dashboard Designer.

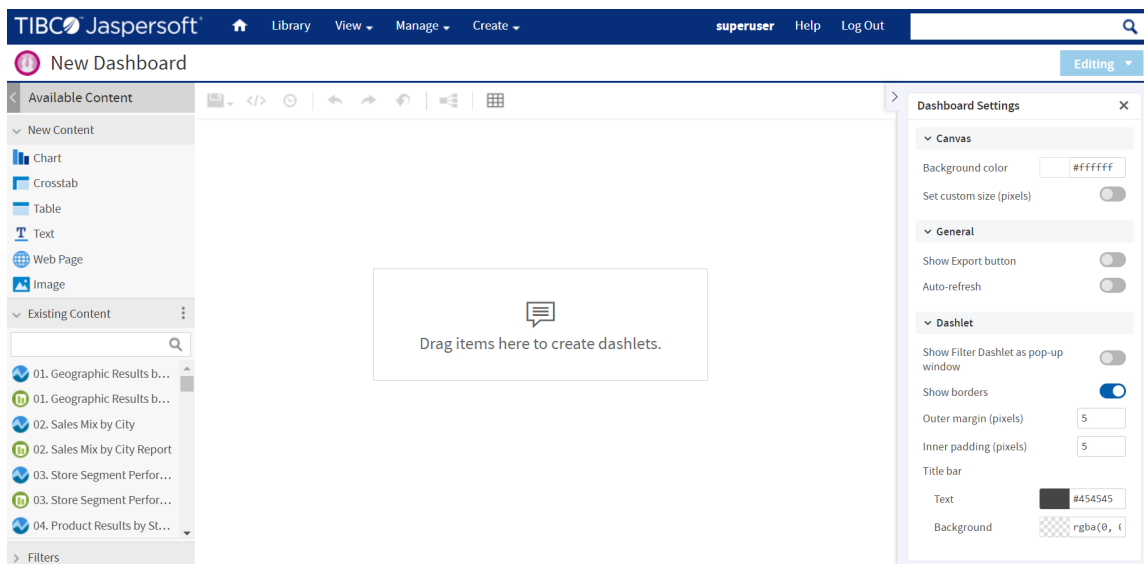












Figure 12: The Dashboard Designer UI

The Dashboard Designer UI includes the following panels:

- Available Content. From here, you can drag content onto the Dashboard Canvas. This panel includes the following sections:
 - New Content, which lists the content elements you can create for your dashboard.
 - Existing Content, which lists the Ad Hoc views and reports you can access from the Repository.
 - Filters, which list all filters associated with any resource added to the dashboard.
- Toolbar Buttons. See the table below for details.

Icon	Name	Description
	Save Dashboard/Save Dashboard As	Hover the cursor over the icon to open a menu of save options.
	Undo the last change	Click to undo the most recent action.
	Redo the last	Click to redo the most recent undone action.

Icon	Name	Description
	change	
	Reset the dashboard to its last saved state	Click to revert the dashboard to the most recently saved state.
	Show parameter mapping dialog	Click to open the Parameter Mapping dialog. See Parameter Mapping for more information.
	Show/hide grid overlay	Click to display or hide a grid.
	Toggle Filter Group Pop-up	Click to display or hide a filter pop-up window. This button only appears when you enable filter dashlet pop-ups in Dashboard Settings.
	Get Embed Code	Click to display the Dashboard Embed Code dialog. See Getting the Embed Code for Visualize.js for more information.
	Schedule dashboard	Click to display the New Schedule dialog. See Scheduling a Dashboard for more information.
	Close Dashboard	You can use this button to close the dashboard and return to the page from where a dashboard is accessed.

- Dashboard Canvas. This is where you create and edit your dashboard. It includes the following sections:
 - Title Bar, which displays the name of the dashboard (in the figure above, the name is "New Dashboard"). It also includes the Editing/Viewing button, which allows you to switch between editing the dashboard and displaying it as viewed by the end user.
 - Main Creation Area, where you build your dashboard. Drag elements from the Available Content panel here to get started.
- Dashboard Settings. This section displays the properties specific to the dashboard. See [Dashboard Settings](#) for more information.




Dashlets and Dashboard Elements

Each element added to your dashboard is called a Dashlet.

To add a Dashlet to your dashboard, simply select a content element and drag it onto the dashboard canvas. Certain content, such as charts and crosstabs, open an embedded Ad Hoc editor, which is the same editor used to create Ad Hoc views. See [Overview of the Ad Hoc Editor](#) for more information.

Dashlets can include the following elements, which you can access from the Available Content panel:

- **New Content:**
 - **Chart:** It allows you to create a chart using an embedded Ad Hoc editor.
 - **Crosstab:** It allows you to create a crosstab using an embedded Ad Hoc editor.
 - **Table:** It allows you to create a table using an embedded Ad Hoc editor.
 - **Text:** A free-form text entry field. Use free text items to add titles and instructional text to the dashboard.
 - **Web Page.** Any URL-addressable web content. The dashboard can point to web content.
 - **Image:** An image from the repository or that is accessible by a web address URL. For example, you might include a dashlet that displays your corporate logo. The logo's image file can be either in your repository or on the server of your corporate website.
- **Existing Content:** Reports and Ad Hoc views are accessible to you.
- **Filters:** If a dashlet you include on the dashboard is designed to use input controls or filters, you can add that capability to the dashboard. The server maps input controls to one or more dashlets.
- **Title Bar:** You can enable a title bar in the Dashlet Settings. The title bar includes the following elements:
 - The Dashlet name, as entered in the Dashlet Settings.
 - Dashlet toolbar, which can contain the following:

Icon	Name	Description
	Maximize	Click to open the dashlet as a larger view.
	Refresh	Click to refresh the dashlet.
	Export	Click to export the dashlet and save the output to your computer. See Exporting Dashboards and Dashlets for more information.

For more advanced functionality, you can access the settings panel that lets you edit the overall appearance of your dashboard, modify the functionality of your dashlets, and create mappings between your dashboard input controls and your dashlets.

Previewing a Dashboard

You can preview your dashboard in display mode to see how it appears when an end-user views it.

To preview a dashboard

Procedure

1. Click the Editing button and select Viewing from the dropdown list. The dashboard opens in display mode.
2. To close the preview and return to the Dashboard Designer, click the Viewing button and select Editing from the dropdown list.

Dashboard Settings

You can view and edit the basic appearance of the dashboard, and determine the refresh settings, through the Dashboard Settings.

To view and edit the Dashboard Settings

In the Dashboard Designer, Dashboard Settings display in the settings panel.

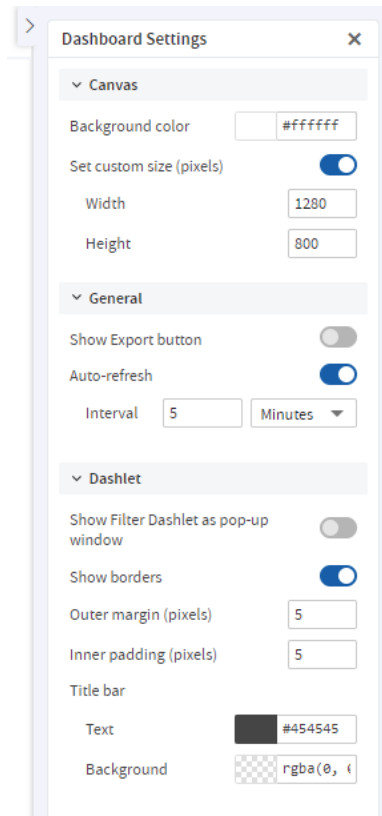


Figure 13: Dashboard Settings

Canvas

- **Background color:** Select the canvas background color by using the color picker or by entering a color value (hex, rgb, and rgba color formats are supported).
- **Set custom size (pixels):** Click the Set custom size (pixels) switch to turn it on, when you want the dashboard to be displayed at a specific width and height instead of dynamically resizing based on the browser window. The **Width** and **Height** inputs can be used to set the required width and height.

General

- **Show Export button:** Click the Show Export button switch to turn it on, to show the Export button in the dashboard viewer.
- **Auto-refresh:** Click the **Auto-refresh** switch to turn it on. The **Interval** inputs can be used to set the required refresh interval.

Dashlet

- Show Filter Dashlet as pop-up window: Click the switch to turn the setting on, when you want the filter dashlet to appear as a pop-up window instead of a dashlet pinned on the dashboard.
- Show borders: This setting is on by default. Click the switch to turn the setting off, to hide the dashlet borders.
- Outer margin (pixels): Enter the required width, in pixels, of the margins between dashlets.
- Inner padding (pixels): Enter the required width, in pixels, of the padding inside each dashlet.
- Title bar:
 - Text: Text color for the title bars of all the dashboard's dashlets. Select the color by using the color picker or by entering a color value (hex, rgb, and rgba color formats are supported).
 - Background: Background color for the title bars of all the dashboard's dashlets. Select the color by using the color picker or by entering a color value (hex, rgb, and rgba color formats are supported).

Dashlet Settings

You can view and edit basic information and appearance for each dashlet on your dashboard using Dashlet Settings. For some dashlets, you can also create parameters that you can then map to in Parameter Mapping. The available settings vary based on the type of dashlet that you are working with.

To view and edit Dashlet Settings

Select the dashlet to show its settings in the settings panel. The Hyperlinks settings are available for Ad Hoc views and Ad Hoc view dashlets created inside the dashboard, as well as text and image dashlets. The Text Format settings are available for text dashlets.

General and Dashlet Appearance Settings for Reports and Ad Hoc View Dashlets

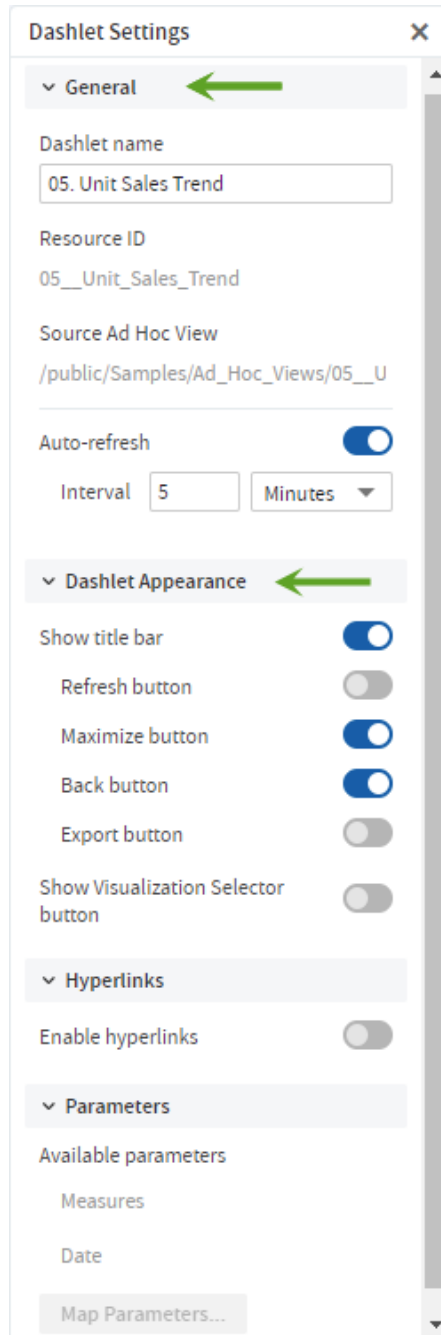


Figure 14: General and Dashlet Appearance Settings for Reports and Ad Hoc View Dashlets

General Settings

- Dashlet name: Editable field for the displayed dashlet name.
- Resource ID: Non-editable ID taken from the original dashlet name.
- Source Data: Non-editable path of the source data.



The label name for this setting is different for different resource types:

- Source Data: For new Ad Hoc views created in dashboards (Chart, Crosstab, and Table)
 - Source Ad Hoc View: For the existing Ad Hoc views
 - Source Report: For the reports
- Auto-refresh: Click the **Auto-refresh** switch to turn it on. The **Interval** inputs can be used to set the required refresh interval.

Dashlet Appearance Settings

- Show title bar: Choose to show or hide the title bar, which includes the Dashlet name, Refresh button, Maximize button, Back button, and Export button.
- **Show Visualization Selector button:** Choose to show or hide the Visualization Selector button.
- Scale report to fit: Use the dropdown menu to determine how the element is scaled in the dashlet. Scale report to fit is available for report dashlets Scale to fit is not available for Ad Hoc view dashlets.

Hyperlinks Settings

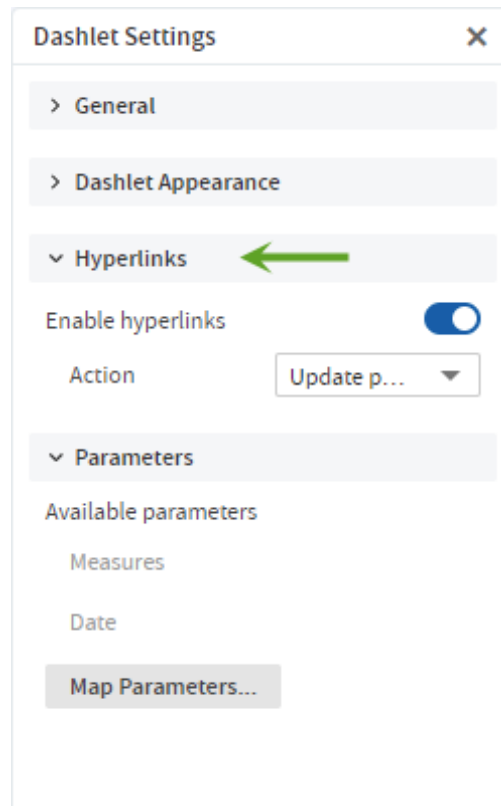


Figure 15: Hyperlinks Settings



The Hyperlinks settings are available for Ad Hoc views and Ad Hoc view dashlets created inside the dashboard, as well as text and image dashlets.

- **Enable hyperlinks:** Click the Enable hyperlinks switch to turn it on.
- **Action:** Select the link behavior for this dashlet:
 - **Update page:** Select this option to update the dashboard's contents when a user clicks a link in the dashlet.
 - **Open new page:** Select this to have the dashlet open a web page or report, dashboard, or an Ad Hoc view in the repository in a new browser tab or window when a user clicks the dashlet. Click Browse to select a resource from the repository.

You can link directly to a web page using http: syntax:

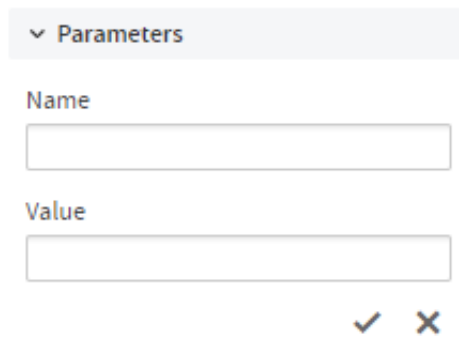
```
http://en.wikipedia.org/wiki/$P{Customer Country}
```

A repository URL must begin with repo:. For example,

```
repo:/public/Samples/Ad_Hoc_Views/05._Unit_Sales_Trend
```

You can add a parameter to a hyperlink for a web page, dashboard, Ad Hoc view, or report. See [Specifying Parameters in Dashlets](#) for more information about adding parameters to hyperlinks.

- **Replace page:** Select this option to replace the current dashboard page with a web page or report, dashboard, or an Ad Hoc view in the repository when a user clicks the dashlet. Click Browse to select a resource from the repository. The syntax for links and parameters is the same as the Open new page option. If the dashlet replaces the page with an Ad Hoc view, then it opens in the Ad Hoc View Designer. A Back button appears on the toolbar after the dashlet opens a report or dashboard that takes you back to the previous dashboard.
- **Replace dashlet:** Select this option to replace the current Ad Hoc view in a dashlet with some other Ad Hoc view, Report, or Report Option in the repository when a user clicks the dashlet. Click Browse to select a resource from the repository. The syntax for links and parameters is the same as the Open new page option.
- **Available parameters:** If you want to add a parameter in the hyperlink, use a name in this list to have Parameter Mapping create the link to the parameter automatically.
- **Add parameter:** For text and image dashlets, you can define a parameter to include in the hyperlink. Click the Add parameter button and in the fields that display, enter the parameter's name and value. Click ✓ to save the new parameter.



The image shows a dialog box titled "Parameters". At the top, there is a header bar with a downward-pointing chevron and the text "Parameters". Below this, there are two text input fields. The first is labeled "Name" and the second is labeled "Value". At the bottom right of the dialog, there are two icons: a checkmark and an "X" symbol, indicating confirmation and cancellation options.

Figure 16: Adding a New Parameter to a Dashlet

- Map Parameters: If hyperlinks have been enabled, the **Map Parameters** button is active. Click **Map Parameters** to open the **Parameter Mapping** dialog box. See [Parameter Mapping](#) for more information.

General, Text Format, and Dashlet Appearance Settings for Text Dashlets

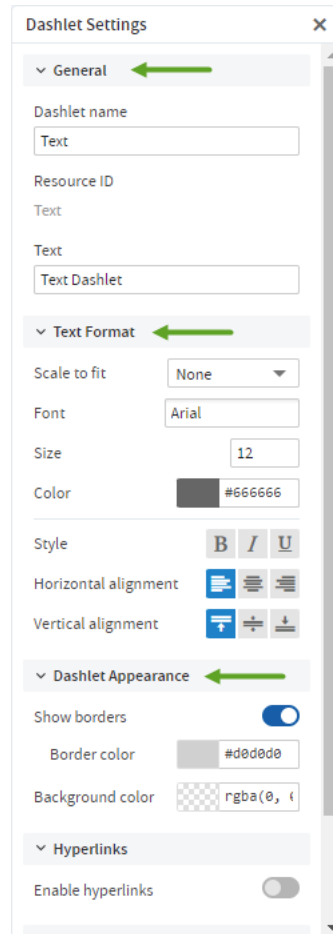


Figure 17: General, Text Format, and Dashlet Appearance Settings for Text Dashlets

General Settings

- Dashlet name: Editable field for the displayed dashlet name.
- Resource ID: Non-editable ID taken from the original dashlet name.
- Text: Editable field for the text displayed in the dashlet.

Text Format Settings



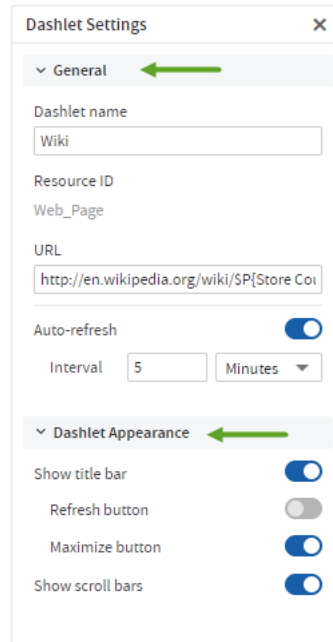
The Text Format settings are only available for text dashlets.

- **Scale to fit:** Use the dropdown menu to determine how the text is scaled in the dashlet. This overrides the specified font size.
- **Font:** Use the select input to select the font.
- **Size:** Enter the font size or click the arrows to select a value.
- **Color:** Color for the text displayed in the dashlet. Select the color by using the color picker or by entering a color value (hex, rgb, and rgba color formats are supported).
- **Style:** Apply the text style using the associated toggle buttons. Multiple options can be selected.
- **Horizontal alignment:** Apply the horizontal alignment using the associated toggle buttons. Only one option can be selected.
- **Vertical alignment:** Apply the vertical alignment using the associated toggle buttons. Only one option can be selected.

Dashlet Appearance Settings

- **Show borders:** This setting is on by default. Click the switch to turn the setting off, to hide the dashlet border. If you select to show the dashlet border, you can choose the border color.
- **Background color:** Select the dashboard background color by using the color picker or by entering a color value (hex, rgb, and rgba color formats are supported).

General and Dashlet Appearance Settings for Web Page Dashlets



The screenshot shows a 'Dashlet Settings' dialog box with two main sections: 'General' and 'Dashlet Appearance'. The 'General' section includes a text input for 'Dashlet name' containing 'Wiki', a non-editable 'Resource ID' field with 'Web_Page', and a text input for 'URL' containing 'http://en.wikipedia.org/wiki/SP{Store Co'. Below these is an 'Auto-refresh' toggle switch that is turned on, and an 'Interval' field set to '5' with a 'Minutes' dropdown menu. The 'Dashlet Appearance' section contains four toggle switches: 'Show title bar' (on), 'Refresh button' (off), 'Maximize button' (on), and 'Show scroll bars' (on). Green arrows point to the 'General' and 'Dashlet Appearance' section headers.

Figure 18: General and Dashlet Appearance Settings for Web Page Dashlets

General Settings

- Dashlet name: Editable field for the displayed dashlet name.
- Resource ID: Non-editable ID taken from the original dashlet name.
- URL: Editable field for the URL displayed in the dashlet.
- Auto-refresh: Click the **Auto-refresh** switch to turn it on. The **Interval** inputs can be used to set the required refresh interval. This setting overrides the Auto-refresh setting at the dashboard level.

Dashlet Appearance Settings

- Show title bar: Choose to show or hide the title bar, which includes the Dashlet name, Refresh button, and Maximize button.
- Show scroll bars: Choose to show or hide scroll bars.

General and Dashlet Appearance Settings for Image Dashlets

Dashlet Settings

General

Dashlet name
Image

Resource ID
Image

URL/repository URI
repo:/public/Samples/Reso

Web address must start with http or https.

Dashlet Appearance

Show borders

Border color #d0d0d0

Show title bar

Refresh button

Maximize button

Scale image to fit Width

Hyperlinks

Enable hyperlinks

Parameters

+ Add parameter

Map Parameters...

Figure 19: General and Dashlet Appearance Settings for Image Dashlets

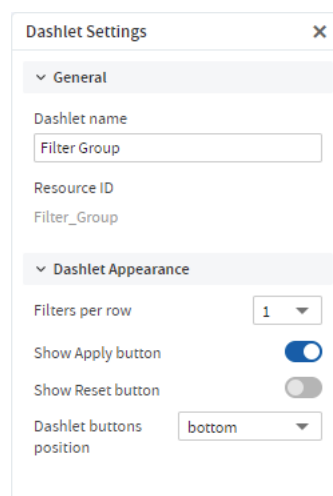
General Settings

- Dashlet name: Editable field for the displayed dashlet name.
- Resource ID: Non-editable ID taken from the original dashlet name.
- URL/Repository URI: Editable field for the location of the image displayed in the dashlet. This can include parameters. Click Browse to select an image from the repository.

Dashlet Appearance Settings

- Show borders: This setting is on by default. Click the switch to turn the setting off, to hide the dashlet border. If you select to show the dashlet border, you can choose the border color.
- Show title bar: Choose to show or hide the title bar, which includes the Dashlet name, Refresh button, and Maximize button.
- Scale image to fit: Use the dropdown menu to determine how the image is scaled in the dashlet.

General and Dashlet Appearance Settings for Filter Dashlets



The screenshot shows a 'Dashlet Settings' dialog box with two main sections: 'General' and 'Dashlet Appearance'. In the 'General' section, the 'Dashlet name' is set to 'Filter Group' and the 'Resource ID' is 'Filter_Group'. In the 'Dashlet Appearance' section, 'Filters per row' is set to 1, 'Show Apply button' is turned on, 'Show Reset button' is turned off, and 'Dashlet buttons position' is set to 'bottom'.

Figure 20: Filter Dashlet Settings

General Settings

- Dashlet name: Editable field for the displayed dashlet name.
- Resource ID: Non-editable ID taken from the original dashlet name.

Dashlet Appearance Settings


- Filters per row: The default value is 1. To show more than one filter per row, select a different value in the associated select input.
- Show Apply button: This setting is on by default. Click the switch to turn the setting off, to hide the button.
- Show Reset button: This setting is off by default. Click the switch to turn the setting on, to show the button.
- Dashlet buttons position: Use the dropdown menu to select bottom or right.

Parameter Mapping

Parameter Mapping helps you refine your filters by letting you specify which dashlets and which parameters are affected by a filter.

To open Parameter Mapping

Procedure

1. Open a dashboard with filters, such as the Sales Dashboard created in [Creating a Dashboard](#), in the Dashboard Designer.
2. Click  to open Parameter Mapping.





Source Dashlet	Filter/Parameter	Dashlet Affected	Filter/Parameter Affected
Filter Group	Country	04. Product Results by Store	Country
	Department	16. Interactive Sales Report	Product_Department
	Type	16. Interactive Sales Report	Product_Family

[Create New Filter](#)

OK Cancel

Figure 21: Parameter Mapping for the Sales Dashboard


Parameter Mapping displays the filter-to-dashlet mapping, and includes the following columns and buttons:

- Source Dashlet, the name of the dashlet where the filter originates. It can also display Filter Group (multiple filters in a single dashlet) or Manually Created Filter (filter created using Parameter Mapping, as described below).
- Filter/Parameter, the name of the filter.
- Dashlet Affected, with a dropdown menu including all dashlets that can be affected by that filter.
- Filter/Parameter Affected, with a dropdown menu including all parameters associated with the selected dashlet in the Dashlet Affected column.
- Add button , used to add additional dashlet/parameter combinations to a filter.
- Delete button , used to delete a dashlet/parameter combination.

From Parameter Mapping, you can add, delete, or edit an existing dashlet/parameter combination, and create a new filter to add to the dashboard.


To add a filter using Parameter Mapping

Procedure

1. Open a dashboard with filters, and open Parameter Mapping as described above.
2. In the filter row, click  to add the new filter . A row containing new affected dashlet and filter/parameter dropdown menus appears.
3. Using these new line-items, select the dashlet and parameter combination you want to apply to the dashboard.
4. Click OK to apply and save or Cancel to discard your changes.

To delete a filter using Parameter Mapping

Procedure



1. Open Parameter Mapping.
2. In the filter row, click  to delete. The filter row disappears from Parameter Mapping.

To create a new filter via Parameter Mapping

Procedure

1. Open Parameter Mapping.
2. Click Create New Filter. A new row is added to the manager.
3. In the Filter column, enter a name for the new filter. Click outside the text box to apply the name.
4. Click **+** and select the dashlet and parameter combination you want to apply to the new filter.
5. Click OK to apply and save, or Cancel to discard the new filter.

To delete a newly created filter**Procedure**

1. In Parameter Mapping, click  in the filter row you want to delete. The Dashlet Affected and Filter/Parameter affected dropdown menus disappear.
2. Click  again in the row that you want to delete. The Filter row disappears.
3. Click OK to apply and save, or Cancel to discard the new filter.

Creating a Dashboard

This section describes the creation of a simple dashboard.



To add a report or Ad Hoc view to a dashboard, you must have permission to view those elements.

To create a simple dashboard**Procedure**

1. Click Create > Dashboard. The Dashboard Designer appears, displaying the list of available content and the canvas.
2. In the Existing Content section of the Available Content panel, find report 16. Interactive Sales Report.
3. Click and drag the report onto the Dashboard Canvas.

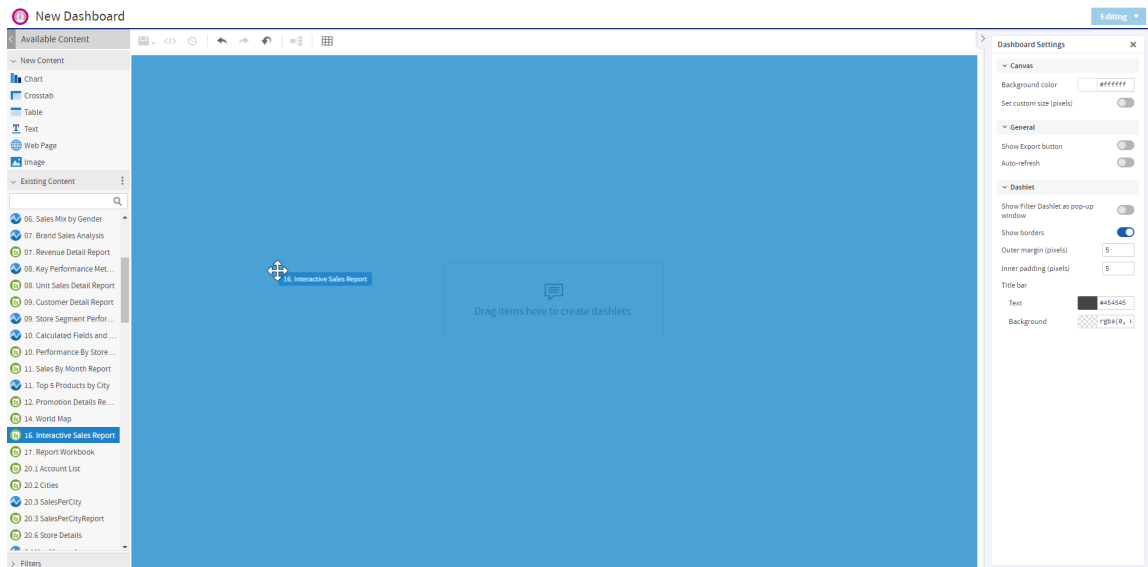


Figure 22: Dragging report onto Dashboard Canvas

4. In Available Content, find 04. Product Results by Store Type Report.
5. Click and drag the report onto the canvas, until the left half of the Interactive Sales Report turns blue.

The Product Results by Store Type Report appears on the canvas, next to the Interactive Sales Report. Both report dashlets are sized to fit side-by-side on the canvas.

6. Select the Product Results by Store Type Report dashlet, the dashlet settings displays in the settings panel.
7. Use the Scale report to fit dropdown to select Dashlet.

The resized Product Results by Store Type Report now displays the entire crosstab in the dashlet.

8. Click and drag the report 05. Accounts Report onto the canvas, until the lower half of the Interactive Sales Report turns blue.

The Accounts Report is placed under the Interactive Sales Report, and both dashlets are resized to fit on the right half of the canvas.

9. Go to the **Dashboard Settings** on the settings panel.
10. Click the Show borders switch under Dashlet settings to turn the setting off.

In [Simple Dashboard Canvas with three reports](#) you can see how the dashboard

canvas looks at this point.

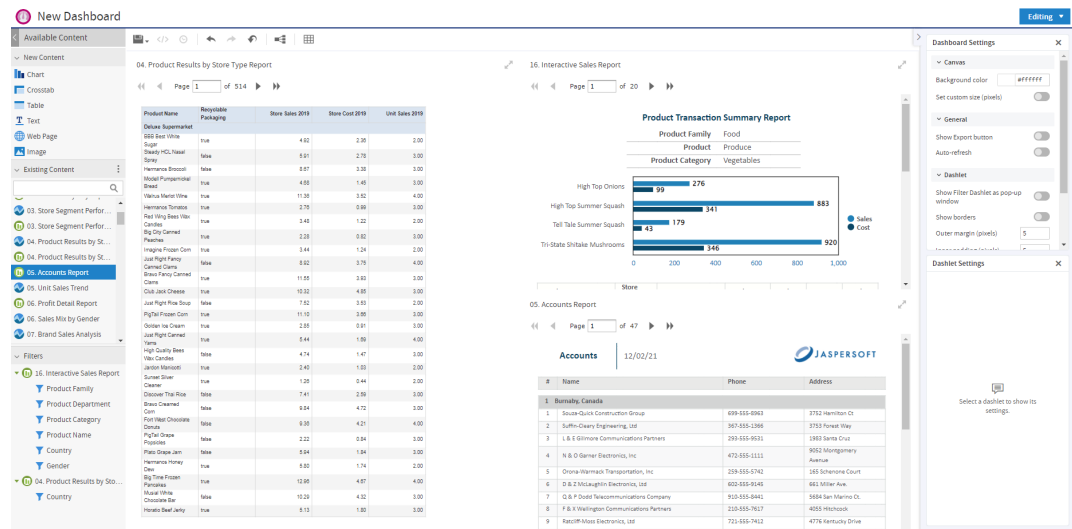



Figure 23: Simple Dashboard Canvas with three reports

11. Click the Editing button and select Viewing to preview the dashboard. The end user view of the dashboard appears.
12. Click the Viewing button and select Editing to return to the designer.
13. Click , then select Save Dashboard.
14. In the Save As window, change the default name, New Dashboard to Sales Dashboard and locate a folder, such as the /Dashboards folder.
15. Click Save.



You can include a report with the Detail Chart Enabled property as enabled or disabled in the dashboard.

Adding New Content

In addition to pre-existing reports and Ad Hoc views, you can create content for your dashboard directly from the Dashboard Designer, including:

- Charts
- Crosstabs
- Tables

- Text
- Web page links
- Images

Adding Charts, Crosstabs, and Tables

The Dashboard Designer includes an embedded Ad Hoc Editor, which allows you to create charts, crosstabs, and tables for your dashboard without leaving the designer environment.

Any chart, crosstab, or table you create within the Dashboard Designer is available only on the current dashboard. Otherwise, they function like standard Ad Hoc Editor-created versions of these elements. They are saved as an Ad Hoc view and placed in a dashlet on your dashboard.



To add a new chart, crosstab, or table to your dashboard

Procedure

1. In the New Content section of the Available Content panel, click and drag the type of element you want to add to your dashboard (Chart, Crosstab, or Table) onto the dashboard canvas.

The Ad Hoc Editor opens, and the Select Data dialog appears.

2. Browse to or search for the data source that you want to use.

- Click  for a tree view of the files.
- Click  for a list view of the files.
- Use the text search field to locate a specific data source.

3. Depending on your selected data source, the remaining steps may vary. Follow the displayed instructions. For more information about this process, see [Ad Hoc Sources: Topics, Domains, and OLAP Connections](#).

4. When you complete the data source selection process, click OK. The Ad Hoc Editor opens.

The embedded Ad Hoc Editor works just like the standard editor. For information on working with the editor, see [Working with the Ad Hoc Editor](#).

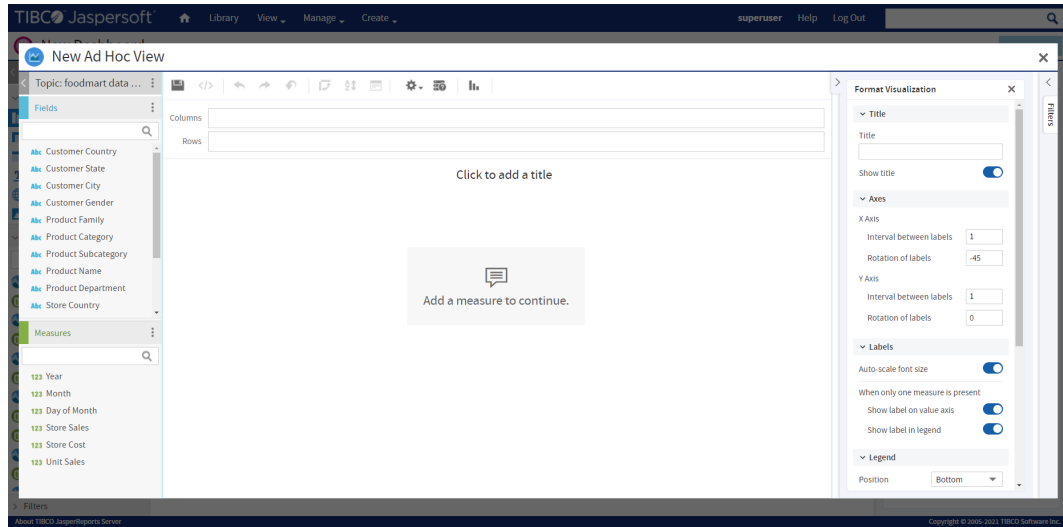



Figure 24: Embedded Ad Hoc Editor

5. When you finish creating your view, click  to save.
6. In the Save to Dashboard dialog, enter a dashlet name, and click Save. The dashlet is added to your dashboard.

Adding Text

You can add a text field dashlet for titles and instructional text.

To add a text dashlet

Procedure

1. In the New Content section of the Available Content panel, click and drag the Text item onto your dashboard. The Dashlet Text window opens.
2. Enter the text that you want to appear on your dashboard.
3. Click OK. The dashlet is added to your dashboard.

Edit the dashlet name and font appearance in Dashlet Settings. See [Dashlet Settings](#) for more information.

Adding a Web Page

You can add a dashlet to display a web page on your dashboard.

To add a web page dashlet

Procedure

1. In the New Content section of the Available Content panel, click and drag the Web Page item onto your dashboard. The Dashlet URL window opens.
2. Enter the URL that you want to appear on your dashboard.
3. Click OK. The dashlet is added to your dashboard.

Edit the dashlet name in Dashlet Settings. See [Dashlet Settings](#) for more information.

Adding an Image

You can add a dashlet to display an image, such as a corporate logo, on your dashboard.

To add an image dashlet

Procedure

1. In the New Content section of the Available Content panel, click and drag the Image item onto your dashboard. The Dashlet URI window opens.
2. Enter the URI for the image that you want to appear on your dashboard. Use the `repo:` syntax for images in your repository.
3. Click OK. The dashlet is added to your dashboard.



Edit the dashlet name in Dashlet Settings. See [Dashlet Settings](#) for more information.

Adding Controls to a Dashboard

The Interactive Sales Report was designed to be run with input controls. When you add a report that has input controls to a dashboard, the controls don't appear until you explicitly add them, one-by-one. The controls can either be added directly to the dashboard as a dashlet or accessed from the toolbar as a pop-up window. When the report runs,

dashboard users provide input using the control. Data based on the user input appears in the dashboard. For example, using the input control, you select Mexico. The report on the dashboard shows orders from Mexican companies.

Keep these points in mind when viewing a dashboard that has input controls:

- An input control may appear as a text field, a drop-down, a check box, a multi-select list box, or a calendar icon.
- If one of the dashlets in a dashboard does not refer to an input control, that dashlet does not update when you change that input control's value. Only dashlets that use the input control reflect the change.
- The  buttons on the toolbar allow you to undo and redo recent changes made to the dashboard, including changes using an input control.
- If the  button appears on the toolbar, then the dashboard was set up to display input controls as a pop-up window instead of a dashlet. Click the button to view the controls.

To add controls as a dashlet

Procedure

1. If the Sales Dashboard created in [Creating a Dashboard](#) is not open, locate the /Dashboards folder in the repository. Right-click the dashboard name and select Open in Designer from the context menu.

The Sales Dashboard appears in the designer, as shown in [Simple Dashboard Canvas with three reports](#), and the input controls available appear in the Filters section of the Available Content panel.


2. In the Filters section, expand the 16. Interactive Sales Report folder.

The input controls associated with the Interactive Sales Report appear.

3. Drag the Country input control onto the canvas, and place it above the Product Results by Store Type dashlet.

The Country input control and its label appear above the Product Results by Store type report on the canvas.

4. Drag the Product Family and Product Department controls onto the Country input control dashlet. These input controls are added to the same dashlet. Resize the dashlets as needed to view all of the input controls.

5. Click  and select Save Dashboard, then click the Editing button and select Viewing to preview the dashboard.
6. Click in the Country text box to display the available countries. In this input control, you have the following options:
 - The three countries: Canada, Mexico, and USA.
 - All, which selects all available values in the input control.
 - None, which deselects all available values in the input control.
 - Invert, which deselects any selected values, and selects the unselected values.
7. Use the options to select Mexico from the values list, and click Apply at the bottom of the dashlet. The data displayed in the Interactive Sales Report changes, but is not updated in the other reports, as they do not have an input control named Country.
8. Click the Viewing button and select Editing to return to the Dashboard Designer.

You can also change the labels, or display names, of individual input controls and filters within a dashlet.

To rename an input control or filter

Procedure

1. With the Sales Dashboard open in the Dashboard Designer, select Product Family in the input control dashlet, filter settings display in **Dashlet Settings** in the settings panel.
2. Change the Filter label from Product Family to Type.
3. Select the Product Department input control, filter settings display in **Dashlet Settings** in the settings panel. Change the Product Department filter label to Department. The input control labels are updated.

Source Dashlet	Filter/Parameter	Dashlet Affected	Filter/Parameter Affected
Filter Group	Country	04. Product Results by Store	Country
	Department	16. Interactive Sales Report	Product_Department
	Type	16. Interactive Sales Report	Product_Family





[Create New Filter](#)

OK Cancel

Figure 25: Parameter Mapping for the Sales Dashboard

To add controls as a pop-up window

Procedure

1. With the Sales Dashboard open in the Dashboard Designer, go to the **Dashboard Settings** on the settings panel.
2. Click the Show Filter Dashlet as pop-up window switch to turn it on.
The input controls dashlet disappears from the dashboard and  appears on the toolbar. This button is also displayed when you're viewing the dashboard.
3. Click  and select Save Dashboard, then click the Editing button and select Viewing to preview the dashboard.
4. Click  to view the filter pop-up window.
Like the dashlet, selecting the options in the pop-up changes the data displayed in the Interactive Sales Report.
5. Click  to close the filter pop-up window.
6. Click Viewing button and select Editing to return to the Dashboard Designer.

Refining a Dashboard's Layout

After completing the layout, refine the look and feel of the dashboard.

To refine the dashboard's layout

Procedure

1. If it is not open, locate the Sales Dashboard you created in [Creating a Dashboard](#), typically in the /Dashboards folder.
2. Right-click the dashboard name. Select Open in Designer from the context menu.
3. When the dashboard opens in the designer, select **Viewing** to preview.
The end user's view of the dashboard appears.
4. In the Country field, select a new value.
The reports do not update because the dashboard includes the Apply button.
5. Return to the Dashboard Designer and select the Country filter dashlet, to show the dashlet settings in the settings panel.
6. Click the Show Apply button switch to turn it off, and click the Show Reset button switch to turn it on.
The dashlet's Apply button disappears, and the Reset button appears.
7. Reposition the Reset button to the right side of the dashlet using the **Dashlet buttons position** dropdown menu.
8. Select **Viewing** to preview. The end user view of the dashboard appears.
9. Change the value in the Country input control. The dashboard reflects the change immediately.
10. Return to the Dashboard Designer and click Save > Save Dashboard. The dashboard is saved to the repository.

Specifying Parameters in Dashlets

You can add parameters to dashlet names, text dashlets, web page dashlets, image dashlets, and hyperlinks in Ad Hoc viewdashlets. When you add a parameter, you must map a filter in the dashboard to the parameter. See [Mapping parameters in Parameter Mapping](#) for more information.

Simple parameters

For the text dashlets, web links, and dashboard names, use the syntax `$P{parameter_name}` to directly pass the parameter value to the web page. Examples:

- In a text dashlet, enter the parameter in the Text box:
Product Family: `$P{Product Family}`
- In a web page dashlet or a web link in an Ad Hoc view dashlet hyperlink, enter the parameter in the Web Page Address (URL) text box:
`http://en.wikipedia.org/wiki/$P{Store Country}`
- In a repository or web URI for an image dashlet, enter the parameter. Enter the parameter in the Web Address/Repository URI text box:
`repo:/public/Samples/Reports/$P{Store Country}/flag.png`
- Dashlet name: Enter the parameter in the Dashlet Name box:
Unit Sales for `$P{Product Family}`

For repository hyperlinks in an Ad Hoc view dashlet, use the syntax `?filter_in_target=$P{dashlet_param}`. For example, the following link sets the `c_country_1` input control in the 05. Unit Sales Trend report to the value of a Store Country parameter in the dashlet.

```
repo:/public/Samples/Reports/05._Unit_Sales_Trend?c_country_1=$P{Store Country}
```



To find the correct name for a filter in a target resource, open the Dashboard Designer in a new window, and add the resource to the canvas. Then expand the resource's folder in the Filters panel and hover over the filter whose name you want to see.

Parameters in multi-valued input controls

For multi-valued input controls, you can define a separator for the input control values:

- For text dashlets, web links, and dashboard names, use the syntax `$P{parameter_name ? "separator"}`. The following example in a text box displays results like Product Family: Drink + Food:
Product Family: `$P{Product Family ? " + "}`
- For repository links in an Ad Hoc view or image dashlet, use the syntax `?$P{"filter_in_target=", dashlet_param, ? "&"}`. For example, the following link allows multi-select with the `c_country_1` input control in the 05. Unit Sales Trend report:
`repo:/public/Samples/Reports/05._Unit_Sales_Trend?$P{"c_country_1=", Store Country, "&"}`

When Mexico and USA are selected, this expands to the following link:

```
repo:/public/Samples/Reports/05._Unit_Sales_Trend?c_country_1=Mexico&c_country_1=USA
```

Auto-complete parameters

When you type the \$ symbol into a dashlet's text box, a dropdown list of available parameters is displayed. Select a parameter from the list or continue typing to narrow down the list of parameters. The auto-complete parameters feature is available for text fields, image links, and web links, but it is not available for the dashlet name field.

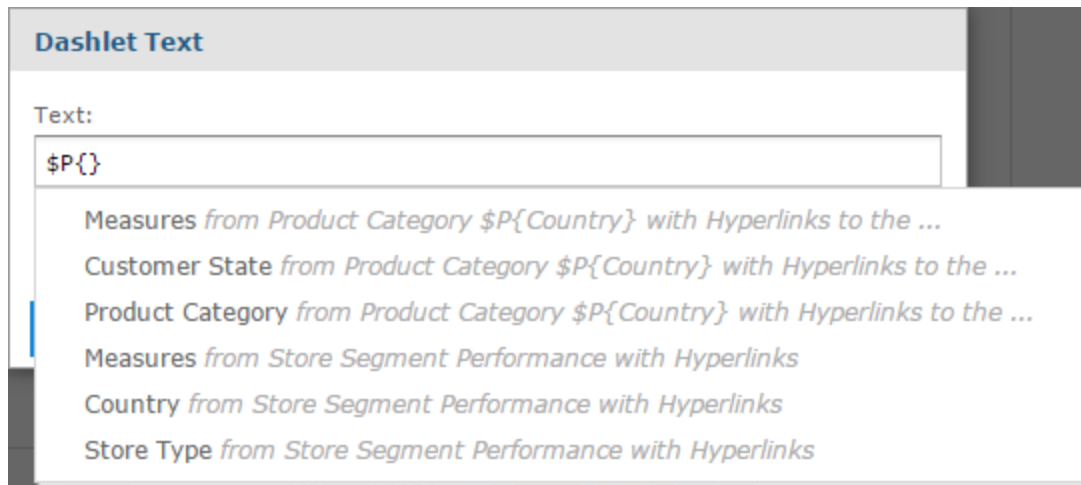




Figure 26: Text dashlet showing available parameters

Mapping parameters in Parameter Mapping

After you have created a parameter, create a mapping for it as follows:

Mapping parameters in dashboard names and text, image, or web page dashlets

Procedure

1. In the Dashboard Designer, click  to open Parameter Mapping.
2. In the filter row where you want to add the new filter, click . A row containing new affected dashlet and filter/parameter dropdown menus appears.
3. Using these new line-items, select the dashlet where you added a parameter, then select the parameter.
4. Click OK to apply and save or Cancel to discard your changes.

Mapping parameters in Ad Hoc view hyperlinks

To have JasperReports Server create a parameter mapping automatically:

Procedure

1. In the Dashlet Settings of the Ad Hoc view dashlet, use one of the names in the **Available parameters** list as the name of your parameter.
2. Click OK to close the dialog box and create the mapping.

To create a mapping in Parameter Mapping:

Procedure

1. In the Dashlet Settings of the Ad Hoc view dashlet, click Create Links in Parameter Mapping... to open Parameter Mapping.
2. In the filter row where you want to add the new filter, click **+**. A row containing new affected dashlet and filter/parameter dropdown menus appears.
3. Using these new line-items, select the dashlet where you added a parameter, then select the parameter.
4. Click OK to apply and save or Cancel to discard your changes.

Creating a Web Page Dashlet

When working with Web Page dashlets in the Dashboard Designer, you can include a parameter reference in the dashlet's URL. The parameter references an existing filter in another dashlet, and uses that filter to display a specific web page relevant to the filtered information.

The following example takes you through the steps for creating a simple dashboard in the Dashboard Designer, adding a sample chart with geographic filters, and creating a Web Page dashlet that displays a Wikipedia page for the country the sample chart is filtered on.

First, create the simple dashboard

Procedure



1. Log in to JasperReports Server as superuser.
2. Click Create > Dashboard.
The Dashboard Designer appears, displaying the list of available content and the canvas.
3. In the Existing Content section of the Available Content panel, find report 08. Key Performance Metric Trend.
4. Click and drag the report onto the Dashboard Canvas. Note that the Filters section now includes the 08. Key Performance Metric Trend folder.

Next, add the filter input control to the dashboard

1. In the Filters section, expand the 08. Key Performance Metric Trend folder.
The input controls associated with the 08. Key Performance Metric Trend report appears.
2. Drag the Store Country input control onto the canvas.

Now, add the Web Page dashlet with the parameter reference and add it to the filter

Procedure

1. In the New Content section of the Available Content panel, click and drag the Web Page item onto your dashboard.
The Dashlet URL window opens.
 2. Enter the following URL:
`http://en.wikipedia.org/wiki/$P{Store Country}`
 3. Click OK.
 4. In the Dashlet Settings, change the Dashlet name to Wiki.
 5. Click OK.
 6. Click  the Ad Hoc menu to open Parameter Mapping.
 7. In the Store Country filter group, click .
- A row containing the new affected dashlet and filter/parameter dropdown menus

appears.

8. In the Dashlet Affected column, select Wiki from the new Select dashlet... dropdown menu.
9. In the Filter/Parameter Affected column, select Store Country from the new Select parameter... dropdown menu.
10. Click OK.

Finally, preview the new dashboard functionality


Procedure

1. Click the Editing button and select Viewing to preview the dashboard.
2. Click in the Store Country text box to display the available countries.
3. Select Canada from the values list in the Store Country input controls, and click Apply at the bottom of the dashlet. The data in the Key Performance Metric Trend report is updated to display only information about Canada, and the wiki dashlet displays the Wikipedia page for Canada.

In [Dashboard with web page parameters](#) you can see how the dashboard preview looks at this point:



Figure 27: Dashboard with web page parameters

4. Click the Viewing button and select Editing to return to the Dashboard Designer.
5. Click  , then select Save Dashboard.
6. In the Save As window, change the default name, New Dashboard to Key Performance Metric Trend Dashboard and locate a folder, such as the /Dashboards folder.
7. Click Save.

Adding a Hyperlink to Ad Hoc View Dashlets

When working with Ad Hoc view dashlets in the Dashboard Designer, you can specify a link that opens when a user clicks the dashlet. You can optionally include a parameter that references an existing filter in another dashlet, and uses that filter to display a specific web page relevant to the filtered information.

The following example takes you through adding a hyperlink to the Ad Hoc view dashlet created in [Creating a Web Page Dashlet](#). The example also shows how to add a parameter to a hyperlink.

First, open the dashboard

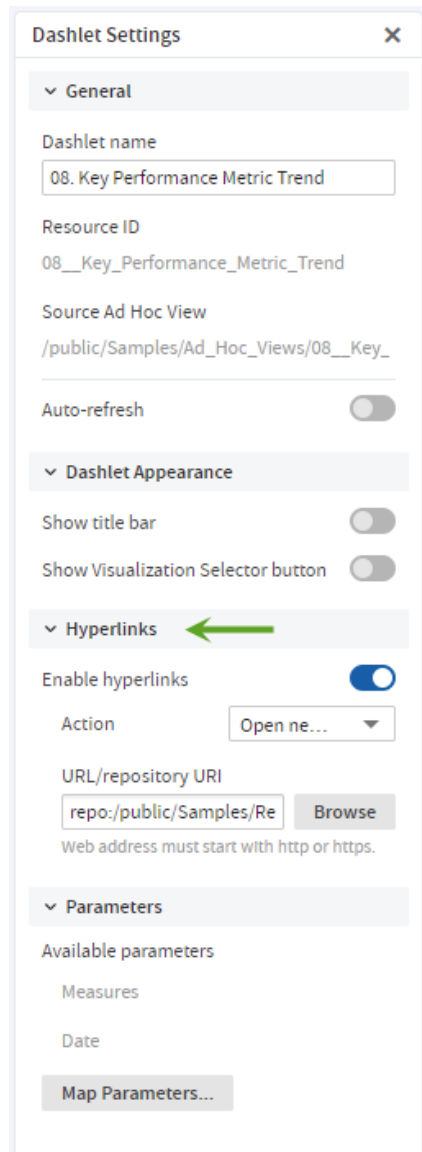
Procedure

1. If the Key Performance Metric Trend dashboard created in [Creating a Web Page Dashlet](#) (above) is not open, then locate the /Dashboards folder in the repository. Right-click the dashboard name and select Open in Designer from the context menu. The Key Performance Metric Trend dashboard appears in the designer.

Create an Ad Hoc view hyperlink

Procedure

1. Select the 08. Key Performance Metric Trend dashlet to show its settings in the settings panel.
2. Go to the **Hyperlinks** settings in Dashlet Settings.



Dashlet Settings [X]

▼ General

Dashlet name
08. Key Performance Metric Trend

Resource ID
08_Key_Performance_Metric_Trend

Source Ad Hoc View
/public/Samples/Ad_Hoc_Views/08_Key_

Auto-refresh

▼ Dashlet Appearance

Show title bar

Show Visualization Selector button

▼ Hyperlinks ←

Enable hyperlinks

Action

URL/repository URI
repo:/public/Samples/Re
Web address must start with http or https.

▼ Parameters

Available parameters

Measures

Date

Figure 28: Hyperlinks settings in Dashlet Settings

3. Click the Enable hyperlinks switch to turn it on.
4. Choose Open new page from the Action menu.
The URL/Repository URI input is displayed.
5. Enter `repo:/public/Samples/Reports/04._Product_Results_by_Store_Type_Report` for the URL/Repository URI.



To see the report's path, hover over the report's name in the Existing Content pane.

6. Press Enter or Tab, or change the mouse focus anywhere in the canvas for the changes to take effect.

Preview the new dashboard functionality

1. Click the Editing button and select Viewing to preview the dashboard.
2. Click the Ad Hoc view dashlet.
The 04. Product Results by Store Type Report gets open in a new tab.
3. Return to the tab containing the Key Performance Metric Trend dashboard and click the Viewing button and select Editing to return to the Dashboard Designer.

Add a parameter

Procedure

1. Select the Key Performance Metric Trend dashboard dashlet to show its settings in the settings panel and go to the **Hyperlinks** settings.
The Available parameters section shows the parameters available in the Ad Hoc view.
2. Modify the URL to add a parameter that provides a value for an input control in the target report:

- You need to know the correct name of the input control in your target report. In this case, it is sales__store__store_contact__store_country_1 in the 04. Product Results by Store Type Report.
- Create a parameter. If you create a parameter name, it is helpful to use a name that is not used in Parameter Mapping. In this example, use LinkCountry. For more information about parameters, see [Specifying Parameters in Dashlets](#).

The link is as follows:

```
repo:/public/Samples/Reports/04._Product_Results_by_Store_Type_Report?sales__store__store_contact__store_country_1=$P{LinkCountry}
```



If you use one of the names in the Available Parameters list, the mapping to the parameter is created for you. In this example, if you use Store Country instead of LinkCountry, you do not need to create links in Parameter Mapping.

This example does not show how to add support when more than one country is selected. For more information, see [Specifying Parameters in Dashlets](#).

3. Click Map Parameters. Parameter Mapping is displayed.

Parameter Mapping			
Source Dashlet	Filter/Parameter	Dashlet Affected	Filter/Parameter Affected
08. Key Performance Metric Trend	Date		+
	Measures		+
Filter Group		08. Key Performance Metric ▾	LinkCountry ▾
	Store Country	08. Key Performance Metric ▾	Store Country ▾
		Wiki ▾	Store Country ▾



[Create New Filter](#)

Figure 29: Parameter Mapping

4. In the Store Country filter group, click **+**.
A new row with affected dashlet and filter/parameter dropdown menus appears.
5. In the Dashlet Affected column, select 06. Sales Mix by Gender from the new Select dashlet... dropdown menu.
6. In the Filter/Parameter Affected column, select LinkCountry from the new Select parameter... dropdown menu.
7. Click OK.

Finally, preview the new dashboard functionality

Procedure


1. Click the Editing button and select Viewing to preview the dashboard.
2. Click in the Store Country text box to display the available countries.
3. Select Mexico from the values list, and click **Apply** at the bottom of the dashlet.
4. Click the Ad Hoc view dashlet.
The 04. Product Results by Store Type Report gets open in a new tab.
5. To verify that the parameter has been passed correctly, click  in the 04. Product Results by Store Type Report.
The Input Controls dialog box opens, with Mexico set.
6. Return to the tab that contains your dashboard.
7. Click the Viewing button and select Editing to return to the Dashboard Designer.
8. Click , then select Save Dashboard.

Editing a Dashboard

You can edit a dashboard if you have the proper permissions.

To edit a dashboard

Procedure

1. Select View > Repository and search or browse for the Dashboard you want to modify.
By default, the repository includes the /Dashboards folder where you can store dashboards.
2. Right-click the dashboard and select Open in Designer from the context menu. The designer appears, displaying the dashboard.
3. Edit the dashboard by adding, removing, resizing, or dragging content.
For more information about working with dashboard content, see [Creating a Dashboard](#).
4. When you are satisfied with the dashboard, hover your cursor over  and select Save Dashboard. To create a new version of the dashboard, select Save Dashboard As and specify a new name.



If you close the dashboard without saving the changes, a dialog box prompts you to save or cancel the changes made to the dashboard.

Scheduling a Dashboard

You can schedule a dashboard from the dashboard view mode and the edit mode (dashboard designer).

To schedule a dashboard

Procedure

1. On the dashboard toolbar, click  to open the **New Schedule** dialog.

Figure 30: New Schedule Dialog

The **New Schedule** dialog has the following tabs:

- **Schedule** – When to run the scheduled job, and how often.
 - **Parameters** – If the dashboard was designed with input controls, which parameters the scheduled job uses.
 - **Output Options** – The name of the output file, the output format and locale, and where the output file is stored.
 - **Notifications** – Email options for sending the output to recipients and for sending administrative messages.
2. Create the schedule, as described in [Creating a Schedule](#).
 3. Click Save. The **Save** dialog appears.
 4. In the Scheduled Job Name field, enter a name for the job. The description is optional.
 5. Click Save to save the schedule. The job appears in the list of saved jobs for dashboards.

For information on viewing, modifying, or deleting the schedules, see [Scheduling Reports and Dashboards](#).

Getting the Embed Code for Visualize.js

Visualize.js is the JavaScript library available with JasperReports Server to embed dashboards and reports in custom web apps. If you create an app with Visualize.js, this feature gives you the JavaScript code needed to embed the current dashboard in your app. You can then write additional code to interact with the dashboard programmatically, for example to update a filter depending on other actions in your app. For more information, see the *JasperReports Server Visualize.js Guide*.

You can get the embed code for a dashboard from the dashboard view mode and the edit mode (dashboard designer).

To get a dashboard embed code

1. On the toolbar, click `</>` to open the **Dashboard Embed Code** dialog.

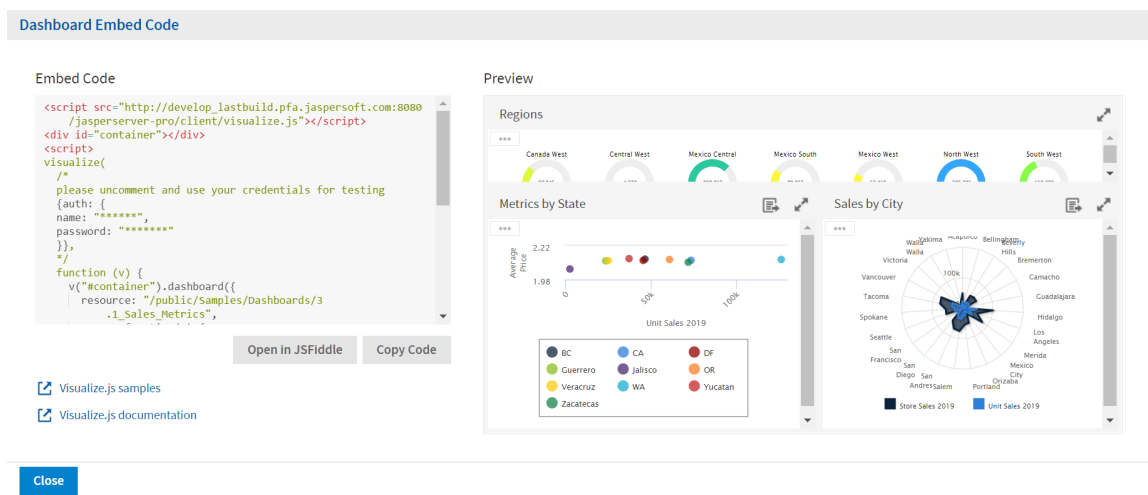


Figure 31: Dashboard Embed Code Dialog

The dialog shows the Visualize.js code and a preview of the dashboard as it is currently saved.

2. Click the **Copy Code** button to copy the embed code to the clipboard.
3. Click the **Open in JSFiddle** button to load the embed code into JSFiddle, an online JavaScript viewer and interactive editor.
4. Click the **Close** button to return to the dashboard.


Exporting Dashboards and Dashlets

You can export a dashboard or a dashlet and save it on your computer. Dashboards can be exported as a screenshot or in a detailed mode as a document. Dashlets can be exported in a detailed mode as a document. Exporting a dashboard or dashlet requires the following:

- The export button has been enabled for the dashboard or dashlet. See [Dashboard Settings](#) and [Dashlet Settings](#) for more information.
- Chrome/Chromium is installed on the computer hosting JasperReports Server. For information on configuring Chrome/Chromium for dashboards, see the System Configuration chapter in the JasperReports Server Administrator Guide.

To export a dashboard or a dashlet

Procedure

1. Select View > Repository and search or browse for the Dashboard you want to export.
2. Click the link to open the dashboard.
3. Hover your cursor over  for the dashboard or individual dashlet and select the export format from the drop-down list.

The available formats for dashboards are:

Type	Format
Screenshot	PNG Image (.png) PDF Document (.pdf) Microsoft Word (.docx) OpenDocument Text (.odt) Microsoft PowerPoint (.pptx)
Detailed	PDF Document (.pdf) Microsoft Excel (.xlsx) Comma Separated Values (.csv) Microsoft Word (.docx) Rich Text Format (.rtf) OpenDocument Text (.odt) OpenDocument Spreadsheet (.ods) Microsoft PowerPoint (.pptx)

The available formats for dashlets are:

- PDF Document (.pdf)
- Rich Text Format (.rtf)
- Comma Separated Values (.csv)
- OpenDocument Text (.odt)
- OpenDocument Spreadsheet (.ods)
- Microsoft Word (.docx)
- Microsoft Excel - Paginated(.xlsx)
- Microsoft Excel (.xlsx)
- Microsoft PowerPoint (.pptx)

4. Save the dashboard or dashlet in the export file format, for example PDF, or open it in the application.

You can export a dashboard containing a report with Detail Chart Enabled property as enabled or disabled. This property does not impact output formats like PDF, Excel, PPTX, etc.



If you perform the export while a dashlet is reloading its content, the dashlet will appear as a grayed-out box in the exported file.

Localizing Controls

You can design dashboard controls to accommodate different languages. First, use the $\$R$ syntax to define prompts and static lists of values. Next, attach resource bundles to the report that contain translations of the prompts and lists of values. Finally, add the report to the dashboard. For more information about how to localize input controls, see [Localizing Reports](#).

Tips for Designing Dashboards

Charts and small crosstabs are best suited to dashboards. However, you can design table reports that work well in the dashboard. Such reports tend to be very narrow and are typically used with input controls to limit the number of rows they return.

Keep reports small because dashboards typically contain more than one. In particular, reports should not be too wide, as horizontal room is always at a premium in a dashboard. The server strips margins from an Ad Hoc report when displaying the report on a dashboard.

Input Control Tips

When designing input controls for a dashboard, keep these guidelines in mind:

- To pass a value to an external URL, the URL Parameter Name you give to the input control must match the name of a parameter that the URL can accept. The value of the input control must also be a value the URL can accept. The target URL is likely to have additional requirements and limitations. For example, the name of the parameter may be case-sensitive. In this case, the value you enter in the URL Parameter Name field is also case-sensitive.

The input control must pass data that the URL can accept. Otherwise, the server may be unable to retrieve the correct data from the external URL.

Time-Date Wildcards

When creating dashlets, you can enter a wildcard into a text input field to display the current date or time:

- `$Date`: Displays the current date in the Month Day, Year format. For example, January 15, 2019. You can also customize how the date is displayed using the following parameters:
 - `$Date{MM-DD-YYYY}`. For example, January 15, 2019 is displayed as 01-15-2019.
 - `$Date{DD/MM/YYYY}`. For example, January 15, 2019 is displayed as 15/01/2019.
 - `$Date{dddd MMMM DD, YYYY}`. For example, January 15, 2019 is displayed as Friday January 15, 2019.
- `$Time`: Displays the current time in the 12 hour format with am/pm, but without the leading 0 for hours. For example, 1:25 pm. You can customize how the time is displayed using the following parameters:
 - `$Time{HH:mm}`. Displays the time in the 24 hour time format. For example, 1:25 pm is displayed as 13:25.

- `$Time{hh:mm a}`. Displays the current time in the 12 hour format with am/pm and the leading 0 for hours. For example, 01:25 pm.
- `$Time{HH:mm:ss}`. Displays the current time in the 24 hour time format with seconds. For example, 1:25:30 pm is displayed as 13:25:30.
- `$Time{hh:mm:ss a}`. Displays the current time in the 12 hour format with seconds, am/pm, and the leading 0 for hours. For example, 1:25:30 pm is displayed as 01:25:30 pm.
- `$Time{HH:mm:ss z}`. Displays the current time in the 24 hour time format with seconds and the time zone. The time zone is selected on the login page. For example, 1:25:30 pm in the Pacific Standard time zone is displayed as 13:25:30 PST.
- `$Time{hh:mm:ss a z}`. Displays the current time in the 12 hour format with seconds, am/pm, the time zone, and the leading 0 for hours. The time zone is selected on the login page. For example, 1:25:30 pm in the Pacific Standard time zone is displayed as 01:25:30 pm PST.

The wildcards are available for text fields, image links, and web links, but it is not available for the dashlet name field.

When you type the `$` symbol into a dashlet's text box, a dropdown list with the time-date wildcards and other available parameters is displayed. Select the wildcard that you want from the list or continue typing to narrow down the list.

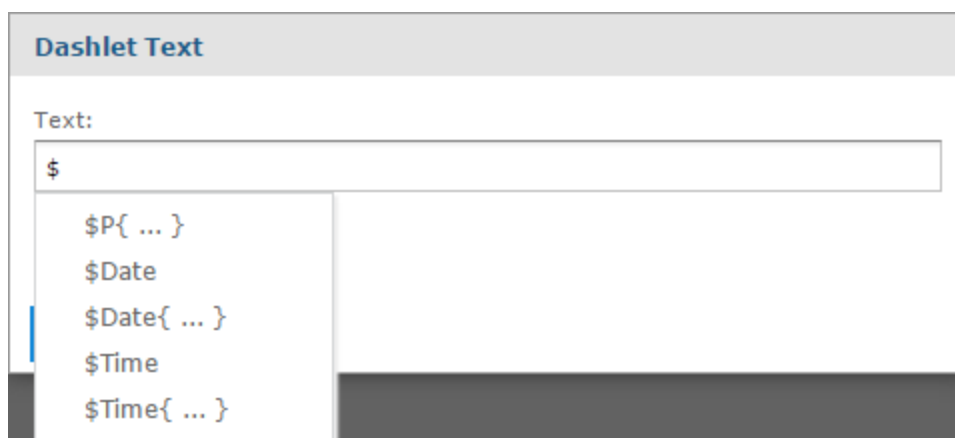


Figure 32: Time-Date Wildcard Auto-complete

Running Reports and the Report Viewer

JasperReports Server makes it easy to run reports. When you run a report, it opens in the interactive Report Viewer. With the Viewer, you can personalize and refine the displayed report data. If the report has input controls, you run the report with one set of data and then another.

This chapter contains the following sections:

- [Overview of the Report Viewer](#)
- [Running or Creating a Simple Report](#)
- [Getting New Perspectives on Data](#)
- [Navigating the Report](#)
- [Exporting the Report](#)
- [Scheduling a Report](#)
- [Getting the Embed Code for Visualize.js](#)
- [Running a Fusion Chart](#)
- [Running a Report with Input Controls or Filters](#)
- [Running a Report Book](#)

The tutorials in this chapter and throughout this guide assume you've installed the sample data provided with the server.

Overview of the Report Viewer

The Report Viewer allows you to view a report, export content to various output formats, and apply formatting, sorting, and filters to control how the data is displayed.

This section describes the functions available in the Report Viewer. You can find more detailed information about using this functionality throughout this chapter.

To open a report in the Report Viewer

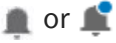





Procedure









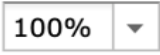

1. Locate your report in the library or repository.
2. Click the report name, or right-click the report name and select Run. In the repository, you can also click the report row and select Run from the tool bar. The report opens in the Report Viewer.






Report Viewer Tool Bar

The Report Viewer tool bar contains a number of controls for working with your report. These controls are described in [Report Viewer Tool Bar Icons](#).

Report Viewer Tool Bar Icons

Icon	Name	Description
	View Alert List	Click to open a panel that contains the list of alerts. When there are no alerts, this icon is a plain bell. When there are one or more alerts, the bell icon has a dot.
	Refresh report with latest data	Click to refresh the report data from the data source.
	Close Report	Exits the Report Viewer and takes you to the previous screen.
	Save	Place the cursor over this icon to open a menu of save options.
	Export	Click to export the View into one of the available formats.
	Get embed code	Click to display the Report Embed Code Panel. For more information, see Getting the Embed Code for Visualize.js .



Icon	Name	Description
	Schedule report	Click to display the New Schedule dialog. For more information, see Scheduling a Report .
	Undo	Click to undo the most recent action.
	Redo	Click to redo the most recently undone action.
	Undo All	Click to revert the report to its most recently saved state.
	Turn on alert mode or Turn off alert mode	Click to turn on or turn off the alert mode.
	Input Controls	Click to see the input controls applied to this report. For more information, see Simple Input Controls .
	Zoom Out	Click to zoom out on the report.
	Zoom In	Click to zoom in on the report.
	Zoom Options	Click this icon to open the Zoom Options dropdown menu.
	Search	Enter your search term here to find a text string in your report. Click the dropdown menu to toggle search preference settings.

Icon	Name	Description
	First	Click to jump to the first page of the report.
	Previous	Click to go to the previous page in the report.
	Next	Click to go to the next page in the report.
Page <input type="text" value="1"/> of 47	Current Page	Shows the number of the currently displayed report page.
	Last	Click to jump to the last page of the report.
	Bookmarks	Click to display the Table of Contents pane. This pane is available only on reports with enabled Bookmarks.

Column Menu

Reports that contain table components are enabled for user interactivity. Table components are defined in Jaspersoft Studio or from Ad Hoc Views. When a table is enabled for interactivity, the column formatting, filtering, and sorting are managed from a menu displayed by clicking the column you want to apply changes to. These menu icons are described in [Export File Types](#).

Column Formatting Icons

Icon	Name	Description
	Formatting/ Show column/ Hide column	Select Formatting to open the Format Column box. Select the Show column or Hide column.
	Column filters	Click to open the Filter column box.

Icon	Name	Description
↑	Sort ascending	Click to sort fields in the selected column in ascending order.
↓	Sort descending	Click to sort the fields in the selected column in ascending order.
▼	Column size	Click and drag this icon to make columns wider or narrower.

Data Snapshots

Some reports have an optional data snapshot feature enabled. A data snapshot is a cached copy of the data included in a specific report. Data snapshots allow you to access a report's data (including input control settings) without having to retrieve it from the data source, which in some cases can save a significant amount of time.

When a report is opened in the Report Viewer, data is retrieved from the data snapshot. If the snapshot does not exist, then a live query is made to the data source. A snapshot is created when a report is saved from the viewer, or via the scheduler. The Report Viewer UI displays a date and time stamp that indicates when the report data was last refreshed with live source data.



The system administrator can enable or disable the data snapshot feature.

It should be noted that a report can have only one snapshot. For instance, if you edit and save a report that already has a snapshot associated with it, a new snapshot overwrites the previously created snapshot.

Report Viewer Responsiveness

A responsive report adapts its output to the current size of the screen. When you open a responsive report in the Report Viewer and resize the screen, the Report Viewer lets you view the rendered report based on the screen size. If the screen size is smaller, you can see a rendered report suited for the smaller screen and so on. The response of the Report Viewer to the different screen sizes makes it responsive.

In the main JRXML of the report unit (See [Overview of a Report Unit](#) for more information), the following property is used to communicate to the Report Viewer that the report is responsive.

For example:

```
<property name="net.sf.jasperreports.htmlviewer.responsive.breakpoints" value="1000,1200"/>
```

In this example, the integer values separated by comma declares the screen size intervals. The Report Viewer reads this property when the report is run and retriggers the report to run every time the screen size changes.

When you resize the screen, the Report Viewer reruns the report with the new REPORT_CONTAINER_WIDTH value. REPORT_CONTAINER_WIDTH is a built-in parameter used to control the rendering of a certain part template.

For example: If you define three screen size intervals:

- Smaller than 1000px
- Between 1000px and 1200px
- Greater than 1200px

Then, there will be three JRXML parts for each interval, and only the suited part appears for the current screen size, read from the built-in REPORT_CONTAINER_WIDTH parameter when the report is run.



If your report does not define screen size intervals, it is not considered responsive and the Report Viewer runs the report only once and will not be responsive when the screen is resized.

Running or Creating a Simple Report

You can view and work on a report in the Report Viewer in a number of ways:

- Running an instance of an existing report
- Creating a new report from an existing Ad Hoc view

Running a Simple Report

This section describes how to run a tabular report that lists account data.

To run a report

Procedure

1. Log in to the server as an administrator, such as jasperadmin.
2. On the Home page, click the large icon in the Reports block.
The search results appear, listing your own files and other files that your user account has permission to view. If you log in as jasperadmin, 05. Accounts Report appears in the search results.

Repository

Filters		Search		Sort By: Name Modified Date	
Access Status	All + Reports	Name	Description	Type	Created Date Modified Date
All available		01. Geographic Results by Segment Report	Sample Report containing hyperlinks and a map	Report	March 25 10/17/2019
Modified by me		02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with...	Report	March 25 8/28/2019
Viewed by me		03. Store Segment Performance Report	Sample Gauge Report Created from an Ad Hoc View with mul...	Report	March 25 10/11/2019
File Type		04. Product Results by Store Type Report	Sample Filtered Table Report Showing Multiple Measures. Cr...	Report	March 25 8/28/2019
All types		05. Accounts Report	Basic interactive Table Component report with Bookmarks P...	Report	March 25 8/28/2019
Reports		06. Profit Detail Report	Sample report containing containing interactive HTML5 Char...	Report	March 25 8/28/2019
Content resources		07. Revenue Detail Report	Sample report containing containing interactive HTML5 Char...	Report	March 25 8/28/2019
Ad Hoc views					
Dashboards					

Figure 33: Search Results Listing

3. To run a report, click the name of a report in the repository. For example, click 05. Accounts Report. The report appears, as shown in [Output of the Accounts Report](#).

05. Accounts Report Data refreshed 2020-12-18 at 05:38:34

Back [Navigation icons] search report Page 1 of 47

Accounts		12/18/20		JASPERSOFT	
#	Name	Phone	Address		
1 Burnaby, Canada					
1	Souza-Quick Construction Group	699-555-8963	3752 Hamilton Ct		
2	Suffin-Cleary Engineering, Ltd	367-555-1366	3753 Forest Way		
3	L & E Gillmore Communications Partners	293-555-9531	1983 Santa Cruz		
4	N & O Garner Electronics, Inc	472-555-1111	9052 Montgomery Avenue		
5	Orona-Warmack Transportation, Inc	259-555-5742	165 Schenone Court		
6	D & Z McLaughlin Electronics, Ltd	602-555-9145	661 Miller Ave.		
7	Q & P Dodd Telecommunications Company	910-555-8441	5684 San Marino Ct.		
8	F & X Wellington Communications Partners	210-555-7617	4055 Hitchcock		
9	Ratcliff-Moss Electronics, Ltd	721-555-7412	4776 Kentucky Drive		
10	Rosemont-McMenama Engineering, Ltd	678-555-1134	6228 Meadowbrook Dr.		
2 Cliffside, Canada					
1	H & N Mauro Machinery Corp	209-555-7811	7769 Holton Court		
2	Baltazar-Higgs Communications Corp	633-555-1579	6922 Estudello		
3	W & N Brumagen Telecommunications Partners	122-555-1947	3570 Court Lane		
4	W & W McCarthy Electronics Associates	668-555-4901	1874 Royal Links Circle		
5	Marple-Evans Engineering, Inc	614-555-6934	5587 D St.		
6	Pope-Harriman Telecommunications Partners	286-555-8955	5425 Highland Circle		

Figure 34: Output of the Accounts Report



If you are running a report with multiple pages, the first page of the report appears before the entire report is loaded. You can begin scrolling through report pages as they load, as indicated in the pagination controls in the upper left corner of the Report Viewer.

If you want to cancel loading the report before it is complete, click the Cancel Loading button that appears next to the pagination controls.



Rhino JavaScript engine has been removed from JasperReports Server. With the removal of Rhino JS, reports created using JavaScript do not function unless you add Rhino JS back to your deployment. This can be done by stopping the web server, downloading version 1.7.14, which at the time of writing is not known to have any CVEs. This file can be replaced into the WEB-INF/lib folder, and reports that rely on JavaScript again becomes functional.

Creating a Report

You can create a report directly from the Jaspersoft Server Home page. This method allows you to select an existing Ad Hoc view and generate a report from it, without going through the Ad Hoc Editor.

To create a report from the Home page

Procedure

1. On the Home page, click Create in the Reports block. The Create Report wizard opens.
2. Select the Ad Hoc view that you want to use as the basis for your report.
3. Select a report template. To use a template other than the default, select Custom Report Template, click Browse, and select the desired template. See [Report Templates](#) for more information.
4. Click OK. If asked, enter the input controls needed. See [Using Input Controls](#).

You can now begin working with your report. If you close the report without saving the changes, you are prompted to save or cancel the changes made to the report.

Report Templates

When you create a report, the Create Report wizard displays layout options for generating and exporting the report:

- Default Report Template applies basic layout options to your report. This is usually the Actual Size template.
- Custom Report Template allows you to browse to an existing template. JasperReports Server includes a number of templates available by default, including:
 - A4 Landscape
 - A4 Portrait
 - Actual Size
 - Letter Landscape
 - Letter Portrait.

Other report templates may be available. Report templates can be created in Jaspersoft Studio and uploaded to JasperReports Server.

- Report Generator allows you to create a highly customized report design. This option is not often enabled. See your JasperReports Server administrator for more information.

Most commonly, you choose the Default Report Template.

Using Report Templates for PDF


If you are exporting your report to PDF, choose your option based on the size of the output.

- For most PDF exports, you can use Actual Size, which supports a maximum size of 14400px by 14400px.
- For reports with an output height exceeding 14,400 px, use a paginated report template that is wide enough for your report. For example, if you have a long report with width less than 842px, you can use the paginated A4 Landscape theme. A report designer can create additional custom templates in Jaspersoft Studio. Contact your administrator for more information.
- Reports with output width exceeding 14,400 px are truncated in PDF. Redesign your report or use a different export format.

Getting New Perspectives on Data

The report shown in the [Output of the Accounts Report](#) was created using the Ad Hoc Editor. As this type of report runs, you can interact with it in the Report Viewer to visualize the data in different ways. Column formatting allows you to highlight certain columns and fields, and filtering and sorting report output on-the-fly can provide timely views of the data that answer your questions. For example, suppose you're running the Accounts Report and want to know how many accounts have offices nearby. Highlighting the phone number column with red text and filtering it to show only accounts in your area code would reveal this data.

Column Formatting

You can customize the basic formatting of column headings and fields, using the Format Column dialog. Hover over  and click Formatting... The Format column dialog appears.

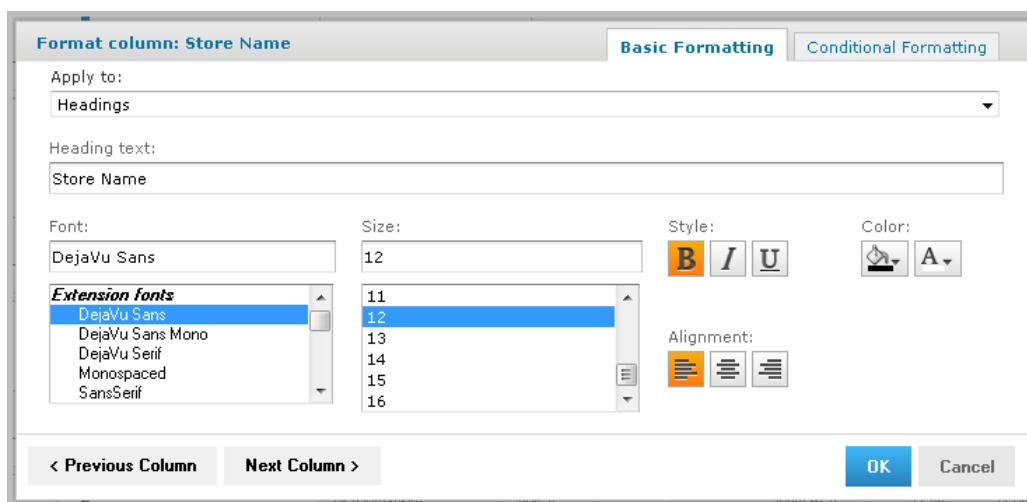


Figure 35: Format Column Dialog

You can alter a column's basic formatting or apply conditional formatting to a column.



In longer reports, columns have floating headers. If your report extends past your browser frame, use the vertical scroll bar to move up and down the list. If you do not see a vertical scroll bar, try increasing the width of your browser window.


This section discusses how to apply formatting to column headings and values. For information on conditional formatting, see [Conditional Formatting](#).

Column formatting options include:

- Text
- Font type, size, and style
- Background color
- Font color
- Text alignment

To customize your column formatting

Procedure

1. Run your report, so it opens in the Report Viewer.
2. Click the column that you want to format.
3. Hover over  and click Formatting.
4. Click the Basic Formatting tab, and change the following options if needed:
 - Apply to - Select the part of the column you want to apply the formatting to.
 - Heading text - Type a new heading text to replace the current text.
 - Font - Scroll through the menu to select a font.
 - Size - Scroll through the menu to select a font size.
 - Style - Click to select Bold, Italic, or Underlined text.
 - Background Color - Click to open the background color picker, then click to select the background color.
 - Font Color - Click to open the font color picker, then click to select the text color.
 - Alignment - Click to select the Left, Center, or Right alignment.
5. If needed, click Previous Column or Next Column to change the formatting for an adjacent column.
6. Click OK.

Conditional Formatting

The Report Viewer allows you to format column headings and fields, to highlight data that meets specific criteria. For instance, if you want to call out fields for store sales above \$100,000, you can do so by applying text and background formatting to those stores that meet those numbers.

With conditional formatting, you can apply the formatting options listed in [Column Formatting](#). However, it is a slightly more complex process than applying formatting options to entire columns. This section describes those complexities, including:

- Condition hierarchy
- Condition button states
- Applying conditional formatting

Condition Hierarchy

If you have multiple conditions applied to a single field, then their order affects how they function. Conditions are read and applied from bottom to top, and the topmost condition overrides the ones below.

For example, imagine you have more than one condition applied to the same format element: red text for all stores over 20,000 square feet, and blue text for all stores over 30,000 square feet. As shown in [Condition Hierarchy Example](#), placing the formatting rule for stores over 20,000 above the rule for stores over 30,000 causes the topmost rule to override the one below:

Hierarchy

Result

Store Locations		
Store Name	Store Type	SQFT
OR		
Store 11	Supermarket	20,319
Store 15	Deluxe Supermarket	27,694
WA		
Store 2	Small Grocery	26,205
Store 3	Supermarket	39,696
Store 15	Supermarket	21,215
Store 16	Supermarket	30,269
Store 17	Deluxe Supermarket	33,858
Store 22	Small Grocery	
Store 23	Mid-Size Grocery	

Hierarchy

Result

Store Locations		
Store Name	Store Type	SQFT
OR		
Store 11	Supermarket	20,319
Store 15	Deluxe Supermarket	27,694
WA		
Store 2	Small Grocery	26,205
Store 3	Supermarket	39,696
Store 15	Supermarket	21,215
Store 16	Supermarket	30,269
Store 17	Deluxe Supermarket	33,858
Store 22	Small Grocery	
Store 23	Mid-Size Grocery	

Figure 36: Condition Hierarchy Example

Condition Button States

Because conditions higher up in the hierarchy can affect those below, the font style selection buttons each have three states:

- Unchanged, which means it inherits the previous condition-based style, if any.
- Set, which means the style is applied to the text that meets the condition.
- Not Set, which means the style is not applied to the text that meets the condition, and is removed if a conflicting condition lower in the conditional formatting hierarchy has marked that style as “Set”.

By default, the buttons are in the “Unchanged” state. Clicking the buttons toggles you through the three states.

See [Style Button States](#) for examples of the style button states.

Style Button States

	Unchanged	Set	Not Set
Bold			
Italic			
Underline			

The background and font color pickers have buttons for similar states, but these states behave slightly different:

- Unchanged, which means the field inherits the previous condition-based color, if any.
- Set, which means the color is applied to the text or background of the field that meets the condition.
- No Fill (background only), which means no color is applied to the background that meets the condition. Regardless of conditions lower in the hierarchy, the background inherits the table's default color.






Both have two buttons at the top of the window, along with the color selection boxes.

You control these states through the background color picker and the font color picker windows, using the following buttons:

- No Fill (background only), which applies to the No Fill state described above.
- Reset, which returns the text or background to the Unchanged state.
- The color selection boxes, which apply to the Set state.

See [Color Picker Button States](#) for examples of the color picker button states.

Color Picker Button States


	Unchanged	Set	No Fill
Background Color			
Text Color			N/A

Applying Conditional Formatting

You apply conditional formatting much like you do standard column formatting, as described in [Column Formatting](#) with the extra step of creating the condition by which the formatting is applied.

To create a condition

Procedure

1. Run your report, so it opens in the Report Viewer.
2. Click the header or field of the column that you want to format.
3. Move your mouse over  and click Formatting.
4. Click the Conditional Formatting tab. The Conditional Formatting options appear:

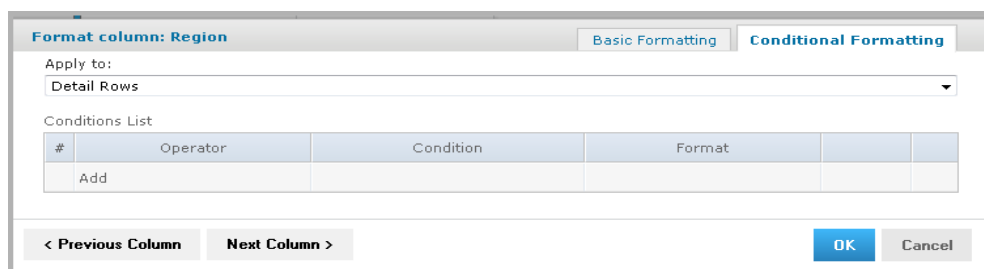


Figure 37: Conditional Formatting Tab

5. In the Apply to box, select the part of the column you want to apply the formatting to.

6. Click Add. This adds a line item in the Conditions List.
7. Fill in the following information:
 - Operator: Use the dropdown menu to define how the condition is compared to the column data.
 - Condition: Enter the condition criteria.
 - Format: Select the formatting applied to fields meeting the defined condition. Take care while setting the button states, as described in [Condition Button States](#).
8. Repeat if needed to add multiple conditions to a column.
If you have multiple conditions, you may want to reorder them, to ensure they do not conflict with each other. Use the ▲ and ▼ to move conditions in the hierarchy.
9. If needed, click Previous Column or Next Column to change the conditional formatting for an adjacent column.
10. Click OK. The condition is applied to the column.

Interactively Filtering Report Output

If the report output contains more information than you want, interactively filter it to display just what you need. You conditionally filter the report output by first selecting the column to use as a basis for filtering. Next, you enter a filter condition, then a value for comparison. The server compares each field of the column to the value that meets the condition. In [Interactive Filtering Conditions](#) you can see the conditions available for each type of column: numeric, date, and text.

Interactive Filtering Conditions

Numeric	Date	Text
Equals	Equals	Equals
Does not equal	Is not equal to	Is not equal to
Greater than	Is between	Contains

Numeric	Date	Text
Greater than or equal to	Is not between	Does not contain
Less than	Is on or before	Starts with
Less than or equal to	Is before	Does not start with
Is between	Is on or after	Ends with
Is not between	Is after	Does not end with

To interactively filter report data

Procedure


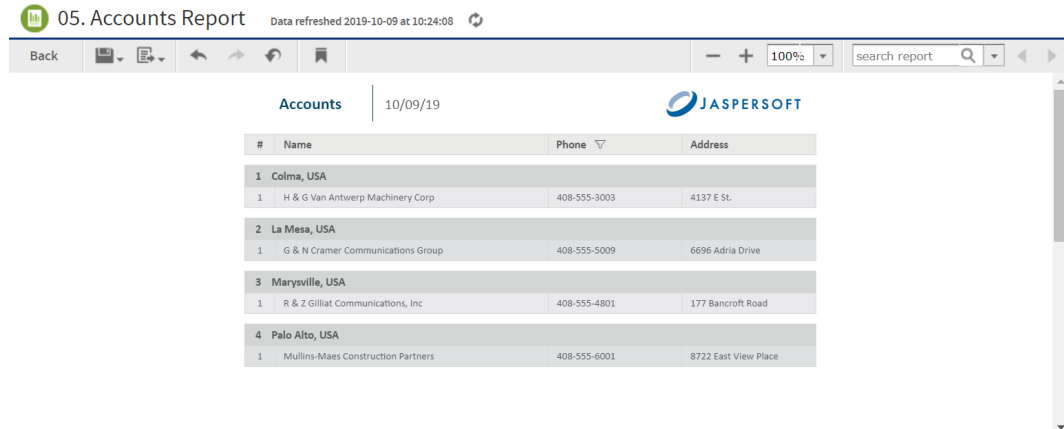
1. As you run the type of report shown in [Output of the Accounts Report](#), click the column you want to use for filtering the report. Continuing with the example in [Running or Creating a Simple Report](#), click the Phone column in the Accounts report.
2. Click the  .
The Filter column dialog appears, as shown in [Filter Column Dialog](#). By default, Show all rows is selected.
3. To build your filter, click the radio button to select Show only rows where.
The comparison operator dropdown and value entry box become active.
4. Select a comparison operator from the dropdown. For example, select Starts with to compare phone numbers starting with certain numbers.
5. Enter a value for comparison with the data in the column. For example, enter the area code: 408-.



Figure 38: Filter Column Dialog

6. Click OK.
The view of the report changes to show the filtered output. For example, now the Accounts Report only shows accounts in the 408 area code.



05. Accounts Report Data refreshed 2019-10-09 at 10:24:08

Accounts | 10/09/19

JASPERSOFT

#	Name	Phone	Address
1 Colima, USA			
1	H & G Van Antwerp Machinery Corp	408-555-3003	4137 E St.
2 La Mesa, USA			
1	G & N Cramer Communications Group	408-555-5009	6696 Adria Drive
3 Marysville, USA			
1	R & Z Gilliat Communications, Inc	408-555-4801	177 Bancroft Road
4 Palo Alto, USA			
1	Mullins-Maes Construction Partners	408-555-6001	8722 East View Place

Figure 39: Filtered Report Shows Only Accounts in Area Code 408

A small star icon appears in the heading of the filtered column, to the right of the heading text.




- To clear the filter indicator and once again display all the accounts, reopen the Filter column dialog and select Show all rows, then click OK.

Interactively Sorting a Report

You can also sort data in report output interactively. For example, you can sort the data alphabetically in ascending or descending order within each city listed in the Accounts Report.

To interactively sort report output

Procedure

- As you run the type of report shown in [Output of the Accounts Report](#), click the column you want to use for sorting the report. For example, click the Name column in the Accounts report.
- Click  (sort ascending) or  (sort descending). The report refreshes, and data appears sorted by the selected column in the selected order. In this example, for instance, if you select , the grouped rows of data are sorted alphabetically in ascending order within each group. Row 1 of the Burnaby, Canada group is now D &




Z McLaughlin Electronics, Ltd and row 1 of the Cliffside, Canada group is Abbott-Liff Electronics Holdings.

The heading text in the column used to sort report data appears red, and the up or down arrow icon in the column header indicates that report output now appears in ascending or descending order, respectively.

To change the sort order of the groups themselves, you have to modify the report query.



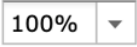
Moving, Resizing, and Hiding Columns

Columns are easily moved, resized, and hidden in your report.

- To move a column, click the column you want to move, then drag the column left or right into the new position. The  indicates where the column is placed.
- To resize a column, click the column you want to resize, then drag the  until the column is the size you want.
- To hide a column, click the column you want to hide, then move your mouse over the  and select Hide column.

Setting Output Scale

You can determine the display size for any report by using the report scaling options in the Report Viewer tool bar.

- Click  to zoom in on the report.
- Click  to zoom out on the report.
- Click  to open the Zoom Options drop-down menu, and select the percentage by which you want to increase or decrease the size of the displayed report.

Using the Bookmarks Panel

When working with a report that contains bookmarks, they are displayed in a floating panel. Using this panel, you can jump to designated sections of the report.

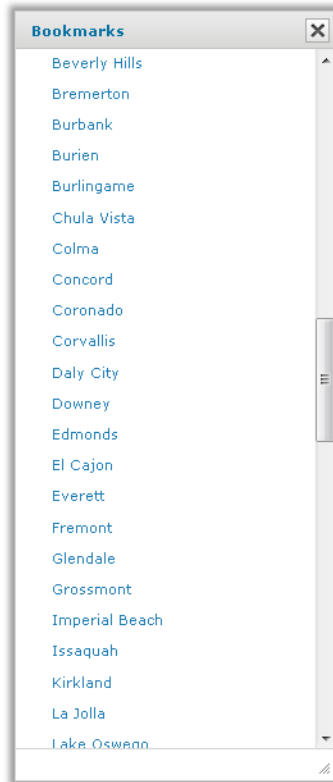



Figure 40: The Bookmarks Panel

- To display the Bookmarks panel, click  in the Report Viewer tool bar.
- To jump to a bookmarked section of the report, click the name of the section in the Bookmarks panel.

Navigating the Report

If your report has multiple pages, you can use the pagination controls to move through the report quickly.

To navigate the published report

- Use ◀ at the top of the Report Viewer to navigate to the previous page.
- Use ▶ to navigate to the next page.
- Use ►► to go to the end of the report.
- Use ◀◀ to go to the beginning of the report.
- If you know the number of the page you want to view, enter the page number in the Current Page indicator box.

Exporting the Report

To export the report

Procedure

1. To view and save the report in other formats, click the Export button.
2. Select an export format from the drop-down. The export options are listed in [Export File Types](#).


Export File Types

Option	Usage
PDF Document (.pdf)	Choose a report template based on report size. Use the Actual Size report template for reports with dimensions less than or equal to 14400px by 14400px. See Report Templates for more information.
Comma Separated Values (.csv)	Characters outside the Latin 1 character set can cause the Excel spreadsheet to look unacceptable. Try saving the file and importing it using Excel's Import functionality.
Microsoft Word (.docx)	Do not export reports having more than 63 columns. In Microsoft Word, you cannot

Option	Usage
	create tables having more than 63 columns.
Rich Text Format (.rtf)	It creates a large output file and, therefore, takes longer to export than PDF, for example.
OpenDocument Text (.odt)	For best results, minimize the number of rows and columns to make sure that they don't overlap.
OpenDocument Spreadsheet(.ods)	Same as ODT.
Microsoft Excel - Paginated(.xlsx)	Not recommended for exporting most tables or crosstabs. Repeats headers and footers on each page.
Microsoft Excel (.xlsx)	Ignores page size and produces spreadsheet-like output.
Microsoft PowerPoint (.pptx)	Each page of the report becomes a slide in the PowerPoint presentation.
Comma Separated Values - Metadata (.csv)	<p>If the required CSV metadata properties are set in the report, it generates a data-oriented document and provides consistent columns of data, with or without column headers on top of the document. Otherwise, an empty document is generated. It does not preserve the style and formatting information.</p> <p>For more information about setting the CSV metadata properties, see Exporting to CSV Format Using Report Metadata.</p>
Microsoft Excel - Metadata(.xlsx)	If the required Excel metadata properties are set in the report, it generates a data-oriented document and provides consistent columns

Option	Usage
	<p>of data, with or without column headers on top of the document. Otherwise, an empty document is generated. It also keeps relevant data with their style and formatting information.</p> <p>For more information about setting the Excel metadata properties, see Exporting to XLSX Format Using Report Metadata.</p>

3. Save the report in the export file format, for example PDF, or open the report in the application.

If you click the close  while export process is running, you are prompted to confirm if you want to stop the export process.



You can export a report with the Detail Chart Enabled property as enabled or disabled. This property does not impact output formats like PDF, Excel, PPTX, etc., except the HTML output format.

Scheduling a Report

You can schedule a report from the Report Viewer.

To schedule a report

Procedure


1. On the Report Viewer toolbar, click Schedule icon  to open the **New Schedule** dialog.

Figure 41: New Schedule Dialog

The **New Schedule** dialog has the following tabs:

- Schedule – When to run the scheduled job, and how often.
 - Parameters – If the report was designed with input controls, which parameters the scheduled job uses.
 - Output Options – The name of the output file, the output format and locale, and where the output file is stored.
 - Notifications – Email options for sending the output to recipients and for sending administrative messages.
2. Create the schedule, as described in [Creating a Schedule](#).
 3. Click Save. The **Save** dialog appears.
 4. In the Scheduled Job Name field, enter a name for the job. The description is optional.
 5. Click Save to save the schedule. The job appears in the list of saved jobs for reports.



You can schedule a report with the Detail Chart Enabled property as enabled or disabled. By default, in the scheduled report, HTML5 charts are not interactive in the HTML output. To make them interactive in the HTML output, you need to update the `jasperReportsProSchedulerContext` bean in the `applicationContext-adhoc.xml` file.

For information on viewing, modifying, or deleting the schedules, see [Scheduling Reports and Dashboards](#).

Setting Alert in the Report Viewer

From the Report Viewer, you can set up an alert in the report.

To set up an alert in the report

Procedure

1. Locate the report and run the selected report on which you want to set up an alert.
2. Create the alert as described in [Creating an Alert](#).



Live operations cannot be performed when alert mode is enabled.

For information about viewing, modifying, or deleting the alerts, see [JasperReports Server Alerts Feature](#).

Report Bursting

Report bursting is the process of running a report once and distributing its data to different recipients relevant to them. For example, recipients in different countries need a report on shipping data for their country. The recipients can receive the burst report through email.

Bursting a report needs a list of recipients to whom you want to send the burst report and a bursting report containing a scriptlet attached to its dataset. This bursting report triggers the bursting operation.

When you run a bursting report from the repository, it triggers the burst operation. The burst report that you want to send to recipients is stored in the output folder in the repository. For more information on the report bursting, see the [Jaspersoft Studio User Guide](#).

You can also schedule the burst report. For more information on scheduling a report, see [Scheduling a Report](#).

Getting the Embed Code for Visualize.js

Visualize.js is the JavaScript library available with JasperReports Server to embed dashboards and reports in custom web apps. If you create an app with Visualize.js, this

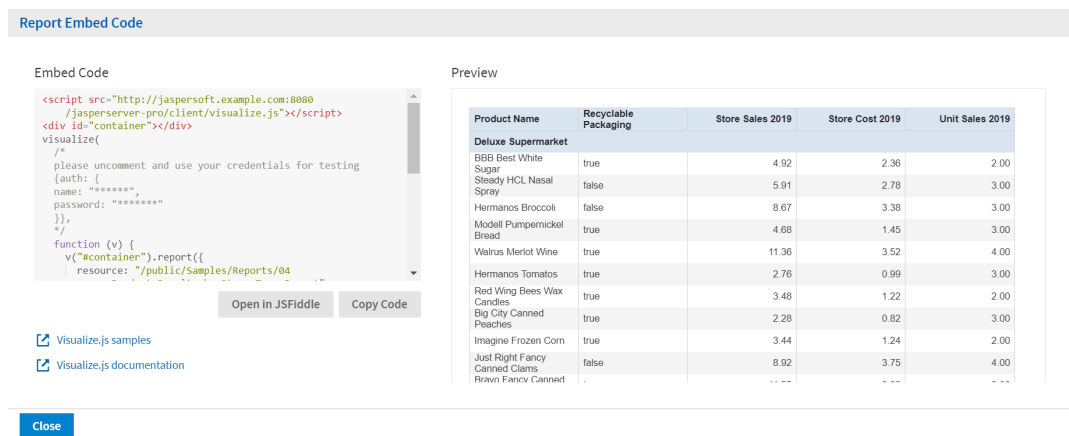
feature gives you the JavaScript code needed to embed the current dashboard in your app. You can then write additional code to interact with the dashboard programmatically, for example to update a filter depending on other actions in your app. For more information, see the *JasperReports Server Visualize.js Guide*.

You can get the embed code for a report from the Report Viewer.

To get a report embed code

Procedure

1. On the Report Viewer toolbar, click  to open the **Report Embed Code** dialog.



The dialog shows the Visualize.js code and a preview of the dashboard as it is currently saved.

```

<script src="http://jaspersoft.example.com:8080
/jasperserver-pro/client/visualize.js"></script>
<div id="container"></div>
visualize(
/*
please uncomment and use your credentials for testing
{auth: {
  name: "*****",
  password: "*****"
}},
*/
function (v) {
  v("#container").report({
    resource: "/public/Samples/Reports/04
  
```

Product Name	Recyclable Packaging	Store Sales 2019	Store Cost 2019	Unit Sales 2019
Deluxe Supermarket				
BBB Best White Sugar	true	4.92	2.36	2.00
Steady HCL Nasal Spray	false	5.91	2.78	3.00
Hermanos Broccoli	false	8.67	3.38	3.00
Modell Pumpernickel Bread	true	4.68	1.45	3.00
Walrus Merlot Wine	true	11.36	3.52	4.00
Hermanos Tomatos	true	2.76	0.99	3.00
Red Wing Bees Wax Candles	true	3.48	1.22	2.00
Big City Canned Peaches	true	2.28	0.82	3.00
Imagine Frozen Corn	true	3.44	1.24	2.00
Just Right Fancy Canned Clams	false	8.92	3.75	4.00
Brown Fancy Canned

Figure 42: Report Embed Code Dialog

The dialog shows the Visualize.js code and a preview of the dashboard as it is currently saved.

2. Click the **Copy Code** button to copy the embed code to the clipboard.
3. Click the **Open in JSFiddle** button to load the embed code into JSFiddle, an online JavaScript viewer and interactive editor.
4. Click the **Close** button to return to the report.

Running a Fusion Chart

The JasperReports Server commercial editions support Fusion charting, and include the Maps Pro, Charts Pro, and Widgets Pro component libraries.

Using the libraries, you can create visually appealing, animated, and interactive reports:

- Maps Pro - Color-coded maps covering all countries and regions of the globe.
- Charts Pro - Standard and stacked charts with animation and interactivity.
- Widgets Pro - Non-standard charts such as gauges, funnels, spark lines, and Gantt charts.

These components are based on Fusion libraries, which generate HTML5 output that is embedded in the HTML and PDF output. When a report containing a Maps, Charts, or Widgets Pro element is exported in a format other than HTML or PDF, the space used by the element remains blank.

Flash is no longer recommended.

For configuration information, see the JasperReports Server Administrator Guide for more information.

Fusion charts are created in Jaspersoft Studio Professional as JRXML reports and uploaded to the repository as a report unit.

To find and run a chart example

Procedure

1. In the repository, locate the sample report 14. World Map.
2. Click the report name to run the report.
3. In the Input Controls window, select Food as the product family that you want to view sales trends for and then click OK. The report appears, as shown in [World Map Report with Flash Map](#).

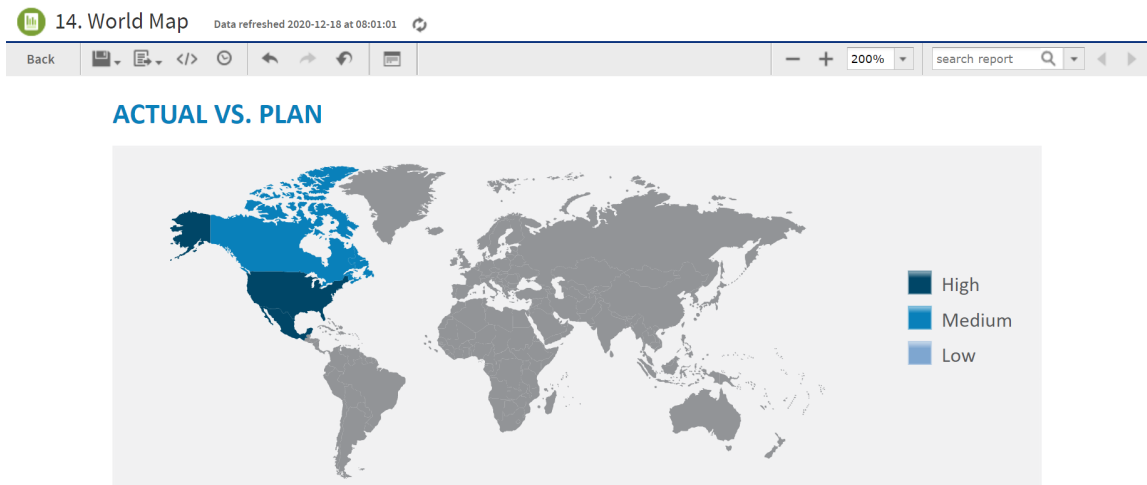


Figure 43: World Map Report with Flash Map

4. To interact with the map, mouse-over any of the countries to see the full country name and, when it has data, the value for that country.
5. On the map, click Canada to launch the Interactive Sales Report, displaying the information for Canada only. From there, you can modify the underlying report as needed.

To upload JRXML reports, see [Adding Reports Directly to the Repository](#).

Running a Report with Input Controls or Filters

An input control is graphical widgets that filter the data that appears in a report. The perfect input control limits the data to what you want to see—and nothing more. When you run a report based on a Domain Topic that defines a filter, the server can render the filter as an input control. The JasperReports Server interface uses "input controls", "filters", and "options" interchangeably.

If your system administrator has enabled the data snapshot feature (described in [Data Snapshots](#)), it is important to note that the default input controls - that is, the input controls as defined when the original JasperSoft Studio- or Ad Hoc View-based report is run - will overwrite any changes made to them the next time you run a report. For instance,

suppose you run a report, update the input controls, then save the report. Later, when you run a report from the JasperSoft Studio or Ad Hoc View source again. That new report replaces the report you ran earlier, and your input control changes are lost.

To avoid this, save a version of the report with your selected data preloaded. That way, when subsequent reports are run from the same source, they will not overwrite your report. See [Saving Input Control Values](#) for more information.

Simple Input Controls

The 16. Interactive Sales Report example has several input controls:

- Product Family
- Product Department
- Product Category
- Product Name
- Country
- Gender

Using input controls, you run the report with one set of data and then another. When saved, an instance of the report with alternate input controls is called a Report Version, and is labeled as such in the repository.

To run a report with simple input controls

Procedure

1. In the repository, locate and run the report 16. Interactive Sales Report.

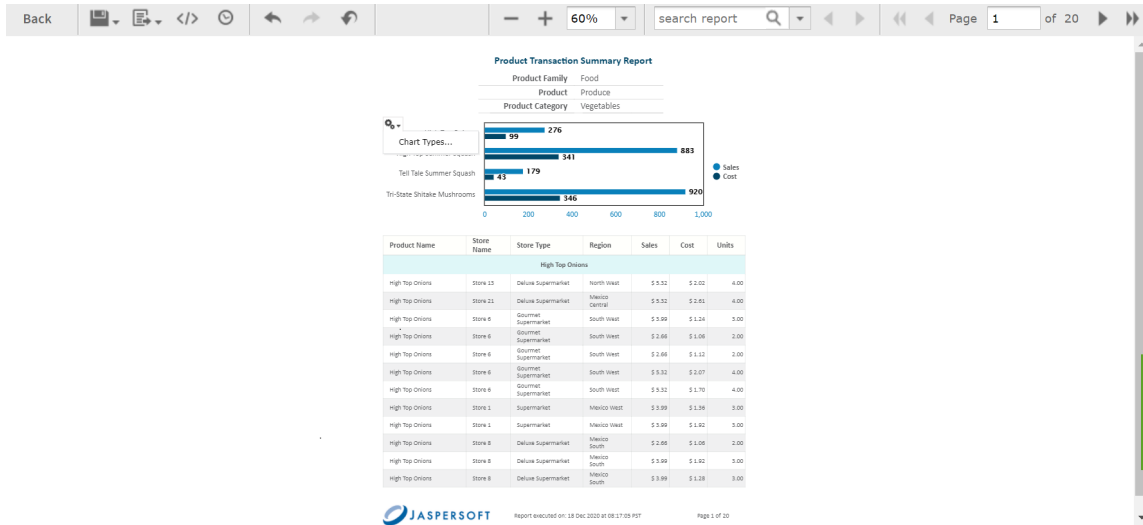


Figure 44: Interactive Sales Report

- In the Filters panel, use the Country menu to select USA only.

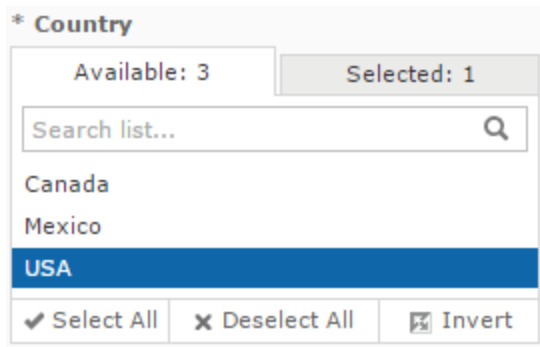



Figure 45: Input Control Selection - Country



- Click Close, then click Apply at the bottom of the panel. The report shows data for the USA only.
- Click , then select Save As. You are prompted to name the new report.
- Enter a new name, then click Save.

Multi-select Input Controls

The 16. Interactive Sales Report has an example of a multi-select input control for Product Name.

To run a report with a multi-select input control

Procedure

1. In the repository, locate and run the report 16. Interactive Sales Report.
2. In the Filters panel, enter onion in the Search list  for the Product Name input control.
Only products containing "onion" are shown.
3. Click the first item in the list, then scroll down and Shift-click to select all the items with "onion".
4. Click in the Search list again and delete the word onion.
All items are displayed, with ones that include "onion" selected.
5. Click the Selected tab to see that only items that are selected are displayed. Then click the Available tab to view all the items.
6. Click Invert  to invert the selection.
Now all items are selected except those items that contain "onion".
7. Click Apply at the bottom of the panel. The report shows data only for products that do not contain the word "onion."

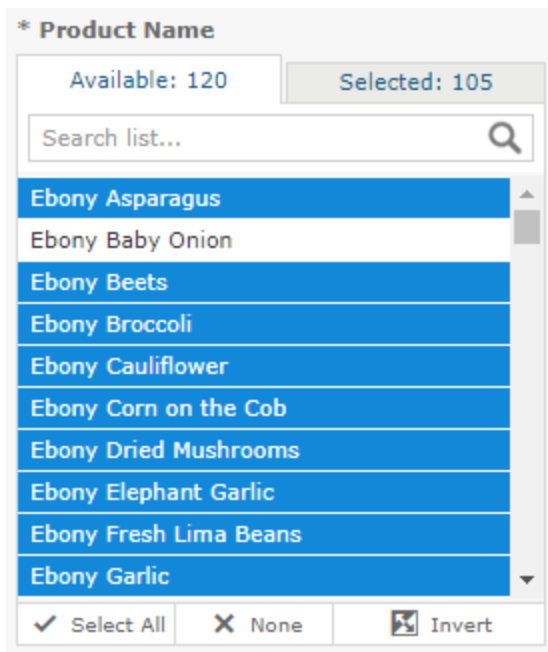


Figure 46: Multi-Input Control Selection

Saving Input Control Values

You can save your selected input control values to use at another time to have the original report and a copy of it. The JasperReports Server saves a version of the report with the selected values as a child of the original report. This new version of the report appears as a child of the original report in the repository, as shown in [Filtered Version of Geographic Results Report in Repository](#). Click ► next to the original report in the repository to see all versions of it.

Your saved input control values also appear in a dropdown list when you open the input controls dialog.




Repository		Sort By: Name Modified Date		
All + Reports				
Name	Description	Type	Created Date	Modified Date
01. Geographic Results by Segment Report	Sample HTML5 multi-axis column chart from Domain showing Sales, Units, and \$ Per ...	Report	May 26	June 1
Geographic Results Report Filtered for Chicken Prod...		Report Version	Today	Today

Figure 47: Filtered Version of Geographic Results Report in Repository

To save the input control values

Procedure

1. In the repository, locate and run the report 1. Geographic Results by Segment Report.
2. On the tool bar, click .
3. Select all of the onion products, as described in [Multi-select Input Controls](#).
4. Click save at the bottom of the dialog.
5. Enter "Interactive Sales Report for Onion Products" as a name for the input control values and click Save.

JasperReports Server saves the input control values as an option. A new dropdown box appears at the top of the Filters panel.

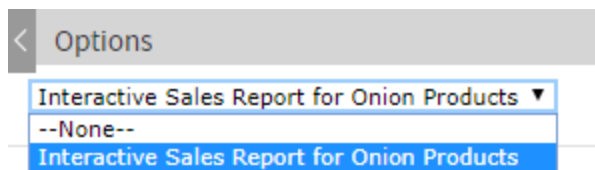


Figure 48: Saved Input Controls Option

6. Select Interactive Sales Report for Onion Products from the list of options and click OK. The report shows data for onion-related products only.

Cascading Input Controls

Cascading input controls in a report reduce a large number of choices to a manageable number. A single value chosen for a cascading input control determines which other values appear as choices for input. For example, the choice of a country determines which states or regions are listed as choices. For more information, see [Selecting a Data Source for Running the Complex Report](#).

To run a report with cascading input controls

Procedure

1. In the repository, locate and run the report 16. Interactive Sales Report. The report runs, and appears with the Options panel open on the left side of the Report Viewer.
2. In the Options panel's Country multi select dropdown, select a different country, for example Canada. The other dropdowns in the Filters panel are automatically updated with Canadian data.



Cascading input controls are implemented as queries that access the database to retrieve the new values. The server displays an activity monitor while the query is running, and in the case of long queries, you can click Cancel and select different values.

3. In the Product Name section, select a product to display in the report.
4. Click Apply to run the report with the chosen values.

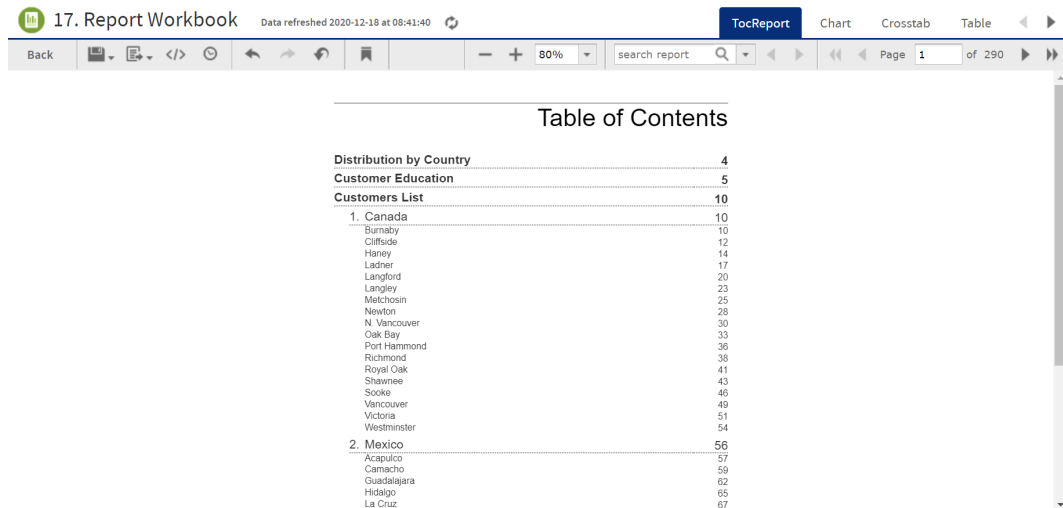
Running a Report Book

Report books are multiple reports bundled into a single object, created in Jaspersoft Studio. You can run and view report books from the Library page or the repository, much like you would a standard report. However, report books contain some elements that are not found in standard reports.

To run a report book in the Report Viewer

Procedure

1. In the repository, click the name of the report book you want to run. For example, click the sample 17. Report Workbook. The report appears, as shown below.



The screenshot shows a web browser window with the title '17. Report Workbook' and a 'Data refreshed 2020-12-18 at 08:41:40' timestamp. The browser's address bar shows 'search report' and navigation controls. The main content area displays a 'Table of Contents' with the following items and page numbers:


Table of Contents	
Distribution by Country	4
Customer Education	5
Customers List	10
1. Canada	10
Burnaby	10
Cliffside	12
Haney	14
Ladner	17
Langford	20
Langley	23
Melchosi	25
Newton	28
N. Vancouver	30
Oak Bay	33
Port Hammond	36
Richmond	38
Royal Oak	41
Shawnee	43
Sooke	46
Vancouver	49
Victoria	51
Westminster	54
2. Mexico	56
Acapulco	57
Camacho	59
Guadalupe	62
Hidalgo	65
La Cruz	67

Figure 49: Sample report book as seen in the Report Viewer

The sample report book contains three bundled reports:

- Distribution by Country, a chart-type report.
- Customer Education, a crosstab-type report.
- Customers List, a table-type report.

Each of these reports can be accessed by a tab, along with the Table of Contents page, located at the top of the Report Viewer.

2. Click the Chart tab to open the Customer Distribution by Country report. Note that you can interact with this report as you would with a standard chart-based report in the viewer.
3. Click the TocReport tab to return to the table of contents page.
4. Scroll down and click the Acapulco entry in the table of contents. The first page of the Acapulco table entries is displayed.
5. Click  to open the bookmarks pane.




6. Click the Customer Education entry in the bookmarks pane. The Customer Education crosstab report opens in the viewer.
7. Close the bookmarks pane by clicking the x in the upper right corner of the pane.

Drill-down Report

You can use a drill-down report to view more detailed data from the general view within the report. When you drill down to the specific data in a main report, a subreport opens.

For example, a report displays the stores sales data of different cities using a pie chart. If you hover over a pie segment and select it, a subreport of a specific city opens. You can see the store sales data of that city.

A subreport can be opened in the same tab or in the new tab.

- When a subreport opens in a new tab, you can see a Close button . Using a Close button, you can return to the screen from where a main report is accessed.
- When a subreport opens in the same tab, both a Close button , and a Back button  are displayed. Using a Back button, you can go back to the main report.

For the main report with input control, you can configure input controls in the following display modes:

- Pop-up window
- Separate page
- Top of page
- In page

The input control values automatically reapplied to the main report when you return from the subreport. Any report interaction through JIVE actions such as, sorting, filtering, or formatting is also restored on the main report.

You can edit a drill-down report in JasperReports Server. If you close the report without saving the changes, you are prompted to save or cancel the changes.

Scheduling Reports and Dashboards

Using the JasperReports Server scheduler, you can run reports and take snapshots of dashboards repeatedly and unattended during off hours or at other times. The reports and dashboards are saved in a file format of your choice to the repository, the host machine, or an FTP server. Scheduling these jobs to run in the background or during off hours can reduce the performance impact on the server.

You can view a list of scheduled reports or dashboards on the View > Schedules page.

Administrative users have access to a set of Ad Hoc views with details of the completed scheduled reports via the server monitoring feature. Administrators can monitor the completed scheduled reports using these Ad Hoc views. This feature is available to users with access to the Audit database. For more information on server monitoring, see the JasperReports Server Administrator Guide.

This chapter contains the following sections:

- [Overview of the Scheduler](#)
- [Creating a Schedule](#)
- [List of Scheduled Jobs](#)
- [Editing Schedules](#)
- [Pausing a Job](#)
- [Deleting a Job](#)
- [Running a Job in the Background](#)
- [Event Messages](#)

Overview of the Scheduler

Using the scheduler, you can set up a schedule for generating reports or dashboard with parameters, output options, and notifications:

- **Schedule** – When to run the scheduled job, and how often.

- Parameters – If the report or dashboard was designed with input controls, which parameters the scheduled job uses.
- Output Options – The name of the output file, the output format and locale, and where the output file is stored.
- Notifications – Email options for sending the output to recipients and for sending administrative messages.

The permissions of the user who schedules a job determines the data that is exposed. For example, Gloria only has access to inventory data from the Southeast US region. A report that she schedules only shows data from that region, even when the report is viewed by users in other regions. Other users schedule the report themselves to see the data for their own regions.



Sensitive data could be exposed to unauthorized users if you schedule a job as an administrative user with no data restrictions because the output contain all requested data in the data source. Any user who receives the output can view all the data regardless of the user's access restrictions.

Scheduling a dashboard requires having Chrome/Chromium installed on the computer hosting JasperReports Server. For information on configuring Chrome/Chromium for dashboards, see the System Configuration chapter in the JasperReports Server Administrator Guide.

By default, in the scheduled report, HTML5 charts are not interactive in the HTML output. To make them interactive in the HTML output, you need to update the `jasperReportsProSchedulerContext` bean in the `applicationContext-adhoc.xml` file.




You can schedule a report with the Detail Chart Enabled property as enabled or disabled, while this property is not supported by pie charts, gauge charts, spider charts, horizontal bar charts, and tile map charts.

Creating a Schedule

To create a schedule

Procedure

1. Locate the report or dashboard that you want to schedule in the repository.
2. Right-click the report or dashboard and select Schedule... from the context menu, or

if it already has a schedule, click the Schedule icon . The Scheduled Jobs page appears.


Scheduled Jobs

/public/Samples/Reports/04._Product_Results_by_Store_Type_Report

Back	Create Schedule	Run Now	Refresh List				
Job ID	Job Name	Owner	State	Last Run	Next Run	Enabled	

Figure 50: Scheduled Jobs Page

3. Click Create Schedule.

You can also create a schedule from the dashboard in view and edit mode, and from the report viewer. On the toolbar, click the Schedule icon .



The **Schedule** tab of the scheduler appears.

New Schedule


Schedule For: /public/Samples/Reports/04._Product_Results_by_Store_Type_... **Schedule** Parameters Output Options Notifications

Schedule Start

Start Date:

Immediately

On Specific Date:




Time Zone:

Recurrence

Recurrence Type:

Figure 51: New Schedule Tab

- Set a start date, choosing whether to run immediately or on a specific date. If a specific date is selected, click the calendar icon  to select a start date and time.
- Specify the time zone for the schedule. The default time zone is the time zone of the server, the time zone you entered at log in. If you are in a different time zone, set this field accordingly.

6. Choose a recurrence setting, as described in [Running a Job Repeatedly](#). If you select Simple or Calendar Recurrence, additional controls appear on the page.
 - None: Run the job once.
 - Simple: Schedule the job to recur at a regular interval, specified in minutes, hours, days, or weeks.
 - Calendar: Schedule the job to recur on days of the week, days of the month, specific dates, or date ranges.

**Warning:**

If you set up a job with simple recurrence to start immediately, the job schedule will change after export/import or a server restart. This happens because the job does not retain the previous run history and therefore starts immediately after import or restart. If you have a large number of scheduled jobs, all scheduled jobs with simple recurrence will attempt to start at the same time after export/import or restart. This can impact server performance. In addition, some scheduled jobs may be locked out and they may continue to try to run.

To ensure a recurring schedule does not change after export/import or restart, either use a simple recurrence with a specific start time, or set up calendar recurrence.

7. If the report or dashboard you are scheduling has input controls that prompt for user input, click the Parameters tab.

The screenshot shows the 'New Schedule' interface with the 'Parameters' tab selected. The breadcrumb trail indicates the current report path: /public/Samples/Reports/04._Product_Results_by_Store_Type_... The 'Country' parameter is currently set to 'Canada'. A dropdown menu is open, showing a search bar and a list of options: 'Canada', 'Mexico', 'No Country', and 'USA'. The 'Save Current Values' button is located at the top left of the parameter section. At the bottom left, there are 'Save' and 'Cancel' buttons.

Figure 52: Set the Parameter Values Page for Scheduling a Report

Saved values, if there are any, appear in a dropdown list at the top of the page, as shown in [Set the Parameter Values Page for Scheduling a Report](#). In the Use saved values dropdown, you can set the input controls defined for the report or dashboard you are scheduling. You can set the input values for the scheduled job, and click Save Current Values to save the input value as a named set of values.

For more information about using saved values and saving input values, see [Running a Report with Input Controls or Filters](#).

8. Choose a set of saved values, or set the input controls.
9. Click the Output Options tab and set the output format and location, as described in [Setting Output Options](#).
10. Click the Notifications tab and set up email notifications, as described in [Setting Up Notifications](#)
11. Click Save. The Save dialog appears.
12. In the Scheduled Job Name field, enter a name for the job, for example, Weekly Report. The description is optional.
13. Click Save to save the schedule. The job appears in the list of saved jobs for the report or dashboard.

Setting Output Options

On the **Output Options** tab, you can change these settings:

- **File name** – The base name for the output file in the repository. This name must be unique. If you attempt to create a schedule with the same file name as an existing output file, you will not be able to save the file name.
- **Description** – The optional description of the file that appears to users who view the repository.
- **Time Zone** – The output time zone for generating the report.
- **Output Locale** – The locale settings for generating the report.
- The report must support locales, for example a report based on a Domain with locale bundles. For more information on locale bundles, see *JasperReports Server Data Management Using Domains*.
- **Export Type** – Click the dropdown menu and select one of the following export types:
 - Screenshot
 - Detailed



Note:

The **Export Type** option is available only for dashboards.

- **Formats** – The available output formats. For dashboards, the available formats for the selected export type is displayed. Select one or more formats. The default format is PDF. When you select more than one, each format is stored as a separate file in the selected output destination.

Format for Reports	Format for Dashboards (Screenshot)	Format for Dashboards (Detailed)
Comma Separated Values (.csv)	Microsoft Word (.docx)	Microsoft Word (.docx)
Web Page (.html)	PNG Image (.png)	PNG Image (.png)
Rich Text Format (.rtf)	OpenDocument Text (.odt)	OpenDocument Text (.odt)
	Microsoft PowerPoint	Microsoft PowerPoint (.pptx)
		PDF Document (.pdf)

Format for Reports	Format for Dashboards (Screenshot)	Format for Dashboards (Detailed)
Microsoft Word (.docx)	(.pptx)	Microsoft Excel (.xlsx)
OpenDocument Spreadsheet (.ods)	PDF Document (.pdf)	Rich Text Format (.rtf)
Microsoft Excel (.xlsx)		Comma Separated Values (.csv)
OpenDocument Text (.odt)		OpenDocument Spreadsheet (.ods)
Microsoft Excel - Paginated (.xlsx)		
PDF Document (.pdf)		
Microsoft PowerPoint (.pptx)		
Comma Separated Values - Metadata (.csv)		
Microsoft Excel - Metadata (.xlsx)		

- Canvas Size – Sets the size of the canvas when exporting a dashboard.



Note:

The **Canvas Size** field is available only for the **Screenshot** export type.

- File Handling – Select one or more checkboxes to specify handling for multiple output files with the same name:
 - Overwrite Files – Overwrites old output files with newer ones of the same name.
 - Sequential File Names by Timestamp – Appends a timestamp to the names of files created by the job. Useful for the output of recurring jobs or for time-sensitive reports where the output must be dated. When the timestamp is used, the output filename is <basename>-<timestamp>.<extension>. Note that, depending on the frequency of the schedule and the format of the timestamp, it may be possible to have two output files with the same name; in this case, modify the timestamp or use the Overwrite Files checkbox to specify the behavior you want.
 - Timestamp Pattern – When Sequential File Names by Timestamp is selected, a required pattern for the timestamp, based on the java.text.SimpleDateFormat is required. Valid patterns for output files can contain only letters, numbers,

dashes, underscores, and periods. The default pattern is yyyyMMddHHmm, for example 200906150601.

- For more information about the valid patterns for this field, refer to: <http://download.oracle.com/javase/6/docs/api/java/text/SimpleDateFormat.html>
- Output Destination – To save the output file, select one or more checkboxes to specify the output location. If you do not want to save the report output (for example, if you only want to email the report) leave all checkboxes blank.
 - Output To Repository – If checked, saves the report output to the specified location in the repository. You must have write permission to the output folder. JasperReports Server validates the path when you click Save. It displays an error message if the location does not exist. You can change the repository location that appears here by default. See JasperReports Server Administrator Guide for more information.
 - Output To Host File System – If checked, saves the report output to the specified folder on the Server host machine. Check with your administrator for the correct location to enter. Output To Host File System must be configured by an administrator. If the checkbox is grayed out, saving to the host file system has not been enabled for your system. See the JasperReports Server Administrator Guide for more information
 - Output To FTP Server – If checked, saves the report output to the specified FTP server. You must have write permission to the selected directory on the FTP server. Enter the following properties of your FTP server:
 - Server Address – The host, IP address, or URL of the FTP server.
 - Port – Specifies the FTP connection port.
 - For FTP, the default port is 21.
 - For FTPS, the default port is 990.
 - For SFTP, the default port is 22.
 - Transfer Protocol – Specifies the file transfer protocol that the server uses. You can select one of the following:
 - FTP.
 - FTPS (FTP over SSL).

- SFTP (FTP over SSH). If selected, the SSH Key Authentication checkbox and SSH private key fields appear.
- SSH Key Authentication. Check if the server requires an SSH private key for SFTP transfers.
- Path to SSH Private Key. When SSH Key Authentication is checked, the location of the SSH private key in the repository is required.
- SSH Key Passphrase. When SSH Key Authentication is checked, enter the passphrase for the SSH private key, if it has one.
- Directory – The directory on the FTP server where the report output is saved.
- Username – The username for access to the FTP server.
- Password – The password for the username.

The screenshot shows the 'New Schedule' interface with the 'Output Options' tab selected. The 'Schedule For' field is set to '/public/Samples/Dashboards/3.1_Sales_Metrics'. Under 'Output Destination', 'Output To Repository' is selected with the path '/public/Samples/Dashboards'. 'Output To FTP Server' is also selected, with 'Server Address' empty, 'Port' set to '22', and 'Transfer Protocol' set to 'SFTP (FTP over SSH)'. The 'SSH Key Authentication' checkbox is checked, and the 'Path to SSH Private Key' field is empty. The 'SSH Key Passphrase (optional)' field is also empty. There are 'Save' and 'Cancel' buttons at the bottom.

Figure 53: Output Page for Scheduling a Dashboard – Output Destination

When you click Save, the job appears in the list of scheduled jobs.

Setting Up Notifications

On the Notifications page, you can set up email notifications to the recipients of the report or dashboard and to administrators.

**Note:**

Notifications are sent to all users with the organization ROLE_ADMINISTRATOR role, who belong to the same organization as the user who creates the scheduled job.

Send a report when the scheduler runs

Enter one or more email addresses to send the output after the job has run. You can configure the following:

- To – One or more email addresses separated by commas for sending email notification.

**Note:**

By default, the mail server is not configured by the JasperReports Server installer. To send email notifications, the administrator must configure the mail server, as described in the JasperReports Server Installation Guide.

- CC – One or more email addresses separated by commas for sending an email notification on the CC line.
- BCC – One or more email addresses separated by commas for sending a blind carbon-copy email notification. The addresses in this field are not revealed to the other recipients.
- Subject - The subject line of the notification email.
- Message - Content of the notification email.
- Choose one of the radio buttons to specify how email recipients access the output:
 - Include reports/dashboard as repository links in email body - Sends a link to the output in the repository. Not available unless Output to Repository is selected on the Output Options tab.
 - Include report/dashboard files as attachments - Sends the output as

attachments to the notification email. If you have selected multiple output formats, each one is attached as a separate file to the email notification.

- Include report/dashboard files as ZIP attachment - Zips all outputs into a single archive file before attaching to the email.
- Include HTML report in email body - Displays the report directly in the email body. This option is available only when Include report files as attachments or Include report files as ZIP attachment is checked and HTML is selected as one of the options on the Output File Options page. When this option is selected, you cannot include a message in the email body. This option is not available for dashboards.

**Note:**

Be careful when sending reports containing sensitive data by email, either in the email body or as an attachment.

- Do not send emails for empty reports - A checkbox option that, if checked, prevents the server from attaching empty report output files to email notifications. This applies to parametrized reports where there is no data that matches the parameters. This option is not available for dashboards.

Send job status notifications

Enter one or more email addresses to send notification of job success or failure to administrators:

- To – One or more email addresses separated by commas for sending email notification.

**Note:**

By default, the mail server is not configured by the JasperReports Server installer. To send email notifications, the administrator must configure the mail server, as described in the JasperReports Server Installation Guide.

- Subject – The subject line of the notification email.
- Send success notification – Checkbox option that, when checked, sends a notification when the scheduled job runs.

- Success Message – The message in the body of the notification email sent on success.
- Send failure notification – Checkbox option that, when checked, sends a notification when the scheduled job fails to run.
 - Failure Message – The message in the body of the notification email sent on failure.
- Include report/dashboard job information – A checkbox option that, if selected, includes the report or dashboard's label, ID, description, and job status in the notification email.
- Include stack trace – A checkbox option that, if selected, includes the stack trace for failed jobs in the body of the email.

New Schedule

Schedule For: /public/Samples/Reports/04_Product_Results_by_Store_Type... Schedule Parameters Output Options **Notifications**

Email Notification

Send report when scheduler runs

To:

Use commas to separate addresses

CC:

BCC:

Subject:

Message:

Include reports as repository links in email body
 Include report files as attachments
 Include report files as ZIP attachment
 Include HTML report in email body
 Do not send emails for empty reports

Send job status notifications

To:

Use commas to separate addresses

Subject:

Send success notification
 Success Message:

Send failure notification
 Failure Message:

Include report job information
 Include stack trace

Save Cancel

Figure 54: Notifications Page for Scheduling a Report

Running a Job Repeatedly

To run jobs automatically regularly, select a simple or calendar recurrence on the Schedule tab:

- Simple recurrence repeatedly runs the job at a regular interval set in minutes, hours, days, or weeks.
- Calendar recurrence involves more settings: time of day, days of the week, or days of the month, and months of the year.

In [Simple Recurrence Settings](#) you can see an example of how to set a simple recurrence.

New Schedule

Schedule For: /public/Samples/Reports/04._Product_Results_by_Store_Type_... Schedule Parameters Output Options Notifications

Schedule Start

Start Date:

Immediately

On Specific Date:

Time Zone:

Recurrence

Recurrence Type:

Repeat every (required):

Schedule End

End Date:

Run a set number of times

Number of runs:

Run until a specified date:

Run indefinitely

Holidays

Calendar of dates to exclude:

Figure 55: Simple Recurrence Settings

Simple recurrence options are:

- Repeat every – The interval between jobs, in minutes, hours, days, or weeks.
- Run a set number of times – Runs the specified number of times.
- Run until a specified date – Runs until a calendar date is reached. Click the calendar

icon  to select the date.

- Run indefinitely – Runs at the specified time until you delete the job.
- Holidays – A holiday calendar specifies a list of days when the scheduled job does not run. To use a holiday calendar, select it from the dropdown list. Only one holiday calendar can be selected at a time. Holiday calendars are configured by an administrator. If no calendars are available in this list, then this implies that this option has not been configured for your system.

**Note:**

If your server recognizes Daylight Savings Time (DST), jobs scheduled using simple recurrence may seem to occur one hour later (when DST ends) or one hour earlier (when DST begins). If you want jobs to recur at the same time of day and respect DST adjustments, use calendar recurrence.

**Warning:**

If you set up a job with simple recurrence to start immediately, the job schedule will change after export/import. This happens because the imported job does not retain the previous run history and therefore starts immediately after successful import. To ensure a recurring schedule does not change after export/import, either use a simple recurrence with a specific start time, or set up calendar recurrence.

In [Calendar Recurrence Settings](#) you see an example of calendar recurrence settings.

New Schedule

Schedule For: /public/Samples/Reports/04_Product_Results_by_Store_Type_... **Schedule** Parameters Output Options Notifications

On Specific Date:

Time Zone:

Recurrence

Recurrence Type:

Months:

Every Month

Selected Months:

- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

Days:

Every Day

Selected Days:

- Sun
- Mon
- Tue
- Wed
- Thu
- Fri
- Sat

Dates in Month:

Enter dates (9, 12, 15) or date ranges (9-12, 1-17)

Times:

Hours (required):

Enter 24-hour times like 9, 12, 15 or ranges like 9-12, 1-17

Minutes (required):

Enter 0, 15, 30, 45 to run every 1/4 hour

Schedule End

End Date:

Holidays

Calendar of dates to exclude:

Save Cancel


Figure 56: Calendar Recurrence Settings

Calendar recurrence options are:

- Months – The months during which the job runs.
 - Every Month
 - Selected Months
- Days – The days when the job runs.
 - Every Day
 - Selected Days
 - Dates in Months – Enter dates or date ranges separated by commas, for example: 1, 15.

- **Times** – The time of day in minutes and hours when the job should run. The hours use the 24-hour format.

You can also enter multiple minutes or hours, and ranges, separated by commas. For example, entering 0,15,30,45 for the minutes, and 9-17 for the hours, runs the report every 15 minutes from 9:00 a.m. to 5:45 p.m. Enter an asterisk (*) to run the job every minute or every hour.

- **End Date** – Calendar recurrence runs until a calendar date is reached. Click  to select the date.
- **Holidays** – A holiday calendar specifies a list of days when the scheduled report does not run. To use a holiday calendar, select it from the dropdown list. Only one holiday calendar can be selected at a time. Holiday calendars are configured by an administrator. If no calendars are available in this list, then this implies that this option has not been configured for your system.

Administrators see the chapter on scheduling in the JasperReports Server REST API Reference for more information on configuring calendars.

List of Scheduled Jobs

All scheduled jobs that you have defined appear on the **View > Schedules and Alerts > Schedules** tab. Typical users can see only the jobs that they have defined. Administrators can view the jobs defined by all users.

The view of the Schedules page has been improved with the newly added columns and updates to existing column names.

The Schedules page shows the following:

Column Name	Description
Job ID	The unique identifier of a job.
Job name/Description	Name of the scheduled job and description.
Resource/URL	Repository URL of the job.

Column Name	Description
Status	The status of the job in NORMAL , EXECUTING , COMPLETE , PAUSED , ERROR , or UNKNOWN state.
User	The owner who created the job.
Next run	Filters by date and time to view the count and list of schedules that will run next at the filtered time.
Last run	Filters by date and time to view the count and list of schedules that was run last at the filtered time.
Pause/Activate	Enables or disables the job.
Actions	Edit or delete the job.

Schedules and Alerts Schedules Alerts

Scheduled Jobs Data refreshed 2023-12-12 at 05:29:14 Search

Job ID: All Job name: All Resource: All URL: All + Add filter Reset filters




Job ID ↑	Job name/Description	Resource/URL	Status	User	Next run	Last run	Pause/Activate	Actions
4273	New Schedule	04_Product Results by Store Type Report /public/Samples/Reports/04_Product_Results_by_Store_Type_Report	ACTIVE	superuser	2023-12-12 05:29:00		<input checked="" type="checkbox"/>	

Rows per page: 5 Displaying jobs 1-1 of 1

Figure 57: The Schedules Page


In the Schedules page, you can now do the following tasks:

Functionality	Description
Sort	You can sort any column except the Actions column in ascending or descending order. Hover on the column header and then click the sort icon ↑ to view the schedules in ascending or descending order.
Filter	You can filter to find information of the scheduled jobs of the report using the Add Filter button. Based on the selected filter settings, the Schedules page is refreshed without effecting the other filters on the page. Select the Reset filters to reset the Schedules page to the default filter values.






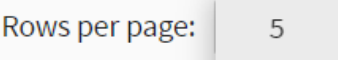
Functionality	Description
Data refresh	You can view the latest updated date and time of new schedules. Click the data refresh icon  to refresh the scheduled job with the recent date and time.
Search	You can find a scheduled job by job name from the list of available or created schedule. Click the search icon  to search by schedule job name. The search criteria show results for only those job names that match with the names available in the Job name/Description column.
Export	You can export the schedule jobs in CSV format. Click the export icon  to download and view the report of all the scheduled jobs.

You can use the Schedules page's search field to find the scheduled job you want.


In the Status column, you can view the following job states:

Job States	Description
NORMAL	The job is scheduled. The status of this job state is displayed as ACTIVE on the UI.
EXECUTE	The server is generating the output. The status of this job state is displayed as RUNNING on the UI.
COMPLETE	The server has finished running the job and output is available in the repository.
PAUSED	The job has been disabled. Click the Pause/Activate  toggle switch to resume the schedule. The status of this job state is displayed as PAUSED on the UI.
ERROR	The scheduler encountered an error while scheduling or triggering the job. This does not include cases where the job is successfully triggered, but an error occurs while it runs.
UNKNOWN	The scheduler encountered an error with the job trigger.

The Schedules page includes the following controls:


Schedule Page Controls	Description
	Pause/Activate toggle switch, when enabled, the job state is set to ACTIVE . When disabled, the job state is set to PAUSED .
	Edits the scheduled job.
	Deletes the scheduled job. When the server receives a request to delete a job that is running, the server completes running the job before deleting it.
	Displays the previous instance of the search term.
	Displays the next instance of the search term.
	Displays the number of schedule records. By default, five rows per page are displayed. You can change the number of rows per page to 5, 10, 25, or 100. Based on your selection, records are displayed. The total count of records in the schedule job page is equivalent to the number of rows selected per page.

Viewing scheduled jobs for an individual report or dashboard

Scheduled jobs appear in the repository with the Schedule icon  (beside the report or dashboard's name).

To view the list of scheduled jobs for a report or dashboard

Procedure

1. Locate the report or dashboard in the repository.
2. Click the Schedule icon  or right-click the report or dashboard, and select

Schedule from the context menu. The Scheduled Jobs page is displayed. The Scheduled Jobs display information that is similar to the Schedules page.



Note:

You can filter search results for scheduled jobs in the repository using the following options: Any schedule (scheduled and unscheduled reports), Scheduled, Scheduled by me, or Not scheduled. For more information, see [Filtering Search Results](#).

The Scheduled Jobs page includes the following buttons:

Button	Description
Back	Returns to the repository.
Create Schedule	Opens the Schedule tab to define a new job.
Run Now	Opens the scheduler to run the job immediately. See Running a Job in the Background .
Refresh List	Refreshes the list of jobs, for example to see if a job has finished running.

As an Excel (.XLS) format is deprecated, old scheduled jobs that export reports to Excel (XLS) or Excel Paginated (XLS Paginated) now export reports to Microsoft Excel (.xlsx) or Microsoft Excel - Paginated (.xlsx) format.


Editing Schedules

If the start date for a schedule has not yet passed, you can edit the schedule. After the start date for a schedule has passed, create a new schedule rather than changing the start date.

To edit a schedule

Procedure

1. Click **View > Schedules and Alerts > Schedules**.

2. Click the Edit icon  in the row of the job that you want to update.
3. Edit the fields in the **Schedule**, **Parameters**, **Output Options**, and **Notifications** tabs.

**Note:**

See [Creating a Schedule](#) section in JasperReports Server User Guide and repeat from steps 4-10.

4. Click **Save**. The update occurs immediately.

Pausing a Job

To stop a job from running without deleting it, disable the job.

To pause a scheduled job

Procedure

1. Click **View > Schedules and Alerts > Schedules**.
2. In the row of the job that you want to stop, disable the **Pause/Activate** toggle switch.


**Note:**

You can resume the job by enabling the **Pause/Activate** toggle switch. When a stopped job is re-enabled, it waits until the next scheduled time to run.

Deleting a Job

To delete a scheduled job

Procedure

1. Click **View > Schedules and Alerts > Schedules**.
2. Click the delete icon  in the row of the job you want to delete. A confirmation dialog with a warning message is displayed to confirm if you want to delete this job.
3. Click **Delete** to delete the scheduled job or click **Cancel** to cancel the delete action.

Running a Job in the Background

Running a job in the background generates a report or exports a dashboard without interrupting your workflow. You can keep working in the server as the job runs. When the job completes, you can export the job directly to any format and save it in the repository. You can share the output with others by sending it by email.

Running a job in the background is equivalent to scheduling it to run immediately without recurrence.

To run a job in the background

Procedure

1. Locate the report or dashboard you want in the repository.
2. Right-click the report or dashboard and select Run in Background from the context menu.
3. Set the output format and location, as described in [Setting Output Options](#). By default, the output is saved in the repository.
4. If the job you are running has input controls that prompt for user input, click the Parameters tab. Choose a set of saved values, or set the fields one at a time.
5. Click the Notifications tab and set up email notifications, as described in [Setting Up Notifications](#).
6. Click Save. The job begins to run immediately.

Event Messages

When an event occurs (for example, a scheduled report returns error), JasperReports Server sends the owner of the job a notification message. You can browse these messages

to troubleshoot report scheduling problems in the server. For example, you can determine that a job fails because its data source configuration uses incorrect credentials.



Note:

A common cause of the error message indicating that the job failed to execute is an incorrectly configured mail server. The mail server must be manually configured after installation for users to send email notifications.

The Messages page displays the list of events logged for the current user.

To open the Messages page

Procedure

1. On any page, click View > Messages. The Messages page appears.
2. To view a message, click its name. The message opens in the Message Detail page.
3. To activate the buttons on the Messages page, click in a blank area of the message row that you want to manage. The buttons become enabled.

Messages


Mark as Read	Mark as Unread	Delete	Show Messages: All Unread	
Subject	Date	Type	Component	
The job failed to execute. Review its parameters.	Today	Error	Report Scheduler	
The job failed to execute. Review its parameters.	Today	Error	Report Scheduler	
The job failed to execute. Review its parameters.	Today	Error	Report Scheduler	

Figure 58: Message Management Buttons

4. Use the buttons on the Messages page to manage the list of messages.

JasperReports Server Alerts Feature

You can use this feature to set alerts for reports from the Reports Viewer toolbar. Currently this feature is only available for the **Tables** and the **Crosstabs**. Alerts notify you when the specified Condition is met. You can create alerts to monitor the data and to notify yourself when there is any significant change in the data.

For creating an alert, you must click the Turn on alert mode icon  on the toolbar. This enables the numeric fields or data points of the report for creating alerts. When creating an alert, you must specify the condition for which alerts have to be generated. The alerting feature is dependent on the Threshold, Data point, and Condition set while creating an alert. You get notified via an email for an alert when the specified Condition matches the Threshold value.

You can view a list of alerts on the **Manage > Admin Console > Alerts** tab.

This chapter contains the following sections:

- [Alert Overview](#)
- [Creating an Alert](#)
- [List of Alerts](#)
- [Searching an Alert](#)
- [Editing an Alert](#)
- [Deleting an Alert](#)

Alert Overview

By using the alert feature, you can set up an alert for the following tabs:

- **Condition** - Which condition an alert is using to notify you about the alert. You can customize the condition based on the available options.
- **Parameters** - Which input controls are applied on the report. When a report has no input controls, then the Parameters tab is disabled.

- **Schedule** - Which recurrence and start time for the alert is to be set to schedule the alert and get notified.
- **Notifications** - The email options to send alert notifications along with subject and message to the recipients for an alert.
- **Output** - The name of the output file, output format, and time zone.

Sample Use case to Generate an Alert

For example, consider that you are working in a warehouse. You have to restock the inventory based on the storage space. A report is generated that shows the inventory for the products. You have to check the stock twice a day to maintain the inventory value. If the inventory falls below 100 units, then new items must be ordered.

In this scenario, your data point is the inventory values, the threshold limit is 100, and the condition is when the inventory value is less than 100 units.

To generate an alert:

Procedure

1. Turn on the alert mode to enable the inventory values.
2. Click any inventory number. This is your data point.
3. Select an inventory number to create an alert.

An email is sent to the user if any of the Inventory values meets the conditions set in the alert.

As shown in the following table, only individual inventory values are considered for checking the conditions set for generating an alert and not the total values.

Product	Country	Warehouse	Inventory
iPhone	US	NYC-1	120
iPhone	US	NYC-2	300
iPhone	Canada	TOR-1	250
iPhone	Canada	TOR-2	50

Product	Country	Warehouse	Inventory
iPad	US	NYC-1	200
iPad	US	NYC-2	70
Total			990

Creating an Alert

To create an alert

Procedure


1. On the Report Viewer toolbar, click the Turn on alert mode icon . This enables the numeric values or data points.



Figure 59: Enabling Alert mode

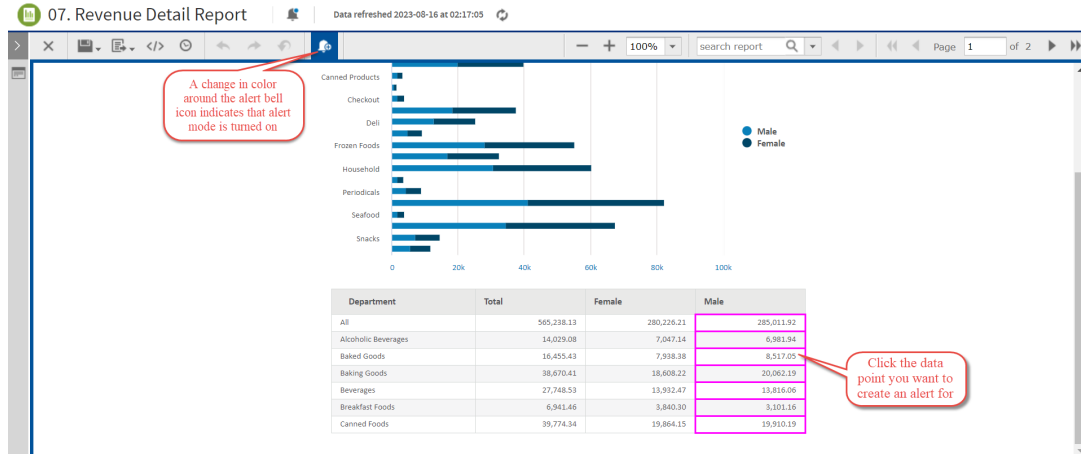


Figure 60: Alert Mode Enabled

2. Click any data point to open the new **Create Alert** panel.

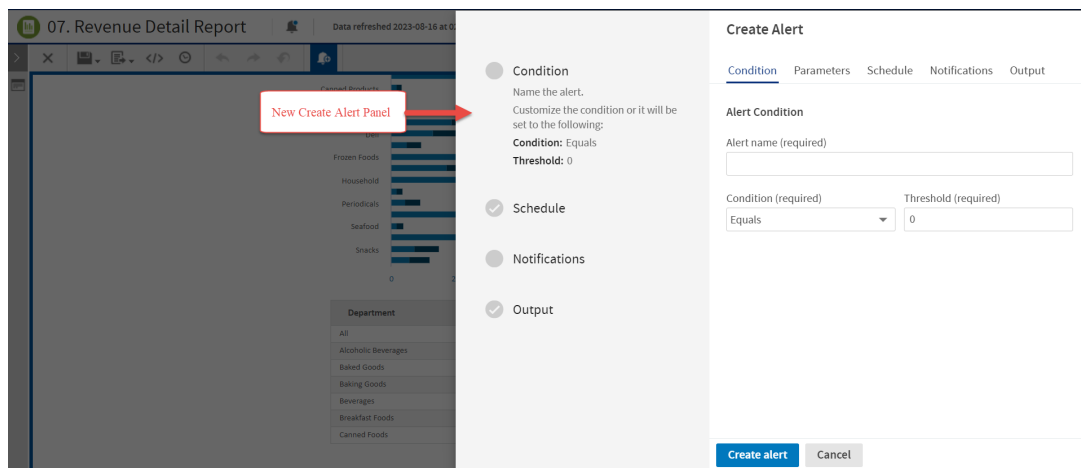



Figure 61: Create Alert Panel


The **Create Alert** panel has Condition, Parameters, Schedule, Notifications, and Output tabs. For more information about the tabs, see [Alert Overview](#).

3. Click the Condition tab to set the condition for the alert as described in [Setting Condition](#).
4. Click the Parameters tab to view the parameters for the alert as described in [Viewing Parameters](#).
5. Click the Schedule tab to set the recurrence and start time for the alert as described in [Setting Schedule](#).

6. Click the Notifications tab and set up email notifications, as described in [Setting Notifications](#).
7. Click the Output tab and set the output format and location, as described in [Setting Output](#).
8. Click **Create alert** to add and save the alert.
9. Click the View Alert List icon  in the Report Viewer to view the new alert or list of alerts.

**Note:**

The list of alerts in the Alerts panel is only available for the report in which the alert is set up.

The alert mode in the report remains enabled even after closing the Create Alert panel. To disable the alert mode, click the Turn off alert mode icon  in the toolbar. The change in color around the alert bell icon indicates that alert mode is turned off.

Setting Condition

On the **Condition** tab, you can change the following settings:

- **Alert name** - The name of your alert. You can save the duplicate alert name without any error.
- **Condition** - You can choose one of the following conditions for an alert:
 - Equals
 - Not equal to
 - Less than
 - Greater than
 - Less than or equal to
 - Greater than or equal to

By default, the Condition is set to Equals.

- **Threshold** - The threshold is the limit that you set to notify about the alert. The

threshold value can be an integer, decimal point, or negative value. By default, the Threshold is set to 0.

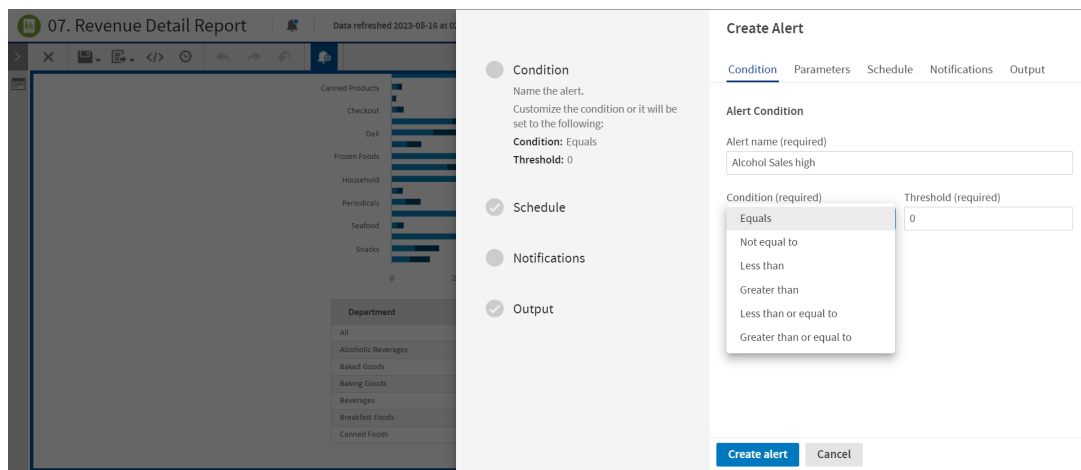


Figure 62: Condition Tab

Viewing Parameters

On the **Parameters** tab, you can view the input controls that are currently applied to the report.

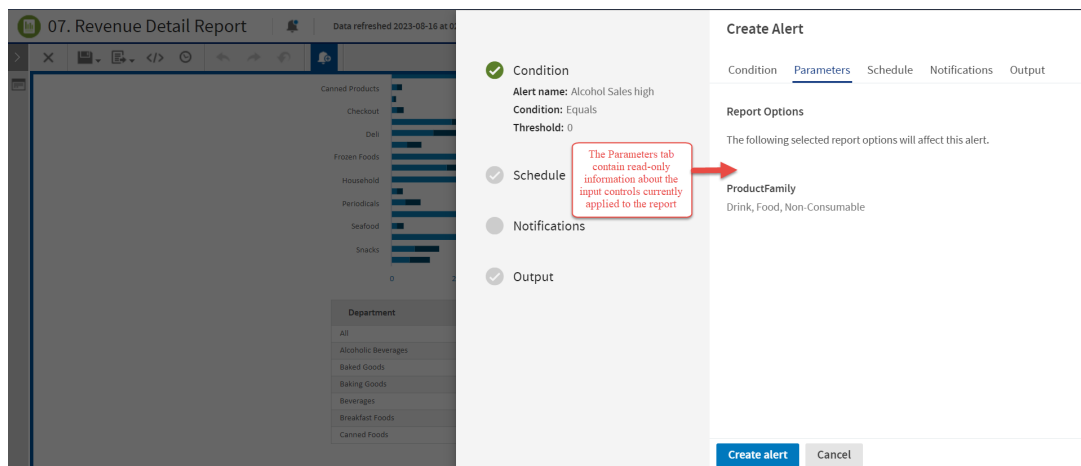


Figure 63: Parameters Tab Enabled

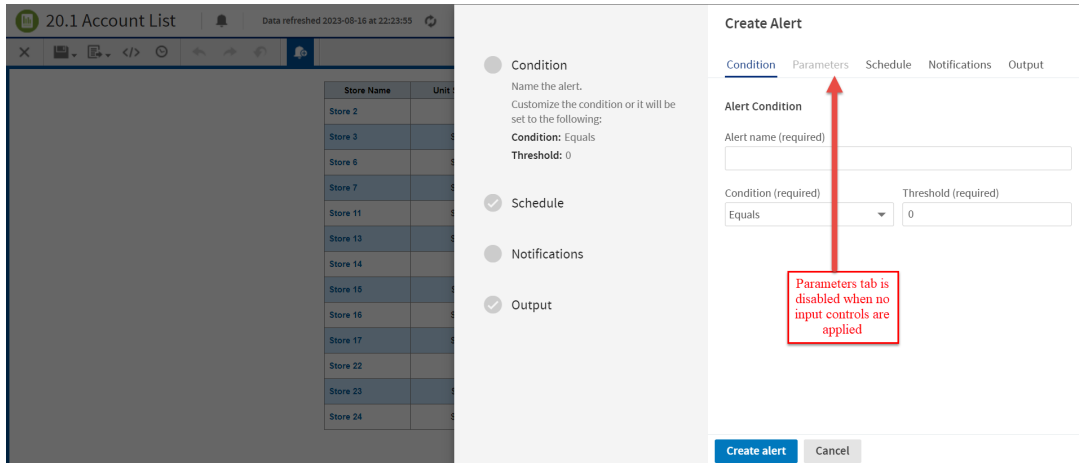



Figure 64: Parameters Tab Disabled

i Note:

- This tab contains read-only information.
- To modify the input control values, close the Create Alert panel, open the input controls for the report, select the required values, and apply changes.
- The Parameters tab is disabled when the report does not have any input controls applied.

Setting Schedule

On the **Schedule** tab, you can change these settings:

- **Interval** - The required recurrence interval value. The recurrence interval must be an integer greater than 0. By default, the interval value is set to 1.
- **Timeframe** - Schedule the alert to recur at a regular interval, specified in hours, days, or weeks. By default, the timeframe value is set to Days.
- **Start time** - Set a start time, choosing whether to start now or on a specific date and time. On selecting a specific date and time, the calendar option is enabled. Click the calendar icon  to select a start date and time.

Note:

- By default, the **Specific date and time** remains disabled. You can choose this option to select a start date and time.
- The start date and time must be in the future.

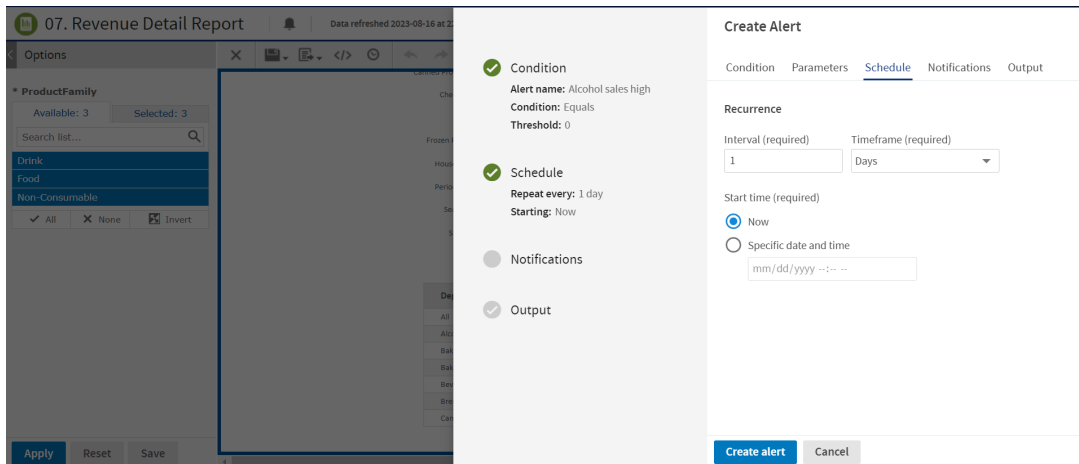


Figure 65: Schedule Tab

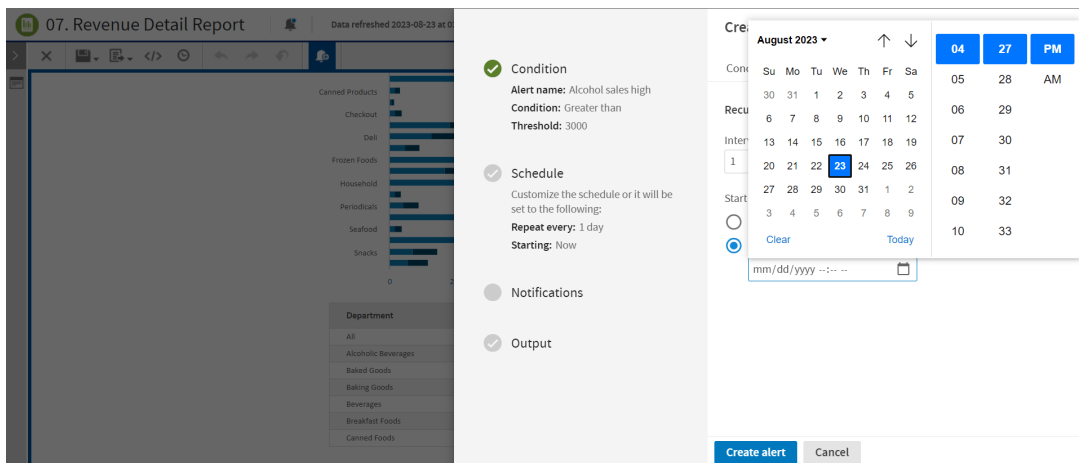


Figure 66: Schedule Tab with Specific Date and Time enabled

Setting Notifications

On the **Notifications** tab, you can set up email notifications to the recipients of the report. On the **Notifications** tab, you can change the following settings:

- **Send alert to** - One or more email addresses separated by commas for sending the alert email notification when an alert condition is met.
- **Subject** - The subject line of the notification email.
- **Message** - The message for the body of the alert email. This is an optional field.
- **Report access** - The output of the report to be sent in the notification email can either be a repository link or an attachment.
 - **Include report as repository link** - The output is sent as a repository link of the chosen folder path in the email body. You can browse to choose the folder path in the Repository Content where you want the output to be saved. Click the repository link to navigate to the folder location where the output is saved.

**Note:**

The **Browse** button gets enabled only on choosing the **Include report as repository link** option.

Admin users (*superuser*) have access to all the folders in the Repository Content. Other users do not have access to all the folders in the Repository Content. With the Report access field in the Notifications tab, a user can now save output to the selected folder having permissions.

- **Include report file as attachment** - The output is sent as the file attachment in the notification mail body. You get an attachment of the selected output format in the notification email.

**Note:**

The output attachments are sent in the email body and are not in the folder path of the Repository Content.

Create Alert

Condition Parameters Schedule **Notifications** Output

Condition
 Alert name: test1
 Condition: Equals
 Threshold: 0

Schedule
 Repeat every: 1 day
 Starting: Now

Notifications
 Specify recipients.
 Enter a subject.
 Add an optional message.
 Report access: Link

Output

Email Notification

Send alert to (required)

 Use commas to separate email addresses.

Subject (required)

Message

Report access (required)
 Include report as repository link.
 Repository URI

Include report file as attachment.

Figure 67: Notifications Tab

Note: If you have trouble receiving alerts to your email, then please contact your administrator. For more information, see JasperReports Server Administrator Guide.

Setting Output

On the **Output** tab, you can change these settings:

- **File name** - The base name for the output file in the repository. The default file name is the resource ID of the output file in the repository.
- **Time zone** - The output time zone for generating the report. The default value is the time zone that you are currently logged in.

- **Formats** - The available output formats. Select one or more formats. The output is generated in the chosen format. The default format is PDF. When you select more than one, the output file is generated for each format.

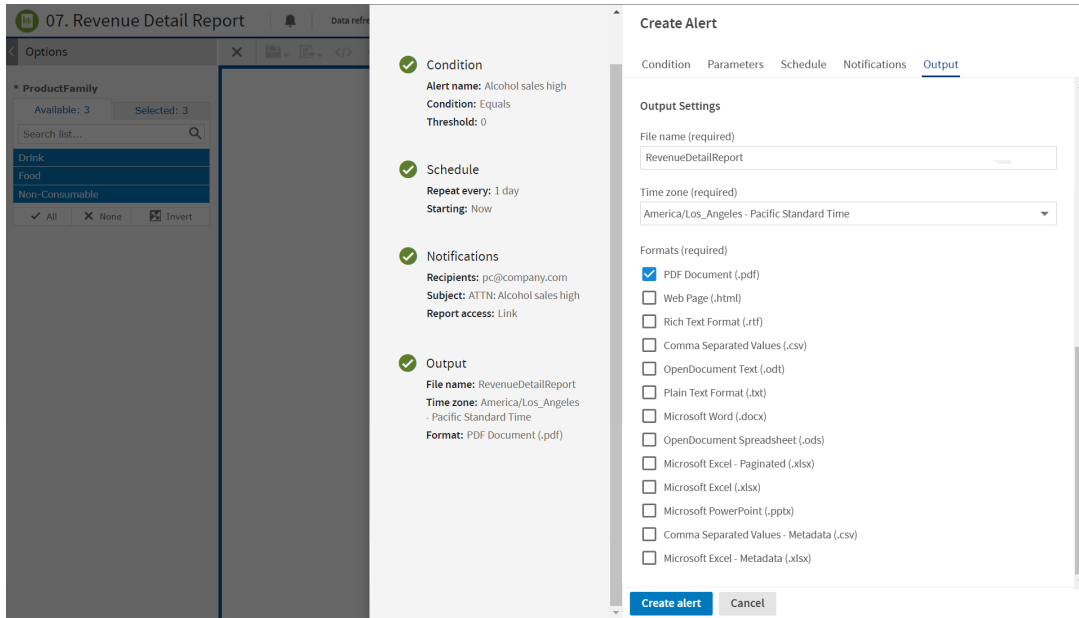



Figure 68: Output Tab

List of Alerts

All scheduled alerts that you have defined appear on the **View > Schedules and Alerts > Alerts** tab. You can also click the **View Alert List** icon  of the Report title bar to view scheduled alerts in the Alerts panel.



Note:

Currently in the **View > Schedules and Alerts > Alerts** tab, the Alerts page is a new beta feature that might not be fully stable or supported. For more information about the Alerts beta feature, see [Admin Console Beta](#).

Typical users see only the alerts that they have defined in the **View > Schedules and Alerts > Alerts** tab. Administrators can see the alerts defined by all users in the Alerts page.

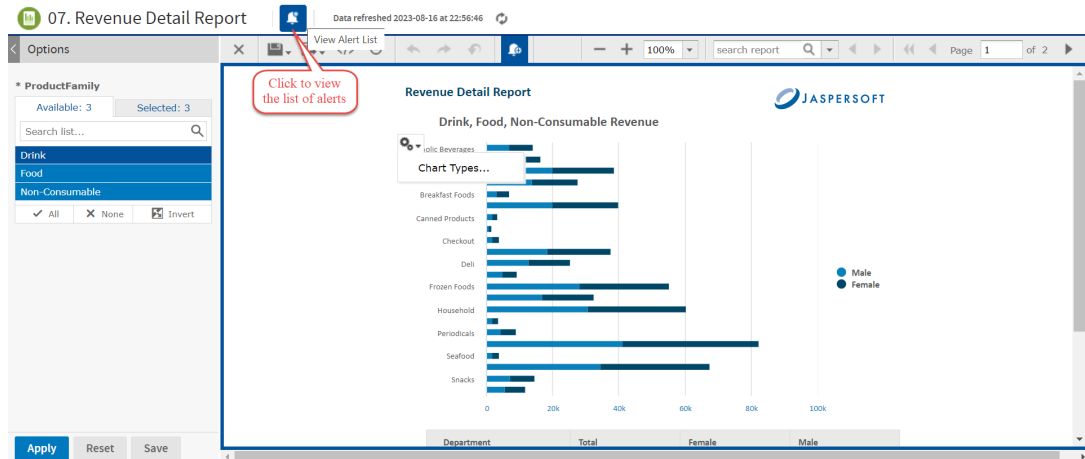


Figure 69: View Alert List

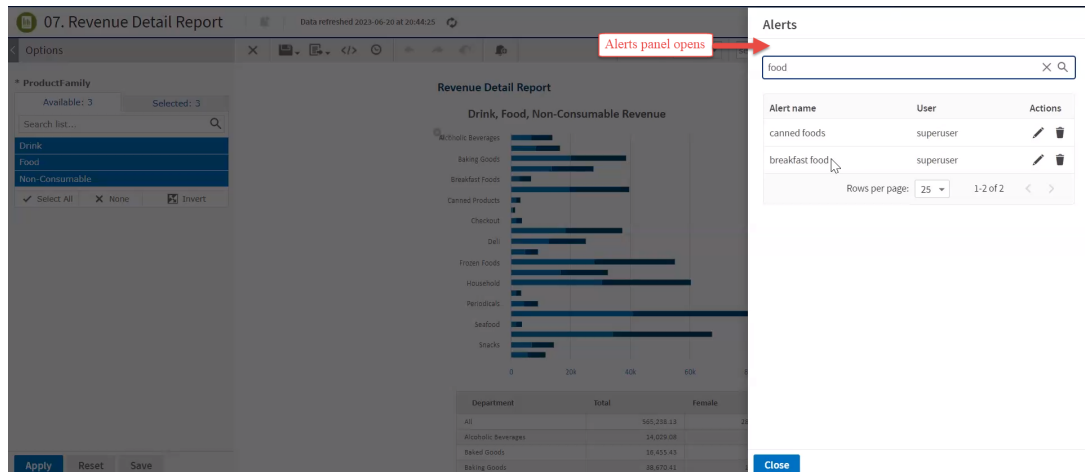


Figure 70: List of Alerts in the Alerts Panel

In the [above figure](#), superuser has set two alerts for the product. If there are no alerts for a report, the Alerts panel contains a message with instructions on how to create an alert. To create an alert, see [Creating an Alert](#).

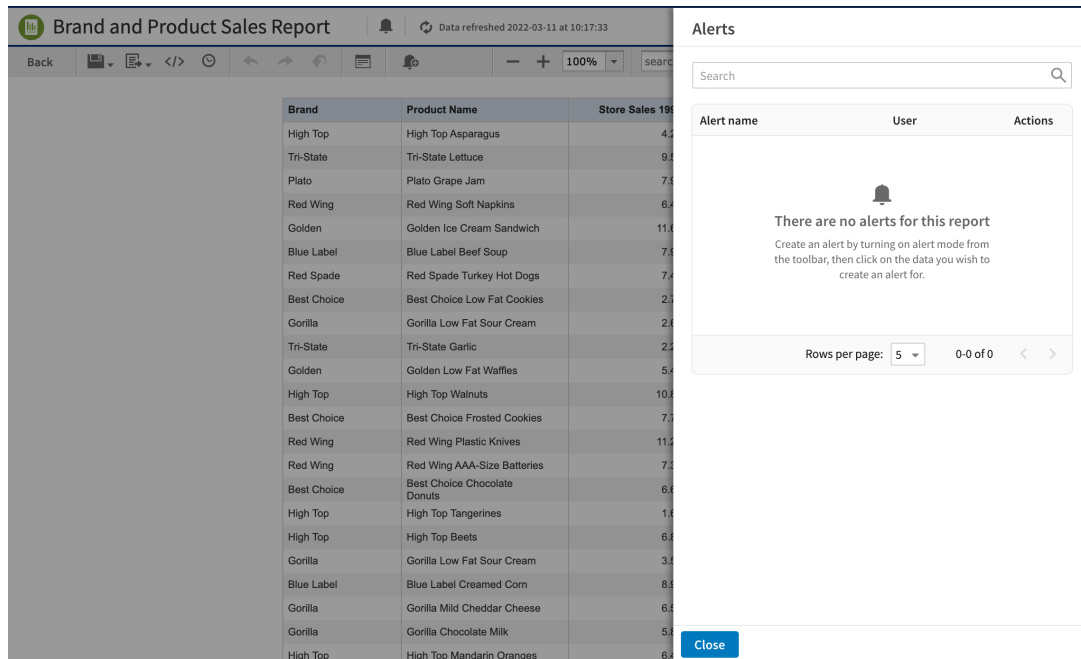








Figure 71: Empty Alerts Panel

The Alerts panel shows the Alert name, the User (owner) who created the alert, and alert Actions.

The Alerts panel includes the following controls:

Alert Panel Controls	Description
	Search the alert by alert name.
	Clears or cancels the search term.
	Edits the alert.
	Deletes the alert.
	Displays the previous page in the Alerts panel.
	Displays the next page in the Alerts panel.



Alert Panel Controls	Description
Rows per page: <input type="text" value="5"/>	Displays the alert records. You can select the number of rows with alert records to view in the Alerts panel. The default value is set to 5 rows per page.

Searching an Alert

You can search an alert by alert name in the Alerts panel.

To search for an alert:

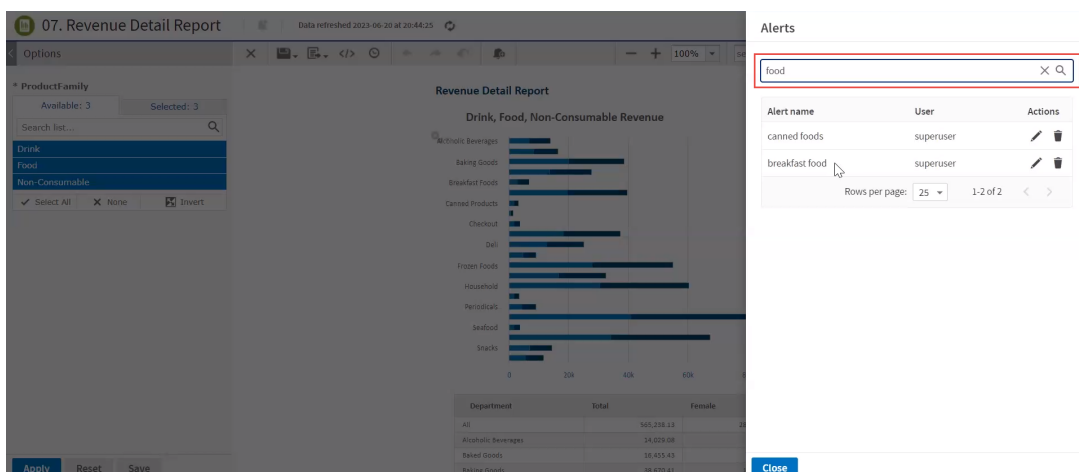
Procedure

1. In the Report Viewer tool bar, click the **View Alert List** icon . The Alerts panel opens.
2. In the Alerts panel, enter an alert name in the **Search** icon  to search for an alert.







Note:

Only the specific alert name that meets with the search criteria of the Alert name column is displayed in the Alerts panel.




The Alerts panel displays the following table:

Alert name	User	Actions
canned foods	superuser	 
breakfast food	superuser	 

Below the table, the 'Rows per page' is set to 25, and the page number is 1-2 of 2.

Figure 72: List of alerts found in Alerts Panel

- If no alert name matches with your search term, then the list remains empty with a message, as shown in the following figure. Click the **Cancel** icon  to clear or cancel the search term.

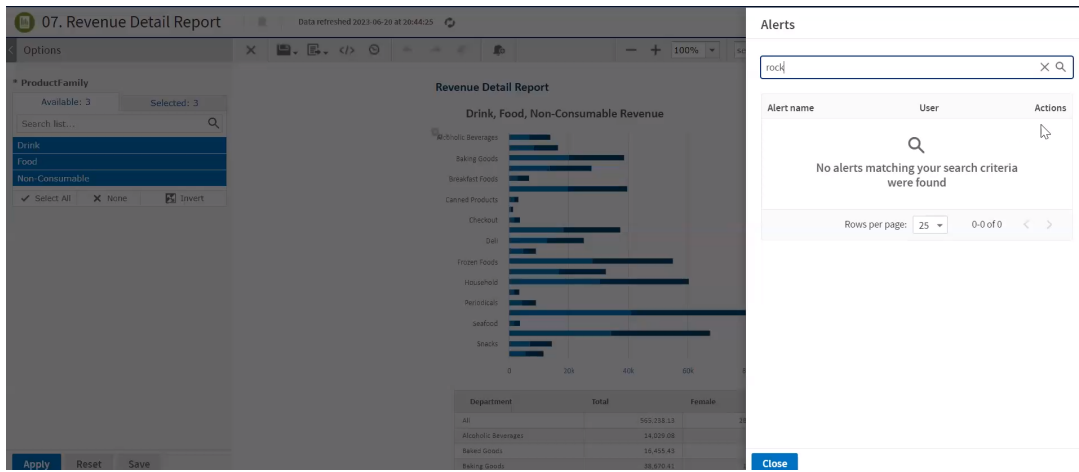


Figure 73: No Alerts found in Alerts Panel

The Alerts panel can display 5, 10, 25, or 100 alert records or row in the page. By default, five rows per page are displayed. You can change the number of rows per page to 5, 10, 25, or 100. Based on your selection, records are displayed in the Alerts panel.

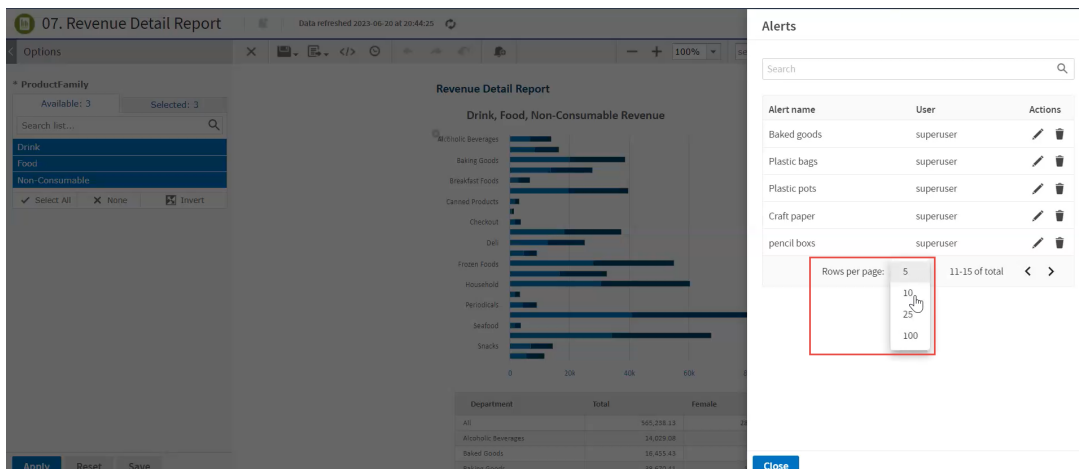


Figure 74: List of Rows in Alerts Panel

The total count of records in the Alerts panel is equivalent to the number of rows selected per page.

For example, consider you want to view 10 alerts with 5 rows per page in the Alerts panel. Click the **Rows per page** to view 10 alerts in the Alerts panel. The Alerts panel displays

records in two sets of pages. The first page displays five records with the total count of 1-5 rows per page. The remaining five alert records are displayed in the second page with the total count of 6-10 rows per page. For more details, see the below figure.

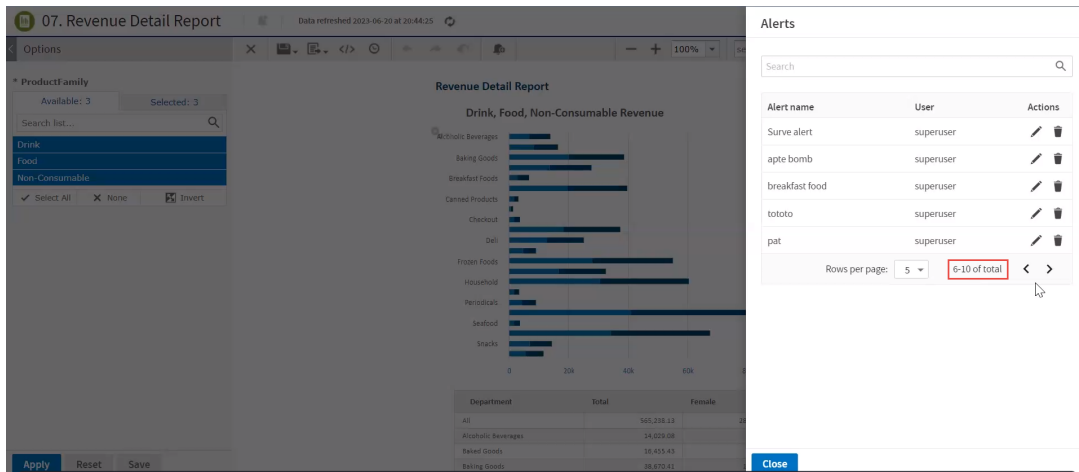




Figure 75: Row per page in Alerts Panel

Editing an Alert

You can edit an alert from the Alerts panel.

To edit an alert

Procedure

1. Click the **View Alert List** icon  to view the alerts in the Alerts panel.
2. Click the **Edit** icon  in the row of the alert that you want to update.
3. In the **Edit Alert** panel, modify the **Condition**, **Parameters**, **Schedule**, **Notifications**, and **Output** tabs.

Note: After editing the values, validation happens for the modified values of each tab. Click anywhere outside the field name of any tab or switch between any tabs to enable the **Apply changes** button.

- Click **Apply changes** to save your changes or click **Cancel** to cancel the added details. On selecting **Apply changes**, the update occurs immediately and the Alerts panel opens with the list of updated alerts.

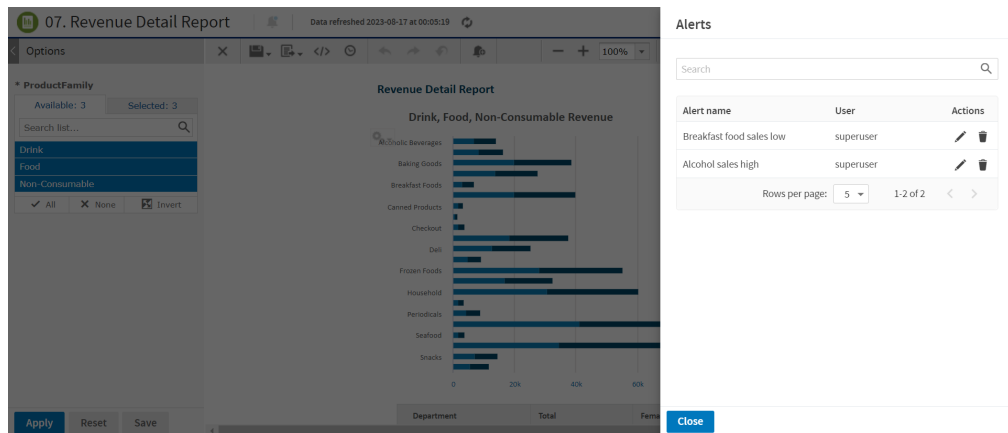


Figure 76: List of Updated Alerts



- Click **Close** to close the Alerts panel.

Deleting an Alert

You can delete an alert from the Alerts panel.

To delete an alert

Procedure

- Click the View Alert List  to view the alerts in the Alerts panel.
- Click the delete icon  to delete the corresponding alert. A confirmation dialog with a warning message appears to confirm if you want to delete this alert.

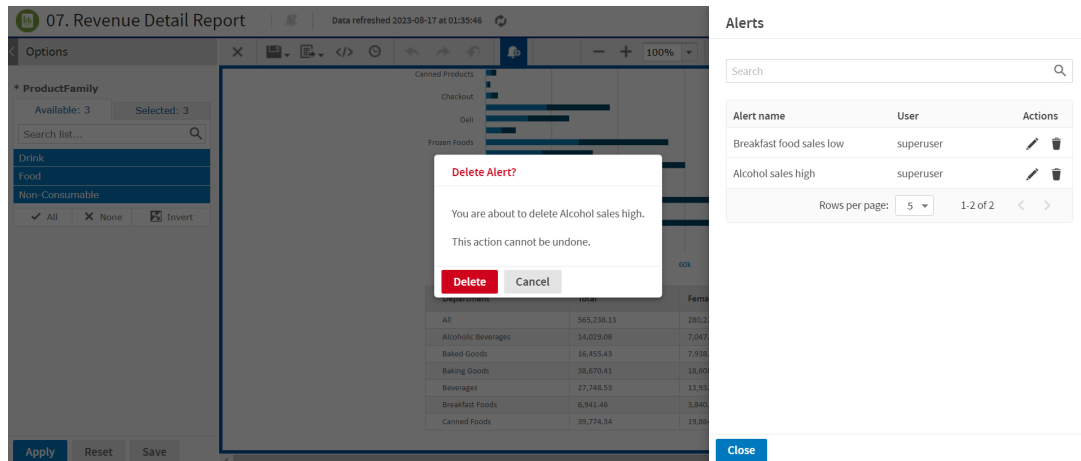


Figure 77: Deleting Alert

3. Click **Delete** to delete the alert else click **Cancel** to cancel the delete action.
4. Click **Close** to close the Alerts panel.

Working with the Ad Hoc Editor



This section describes functionality that can be restricted by the software license for JasperReports Server. If you don't see some of the options described in this section, your license may prohibit you from using them. To find out what you're licensed to use, or to upgrade your license, contact Jaspersoft.

The Ad Hoc Editor is the interactive designer for creating and editing an Ad Hoc view, where you can explore and analyze data from your Topic, Domain, or OLAP data source. Ad Hoc views can also be used to create content for reports.

This chapter discusses the Ad Hoc Editor and Ad Hoc views, and includes the following sections:

- [Overview of the Ad Hoc Editor](#)
- [Working with Tables](#)
- [Working with Charts](#)
- [Working with Standard Crosstabs](#)
- [Working with OLAP Connection-based Crosstabs](#)
- [Calculated Fields and Measures](#)
- [Using Filters and Input Controls](#)
- [Creating a View from a Domain](#)
- [Working with Topics](#)

After you create an Ad Hoc view, you - and other users with the proper permissions - can run the report, then further refine the displayed information and personalize the look of the report in the Report Viewer. For more information on that process, see [Running Reports and the Report Viewer](#).

Overview of the Ad Hoc Editor

The Ad Hoc Editor is an interactive tool for creating views for various types of reports: tables, crosstabs, and charts. You create these views by simply dragging and dropping

elements. You can add and summarize fields, define groups, label and title the report, and format data for each field. The effects of your changes are evident immediately, and you can adjust the display to highlight the most relevant and compelling aspects of your data.

The Ad Hoc Editor provides analysis options (such as slice, pivot, and filter) to help you recognize trends and outliers in your data. You can drill into specific details or analyze your data at a very high level.

To open the Ad Hoc Editor

Procedure

1. Click Create > Ad Hoc View. This opens the Select Data dialog.
2. Choose your data source from the list and click OK.

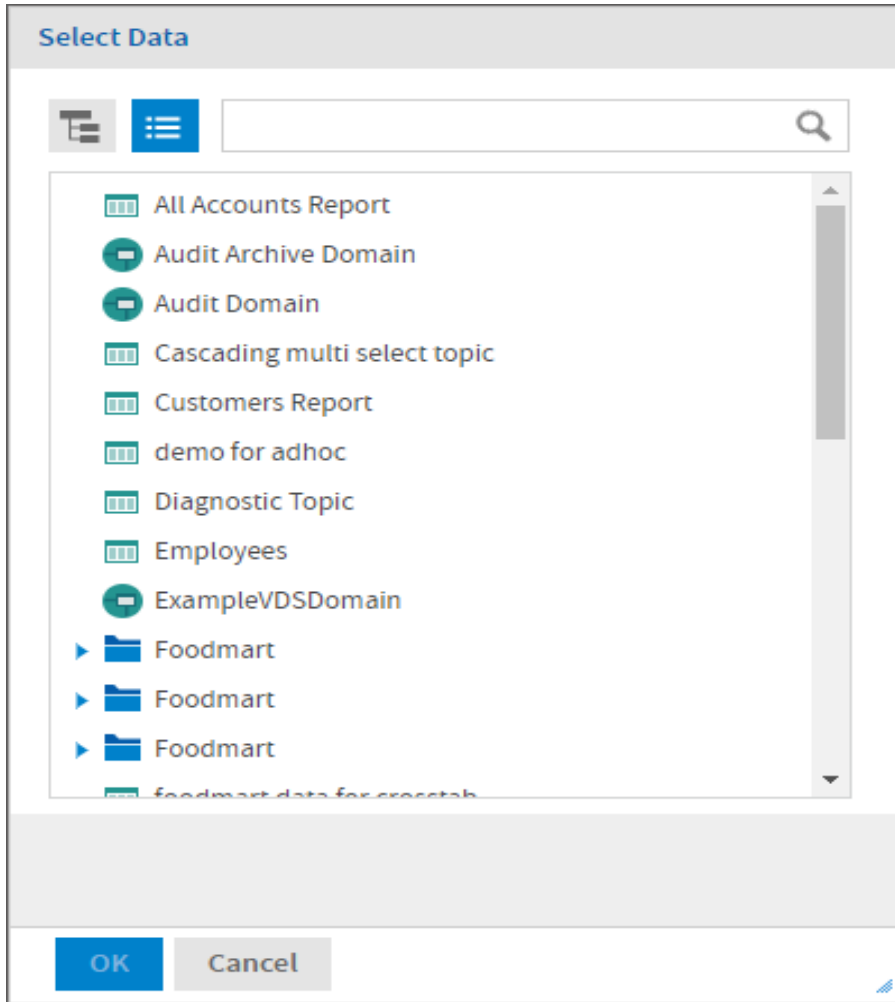


Figure 78: List of Data Sources in the Select Data Dialog

The Ad Hoc Editor contains the following panels, from left to right:

- Data Source Selection, which contains the fields, dimensions, and measures available in the source Domain, Topic, or OLAP connection.
- Ad Hoc View, the main view design panel.
- Filters, which defines a subset of data to retrieve from the data source.
- Format Visualization, which displays the properties specific to the selected visualization type.

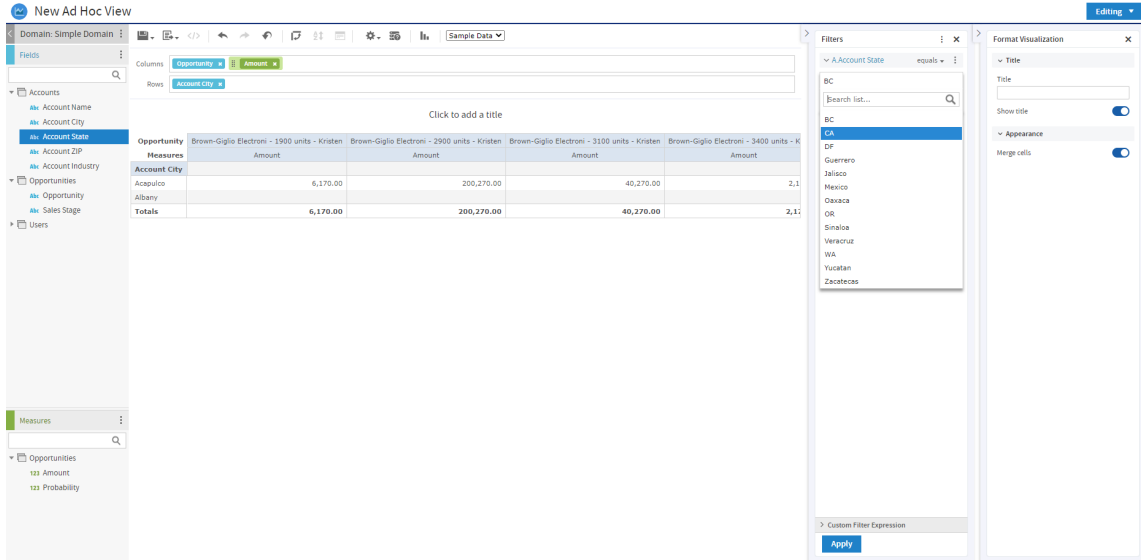


Figure 79: User Interface of the Ad Hoc Editor

We'll discuss how to use these panels to create an Ad Hoc view later in this section.

Ad Hoc Sources: Topics, Domains, and OLAP Connections

The following repository objects provide a prepared connection to a data source for Ad Hoc view creation:

- **Topics**, JRMXML files are created externally and uploaded to JasperReports Server as a basis for Ad Hoc views.
- **Domains**, virtual views of a data source that present the data in business terms, allow for localization, and provide data-level security.
- **OLAP Connections**, multi-dimensional views of data that allow users to analyze a large number of aggregate data levels.

You can also open and edit an existing Ad Hoc view to create a new Ad Hoc view. After editing the Ad Hoc view, if you close the Ad Hoc view without saving the changes, you are prompted to save or cancel the changes.

Topics


Generally, an administrator or JasperSoft Studio user creates a Topic as a JRXML file. The JRXML topic is then associated with a data source in the server. A Topic can also be created from a Domain in the server. Both types of topics appear in the Select Data wizard when you create an Ad Hoc view.

Using a Topic as your source generates an empty view, which allows you to begin adding data to your view right away, without choosing, pre-filtering, or changing display names of the data (all of which are required steps when creating a Domain-based view).

The views in the /Ad Hoc Components/Topics folder populate the Topics tab that appears when users click Create > Ad Hoc View.

To begin designing a Topic-based view

Procedure

1. Launch the Ad Hoc Editor by clicking Create > Ad Hoc View.
2. In the Select Data wizard, click  and navigate to Ad Hoc Components > Topics.
3. Expand the Topics folder and select a topic.
4. Select the type of view that you intend to create: table, chart, or crosstab. For an overview of view types, see [Ad Hoc View Types](#).

You can now begin working on your view in the Ad Hoc Editor.


Domains

Administrators create Domains that typically filter the data, create input controls, and manage the list of available fields and measures. A Domain specifies tables in the database, join clauses, calculated fields, display names, and default properties, all of which define items and sets of items for creating Ad Hoc views.

Unlike Topics, which must be stored in a specific folder in the repository, Domains are detected regardless of their location in the repository. The /Domains folder is included for your convenience, but the Domains tab in the Source dialog displays all the Domains to which you have access in the repository.

To begin designing a Domain-based view

Procedure

1. Launch the Ad Hoc Editor by clicking Create > Ad Hoc View.
2. In the Select Data wizard, click  and navigate to Domains.
3. Expand the Domains folder and select a domain.
4. Click Choose Data..., and click the options on the left of the window to perform the following tasks:
 - Click Fields to select fields of data to use in the view.
 - Click Pre-filters to create filters to limit the data available in the Ad Hoc Editor.
 - Click Display to change the fields' display names.
 - Click Save as Topic to save the customized topic for later use.
5. Select the type of view that you want to create: table, chart, or crosstab. For an overview of view types, see [Ad Hoc View Types](#).

You can now begin working on your view in the Ad Hoc Editor.

OLAP Connections


Administrators create OLAP client connections that expose transactional data and define how the data can be seen as a multidimensional cube. An OLAP connection can expose multiple cubes in a single OLAP connection.



With OLAP connections, you can create chart and crosstab views only.

To begin designing an OLAP connection-based view

Procedure

1. Launch the Ad Hoc Editor by clicking Create > Ad Hoc View.
2. In the Select Data wizard, click  and navigate to Analysis Components > Analysis Connections and select a sample project and a connection.

You can now begin working on your view in the Ad Hoc Editor.

For more information about OLAP-based view functionality, refer to the following sections:

- [Working with OLAP Connection-based Crosstabs](#)
- [Working with Topics](#)

Ad Hoc View Types

The Ad Hoc Editor allows you to select from three view types:

- [Tables](#), which are used to view values in the database and to summarize the values in columns.
- [Charts](#), which compare one or more measures across multiple sets of related fields.
- [Crosstabs](#), which aggregate data across multiple dimensions.

This section provides an overview of each view type. The design and content tasks for working with each type of view are discussed in more detail in the following sections:

- For more information on table views, see [Working with Tables](#).
- For more information on chart views, see [Working with Charts](#).
- For more information on crosstab views, see [Working with Standard Crosstabs](#).

Tables

The architecture of a table view consists of columns, rows, and groups.

Columns in a table correspond to the columns in the data source. They are included by adding fields or measures to the table in the Ad Hoc view.

Rows correspond to rows in the database. The information in each row depends on what columns are included in the table.

Using groups, rows can be grouped by identical values in any field with intermediate summaries for each grouped value. For example, a table view of product orders might contain columns to show the dates and amounts of each order, and its rows might be grouped by city and product.

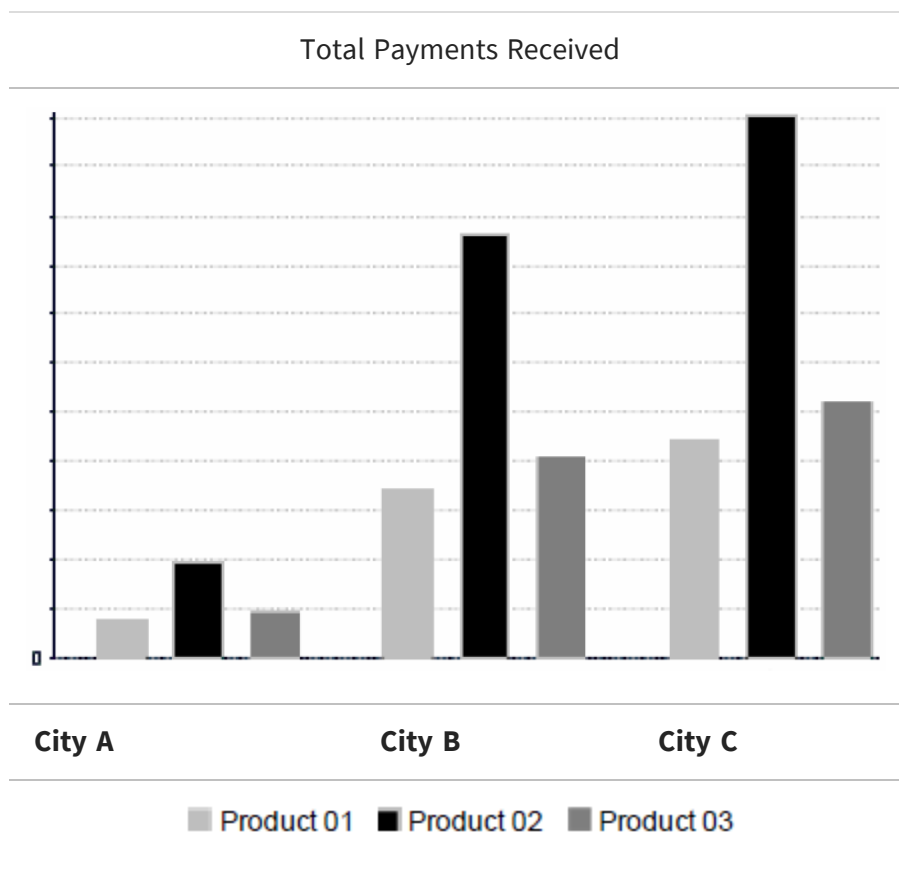
	Date Placed	Date Filled	Payment Received
City A			
Product 01			
	Date	Date	Amount
	Date	Date	Amount
Product 01 totals:		Count	Sum
Product 02			
	Date	Date	Amount
	Date	Date	Amount
Product 02 totals:		Count	Sum
Product 03			
	Date	Date	Amount
	Date	Date	Amount
Product 03 totals:		Count	Sum
City A totals:		Count	Sum
City B			
Product 01			
	Date	Date	Amount
	Date	Date	Amount
	Date	Date	Amount

	Date Placed	Date Filled	Payment Received

For more information on working with tables, see [Working with Tables](#).

Charts

Charts summarize the data graphically. Types of charts include bar chart, line chart, and pie chart, among others. With the exception of time series and scatter charts, each type of chart compares summarized values for a group. For example, the Chart tab might show the data in a bar chart that compared the sum of Payments Received for each of the products in each of the cities.



Time series and scatter charts use time intervals to group data.

For more information on working with charts, see [Working with Charts](#).

Crosstabs

Crosstabs are more compact representations than tables. They show only aggregate values, rather than individual database values. Columns and rows specify the dimensions for grouping. Cells contain the summarized measurements. For instance, the example above could be displayed in a crosstab with columns grouped by sales manager and year.

		Tom			Harriet			Manager Totals
		2012	2013	Year Totals	2012	2013	Year Totals	
City A	Product 01	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received
	Product 02	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received
	Product 03	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received
	Product Totals	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received
City B	Product 01	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received

City Totals		Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received	Payment Received

For more information on working with crosstabs, see [Working with Standard Crosstabs](#).

OLAP connection-based crosstabs behave differently than those created from Topics or Domains. See [Working with Topics](#).

The Data Source Selection Panel

The Data Source Selection panel contains a list of available fields in the chosen Topic or Domain. If you are using a Domain, fields may appear in nested sets. Use the arrow beside the set name to expand or collapse a set of fields.

Available fields may be divided into two sections in the panel, Fields and Measures. You can use the search field in each section to locate a specific field or measure.

To hide this panel, click < in the top-left corner. This is helpful when arranging content in a large Ad Hoc view. Click the same icon on the minimized panel to expand it.

For more information on working with fields, see [Using Fields in Tables](#) , [Using Fields and Measures in Charts](#), and [Using Fields in Crosstabs](#).

The Ad Hoc View Panel

The Ad Hoc View panel provides tools that allow you to control what data is included in a view, and how it is organized.

Along the top of the panel, there is a tool bar and a dropdown menu.

The dropdown menu contains options for displaying a subset of the available data (Sample Data), all available data (Full Data), or none of the available data (No Data) in the view. Using the sample data can make the design process quicker by loading less data. Use the subset for initial design; use the full set for refining layout elements such as column width.



By default, the editor displays only a smaller, sample set of the data in the view. Use the dropdown menu to select Full Data to view the full set of data.














Depending on its configuration, JasperReports Server may load a Topic, Domain, or OLAP connection's entire result set into memory when you edit the view, or run a report from it. If the data policies and other options that control JasperReports Server's memory are disabled, ensure that each Topic, Domain, or OLAP connection returns a manageable amount of data, given the environment's load capacity. Alternately, you can change the server's configuration

The tool bar at the top of the panel provides access to many functions of the Ad Hoc Editor. The toolbar is described in .

Ad Hoc Editor Tool Bar Icons

Icon	Name	Description
	Save	Place the cursor over this icon to open a menu of save options.
	Export	Place the cursor over this icon to open a menu of export options. You can export the Ad Hoc View in the following formats: <ul style="list-style-type: none"> • PDF Document (.pdf)

Icon	Name	Description
		<ul style="list-style-type: none"> • Comma Separated Values (.csv) • Microsoft Word (.docx) • Rich Text Format (.rtf) • OpenDocument Text (.odt) • OpenDocument Spreadsheet (.ods) • Microsoft Excel - Paginated (.xlsx) • Microsoft Excel (.xlsx) • Microsoft PowerPoint (.pptx)
	Get Embed Code	Click to display the Ad Hoc View Embed Code dialog. See Getting the Embed Code for Visualize.js for more information.
	Undo	Click this icon to undo the most recent action.
	Redo	Click this icon to redo the most recently undone action.
	Undo All	Click this icon to revert the view to its state when you last saved.
	Switch Group	Click this icon to change the way groups are displayed. For more information, refer to Creating a View from a Domain .
	Sort	When working with tables, click this icon to view the current sorting and to select fields for sorting data. For more information, refer to Sorting Tables .
	Input Controls	Click this icon to see the input controls applied to this view. For more information, refer to Using Input Controls .
	Page Options	Place the cursor over this icon to open a menu of page-level options. You can change whether to display the Layout Band.
	View SQL/MDX Query	For more information on viewing SQL queries, see Viewing the SQL Query .

Icon	Name	Description
		For more information on viewing MDX queries, see Viewing the MDX Query .
	Select Visualization Type	Click this icon to select the type of table, chart, or crosstab you want to use in your Ad Hoc view. For information on all the types of visualizations available, see The Visualization Selector for more information.
	Close Ad Hoc View	Click to close the Ad Hoc View and return to the previous screen.

The Layout Band

Directly beneath the tool bar is the Layout Band. Here there are two fields. These fields have different labels and functions, depending on the type of view you are creating:

- For tables, these fields are Columns and Groups.
- For charts, these fields are Columns and Rows.
- For crosstabs, these fields are Columns and Rows.


You can drag and drop fields and measures into these boxes to populate your view.

Viewing the SQL Query

You may want to look at the SQL query for your view, to verify what data users are hitting. If you have the proper permissions, you can do this in the Ad Hoc Editor with the View Query button.

The query is read-only, but can be copied onto a clipboard or other document for review.

To view the SQL query

- In the tool bar, click  .
The View Query window opens, displaying the SQL query.

The Visualization Selector

The Visualization Selector lets you switch between Ad Hoc view types, allowing you to choose the best way to represent your information in the Ad Hoc view, including:


- Table, which displays values corresponding to the rows and columns in the data source.
- Crosstab, which compares one or more values across multiple sets of related fields.
- Column, which compares values displayed as columns.
- Bar, which compares values displayed as bars.
- Line, which compares values displayed as points connected by lines.
- Area, which compares values displayed as shaded areas.
- Spider, which compares three or more values on a series of spokes. Spider charts can use columns, lines, or areas to display values.
- Dual- and Multi-Axis, which display values using two or more measures.
- Time Series, which compares time intervals displayed as points connected by lines. The Time Series chart type is only available for non-OLAP charts.
- Scatter, which compares values as individual points arrayed across both axes of a chart.
- Bubble, which compares three measures displayed as circles of varying sizes arrayed across both axes of a chart.
- Pie, which compares values displayed as slices of a circular graph.
- Range, which displays values such as heat and tree maps. Only the Heat Map chart is available for OLAP data sources.
- Gauge, which displays values as a radial or arc gauge, based on a defined minimum and maximum measure setting.



JasperReports Server has limited support for scatter charts created in some older versions. You can use the Ad Hoc views for those scatter charts to generate new reports, but you cannot edit them

To select a new visualization type

Procedure

1. In the Ad Hoc Editor tool bar, click the  icon to display the Select Visualization Type window.

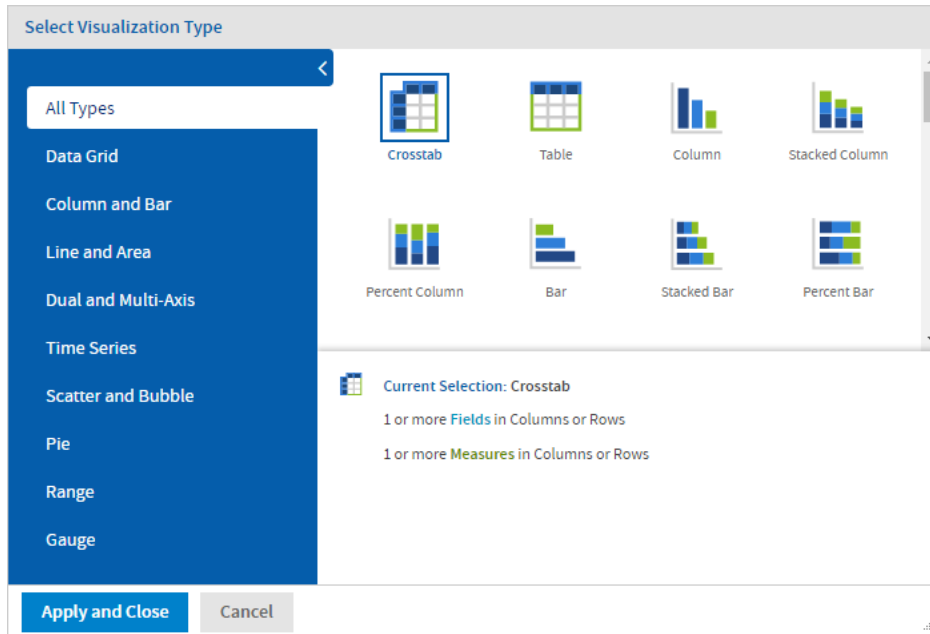







Figure 80: Select Visualization Type Window









2. Click the type of visualization that you want to apply to your report. The selected visualization type is outlined in blue. The Visualization Selector displays a description of the selected visualization and the number of fields and measures that it uses.
3. Click Apply and Close to use the visualization type.






The following table describes the available visualization types, and the rules (if any) affecting their use:





HTML5 Visualization Types






Icon	Description
Data Grid	Data grids display values from the data source in columns and rows as either individual or aggregate values.





Icon	Description
	Crosstab - Compares one or more measures across multiple sets of related fields.
	Table - Displays values corresponding to the columns and rows in the data source.
Column and Bar	Column charts compare values displayed as columns and bars.
	Column - Multiple measures of a group are depicted as individual columns.
	Stacked Column - Multiple measures of a group are depicted as portions of a single column whose size reflects the aggregate value of the group.
	Percent Column - Multiple measures of a group are depicted as portions of a single column of fixed size.
	Spider Column - Multiple measures of a group are depicted as portions of individual "columns" along a spoked chart.
	Bar - Multiple measures of a group are depicted as individual bars.
	Stacked Bar - Multiple measures of a group are depicted as portions of a single bar whose size reflects the aggregate value of the group.




Icon	Description
	Percent Bar - Multiple measures of a group are depicted as portions of a single bar of fixed size.
Line and Area	Line charts compare values displayed as points connected by lines.
	Line - Displays data points connected with straight lines.
	Spline - Displays data points connected with a fitted curve.
	Spider Line - Displays data points connected with straight lines on a spoked chart.
	Area - Displays data points connected with a straight line and a color below the line. Groups are displayed as transparent overlays.
	Stacked Area - Displays data points connected with a straight line and a solid color below the line. Groups are displayed as solid areas arranged vertically, one on top of another.
	Percent Area - Displays data points connected with a straight line and a solid color below the line. Groups are displayed as portions of an area of fixed size, and arranged vertically one on top of another.
	Area Spline - Displays data points connected with a fitted curve and a color below the line. Groups are displayed as transparent overlays.




Icon	Description
	<p>Spider Area - Displays data points connected with straight lines and a solid color between the line and the center of a spoke chart. Groups are displayed as transparent overlays.</p>
<p>Dual and Multi-Axis</p>	<p>Dual and multi-axis charts compare two or more measures, using multiple charting types or multiple axes.</p>
	<p>Column Line - Displays leftmost measures as columns, last measure as a line.</p> <ul style="list-style-type: none"> • Requires two or more measures. • Measures must be placed in the Columns location. • Fields and dimensions can be placed only in the Rows location.
	<p>Stacked Column Line - Displays leftmost measures as stacked bars, last measure as a line.</p> <ul style="list-style-type: none"> • Requires three or more measures. • Measures must be placed in the Columns location. • Fields and dimensions can be placed only in the Rows location.
	<p>Column Spline - Displays leftmost measures as columns, last measure as a spline.</p> <ul style="list-style-type: none"> • Requires two or more measures. • Measures must be placed in the Columns location. • Fields and dimensions can be placed only in the Rows location.
	<p>Stacked Column Spline - Displays leftmost measures as stacked columns, last measure as a line.</p> <ul style="list-style-type: none"> • Requires three or more measures.


Icon	Description
	<ul style="list-style-type: none"> Measures must be placed in the Columns location. Fields and dimensions can be placed only in the Rows location.
	<p>Multi-Axis Line - Displays each measure as a separate axis line.</p> <ul style="list-style-type: none"> Requires two or more measures. Measures must be placed in the Columns location. Fields and dimensions can be placed only in the Rows location.
	<p>Multi-Axis Spline - Displays each measure as a separate axis spline.</p> <ul style="list-style-type: none"> Requires two or more measures. Measures must be placed in the Columns location. Fields and dimensions can be placed only in the Rows location.
	<p>Multi-Axis Column - Displays each measure as a separate axis column.</p> <ul style="list-style-type: none"> Requires two or more measures. Measures must be placed in the Columns location. Fields and dimensions can be placed only in the Rows location.
<p>Time Series</p>	<p>Time Series charts illustrate data points at successive time intervals.</p>
	<p>Line - Displays date and time data points connected with straight lines.</p> <ul style="list-style-type: none"> Requires a single date/time field in the Rows location.

Icon	Description
	<ul style="list-style-type: none"> The field must be set to the "day" group function.
	<p>Spline - Displays date and time data points connected with a fitted curve.</p> <ul style="list-style-type: none"> Requires a single date/time field in the Rows location. The field must be set to the "day" group function.
	<p>Area - Displays date and time data points connected with a straight line and a color below the line. Groups are displayed as transparent overlays.</p> <ul style="list-style-type: none"> Requires a single date/time field in the Rows location. The field must be set to the "day" group function.
	<p>Area Spline - Displays date and time data points connected with a fitted curve and a color below the line. Groups are displayed as transparent overlays.</p> <ul style="list-style-type: none"> Requires a single date/time field in the Rows location. The field must be set to the "day" group function.
<p>Scatter</p>	<p>Shows the correlation between two or three measures.</p>
	<p>Scatter - Displays first measure as the x-axis, the second measure as the y-axis. Other fields and dimensions in the column group become data points.</p> <ul style="list-style-type: none"> Requires exactly two measures. Measures must be placed in the Columns location.
	<p>Bubble - Displays the first measure as the x-axis, the second measure as the y-axis, and the third measure determines the size of the disk.</p> <ul style="list-style-type: none"> Requires exactly three measures in the Columns

Icon	Description
	<p>location.</p> <ul style="list-style-type: none"> The measures cannot be placed between other fields.
Pie	Pie charts display values as slices of a circular graph.
	<p>Pie - Multiple measures of a group are displayed as sectors of a circle.</p>
	<p>Dual Pie - Multiple measures of a group are displayed as sectors of concentric circles.</p> <ul style="list-style-type: none"> Requires at least one measure and one field. Fields must be placed in the Rows location. Only one field can be placed in the Rows location if it contains a measure. Two fields can be placed in the Rows location if it contains no measures. Multiple measures are allowed in the Rows location, but only one measure is allowed in the Columns location.
	<p>Semi-Pie - Multiple measures of a group are displayed as sectors of a half-circle.</p>
Range	Range charts display values as heat maps.
	<p>Heat Map - Individual values are represented as colors.</p> <p>Non-OLAP:</p> <ul style="list-style-type: none"> One field, followed by one Measure, required in the Columns location. One field is required in the row location.

Icon	Description
	<p>OLAP:</p> <ul style="list-style-type: none"> • One Dimension level, followed by one Measure, required in the Columns location. • One Dimension level is required in the Rows location.
	<p>Time Series Heat Map - Individual values across dates/times represented as colors.</p> <ul style="list-style-type: none"> • One Measure required in the Columns location. • One Date/Time field is required in the Rows location. • Only available for non-OLAP data sources.
	<p>Dual Measure Tree Map - Displays data as color-coded rectangles. The size of each rectangle is proportional to the first measure and the color represents the second measure.</p> <ul style="list-style-type: none"> • Two Measures are required in the Columns location. • One field is required in the Rows location. • Only available for non-OLAP data sources.
	<p>Tree Map - Displays data as rectangles. The size of each rectangle is proportional to the measure of the data that it represents. The tree map displays nested rectangles when you have more than one field. The parent rectangle represents the leftmost measure while the nested rectangles represent the current level of aggregation. Click a parent rectangle to drill down to the nest rectangles.</p> <ul style="list-style-type: none"> • One Measure required in the Columns location. • One or more fields required in the Rows location. • Only available for non-OLAP data sources.

Icon	Description
	<p>Parent Tree Map - Displays data as nested rectangles. The size of each rectangle is proportional to the measure of the data that it represents. The nested rectangles represent the current level of aggregation while the larger rectangle represents the parent level in the hierarchy. Click a parent rectangle to drill down to the nest rectangles.</p> <ul style="list-style-type: none"> • One Measure required in the Columns location. • Two or more Fields required in the Rows location. • Only available for non-OLAP data sources.
<p>Gauges Gauges display values as a portion of a radial or arc gauge.</p>	
	<p>Gauge - Displays a single data value as a portion of a circle. The length of the circle is the data's numeric value proportional to the maximum size defined for the measure.</p> <ul style="list-style-type: none"> • One or more Measures required in the Columns location. • One or more Fields required in the Columns location. • Define the minimum and maximum sizes, color stops, and layout on the Appearance tab.
	<p>Multi-level Gauge - Displays one or more data values as concentric circles. Each circle represents a measure and the length of the circle is the data's numeric value proportional to the maximum size defined for the measures.</p> <ul style="list-style-type: none"> • Two or more Measures required in the Columns location. • One or more Fields required in the Columns location. • Define the minimum and maximum sizes, color

Icon	Description
	<p>stops, and layout on the Appearance tab.</p> <p>Arc Gauge - Displays a single data value as a portion of a semi-circular arc. The length of the arc is the data's value proportional to the maximum size defined for the measure.</p> <ul style="list-style-type: none"> <li>• One or more Measures required in the Columns location. <li>• One or more Fields required in the Rows location. <li>• Define the minimum and maximum sizes, color stops, and layout on the Appearance tab.

The Filters Panel

The Filters panel displays any filters defined for the view. You can set the filter values and see the resulting change in the Ad Hoc View panel. To minimize the Filters panel, click the > button in the top left corner of the panel. Click the < button on the minimized panel to expand it again.


For more information on working with filters, see [Using Filters and Input Controls](#).

Saving an Ad Hoc View, Previewing and Creating a Report

After you create a compelling table, chart, or crosstab, you can save the view in the repository for future use.

To save an Ad Hoc view

Procedure

1. Hover your mouse over .
2. Select Save Ad Hoc View or Save Ad Hoc View As.

3. Name the view as needed, and click Save. The view is saved in the repository.

You can also save an Ad Hoc view as a report. Typically, a report is created when you want to:

- See data in the interactive Report Viewer.
- Perform additional formatting of the table data.
- Embed the data content in a dashboard.

Create a report from the view by selecting Save Ad Hoc View and Create Report; you can also create and run a report directly from the repository. For more information, see [Running or Creating a Simple Report](#). When you run the report, it is displayed as a JasperReport.

To preview an Ad Hoc view

- Click the **Editing** button and select **Viewing**.

To switch to the design mode from the preview (display mode)

- Click the **Viewing** button and select **Editing**.

Dependent Reports

When you create a report from an Ad Hoc view, the report is considered “dependent” on that view.

When you save an Ad Hoc view, some, but not all, of its changes appear in its dependent reports. For example, if you open an Ad Hoc view with a table and adjust the data level for its columns, the column changes show up in previous reports created from that view.

In cases where changes to an Ad Hoc view could cause errors in dependent reports, you should save the updated view with a different file name and create a new report.

Updating Ad Hoc Reports

The Ad Hoc Designer Save Ad Hoc View and Create Report option in the tool bar creates an Ad Hoc report unit. In the report unit, the main JRXML is a reference to a JRXML template and contains an Ad Hoc component in it. Therefore there is no longer a copy of that style template.

The new Ad Hoc reports reference an external report template (JRXML) means that changes in the reusable template get reflected to all Ad Hoc report units.

Also, unlike older Ad Hoc reports, the styles are not copied into every report unit and they are referenced externally using a style template file (JRTX). It means that changing the styling of all Ad Hoc reports is as easy as modifying the reference style template.

Ad Hoc report units are just simple report units that use the Ad Hoc view as data source and reference one of the new Ad Hoc report templates under `/public/templates` as a main JRXML.



Figure 81: Ad Hoc View as Data Source

The default template can be changed if needed by modifying the `defaultTemplateUri` property of the `reportGeneratorDefaultConf` bean in the `applicationContext-adhoc.xml` Spring configuration file.

Impact of JIVE Changes

The report having JIVE changes saved in the Report Viewer remain unchanged after the Ad Hoc view changes. The report behaves like an old Ad Hoc report that means it does not even break because of incompatible changes made in the view. For example, you sort the column of a table and save the dependent report and then you add a column to Ad Hoc View in the Ad Hoc Designer.

This result into an Ad Hoc report with a sorted column and a column added to the Ad Hoc view is not reflected to the same Ad Hoc report.

You can also revert the JIVE saved report to the dynamic state offered by the Ad Hoc component. To do so, edit the report unit and remove the internal resource called `adhoc.jrxml`, which contains the JIVE saved state.

Also, the JIVE save operation makes a copy of the main JRXML into the report unit. You can replace this JIVE made copy with an external JRXML reference that points to the original Ad Hoc report template from the `/public/templates` folder.


Getting the Embed Code for Visualize.js

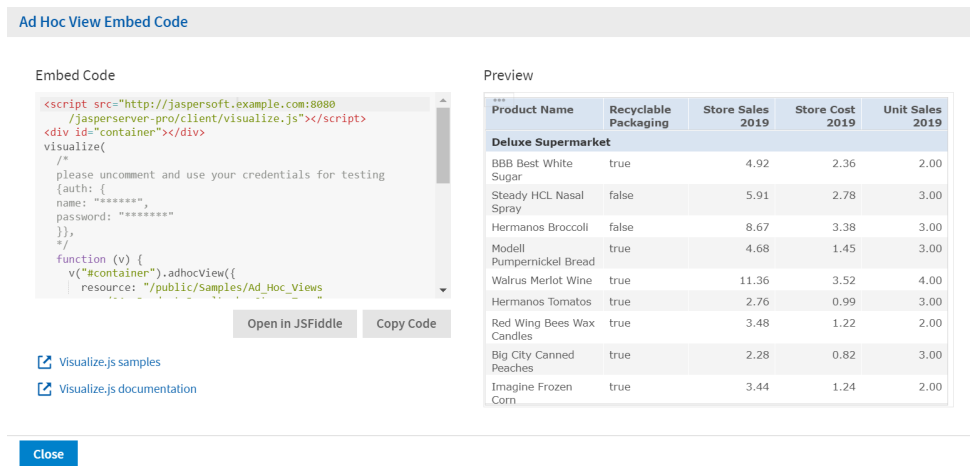
Visualize.js is the JavaScript library available with JasperReports Server to embed dashboards and reports in custom web apps. If you create an app with Visualize.js, this feature gives you the JavaScript code needed to embed the current dashboard in your app. You can then write additional code to interact with the dashboard programmatically, for example to update a filter depending on other actions in your app. For more information, see the *JasperReports Server Visualize.js Guide*.

You can get the embed code for an Ad Hoc view from the Ad Hoc editor in design mode. When in display mode, click the **Viewing** button and select **Editing** to switch to the design mode.

To get an Ad Hoc view embed code

Procedure

1. On the Ad Hoc viewer toolbar, click  to open the **Ad Hoc View Embed Code** dialog.



Ad Hoc View Embed Code

Embed Code

```
<script src="http://jaspersoft.example.com:8080
/jasperserver-pro/client/visualize.js"></script>
<div id="container"></div>
visualize(
/*
please uncomment and use your credentials for testing
{auth: {
name: "*****",
password: "*****"
}},
*/
function (v) {
v("#container").adhocView({
resource: "/public/Samples/Ad_Hoc_Views
```

Open in JSFiddle Copy Code

[Visualize.js samples](#)
[Visualize.js documentation](#)

Preview

Product Name	Recyclable Packaging	Store Sales 2019	Store Cost 2019	Unit Sales 2019
Deluxe Supermarket				
BBB Best White Sugar	true	4.92	2.36	2.00
Steady HCL Nasal Spray	false	5.91	2.78	3.00
Hermanos Broccoli	false	8.67	3.38	3.00
Modell Pumpnickel Bread	true	4.68	1.45	3.00
Walrus Merlot Wine	true	11.36	3.52	4.00
Hermanos Tomatos	true	2.76	0.99	3.00
Red Wing Bees Wax Candles	true	3.48	1.22	2.00
Big City Canned Peaches	true	2.28	0.82	3.00
Imagine Frozen Corn	true	3.44	1.24	2.00

Close

Figure 82: Ad Hoc View Embed Code Dialog

The dialog shows the Visualize.js code and a preview of the dashboard as it is saved.

2. Click the **Copy Code** button to copy the embed code to the clipboard.
3. Click the **Open in JSFiddle** button to load the embed code into JSFiddle, an online JavaScript viewer, and interactive editor.
4. Click the **Close** button to return to the Ad Hoc view.

Working with Tables

The following sections explain how to populate, edit, and format your table-type view.



Opportunity	Amount	Probability
BC		
Kobyilinski-Verdad Comm - 2900 units - Sally	55,390.00	70.00
Smith-Hensley Electron - 2700 units - Will	5,740.00	85.00
Chapla-Cameron Machine - 3100 units - Will	14,300.00	75.00
Kobyilinski-Verdad Comm - 2400 units - Sally	10,390.00	75.00
Smallwood-Chavez Telec - 2900 units - Will	1,580.00	70.00
Smith-Hensley Electron - 1900 units - Will	12,540.00	85.00
E & M Tullao Electroni - 3100 units - Beth	12,240.00	50.00
Chapla-Cameron Machine - 3400 units - Will	150,300.00	35.00
D & Z Kesslep Electron - 4000 units - Max	140,330.00	50.00
Kobyilinski-Verdad Comm - 4100 units - Sally	1,190.00	80.00
Caro-Robertson Communi - 2600 units - Beth	120,450.00	80.00
Smallwood-Chavez Telec - 1900 units - Will	200,480.00	80.00
McDonald-Walter Electr - 2700 units - Max	9,510.00	60.00
Smith-Hensley Electron - 2600 units - Will	1,240.00	85.00
I & M Weyerhaeuser Tra - 3100 units - Chris	45,210.00	45.00

Figure 83: Ad Hoc Editor's Table View

Using Fields in Tables

Insert data into your table by adding fields. All available fields are listed in the Data Source Selection panel, on the left side of the Ad Hoc Editor.

The available fields are divided into two sections in the panel:

- Fields, which can be added to the table as columns or groups.
- Measures, which are specialized fields that contain data values.

To add fields and measures as columns to a table

1. In the Data Source Selection panel, click to select the field or measure you want to add to the table. Use Ctrl-click to select multiple items.
2. Drag the selected item into the Columns box in the Layout Band.

The field is added to the view as a column in the table.

To remove a field or measure from a table

- In the Layout Band, click the x next to the field or measure's name.

Groups

Groups allow you to create detailed data rows. For example, if you have a table that lists the suppliers for a national restaurant chain, you can group the suppliers by the State field. The suppliers' names are then rearranged so that all suppliers located in Maine, for instance, are located under a "Maine" header row; suppliers in Maryland are together under a "Maryland" header row, and so on.

You can use multiple fields to make more specific nested groups. By adding a group based on the "City" field to the table described above, the restaurant suppliers are arranged by City within the State groups. Under the "Maine" header row, new header rows for Augusta, Bangor, and Portland are added, and the names of the Maine-based suppliers appear under their respective cities. Under the "Maryland" header row, header rows for Annapolis, Baltimore, and Silver Spring are added, and the names of Maryland-based suppliers appear under those headers, and so on.

Only fields can be applied to a table as a group; measures cannot.

Data is grouped in the table according to the order that they were defined. You can change the order by dragging the groups into position if needed.

To create a group

Procedure

1. In the Data Source Selection panel, click to select the field you want to add to the table as a group.
2. Drag the field to the Groups box in the Layout Band.
The Ad Hoc view refreshes and displays the data grouped under a new header row.



You can also add a group to the table by right-clicking a field and selecting Add as Group.

To remove a group

- In the Layout Band, click the x next to the field's name in the Groups box.

To move the grouping order up or down in a table

- In the Layout Band, drag the name of the group you want to move into its new position.

Summaries

You can display summary data for any column in your table. Summary data may be in the form of various functions, such as:

- Sum
- Count
- Distinct Count
- Average

For example, in a table with a list of stores, grouped by City and Country, you can display the number of stores in each City, and in each Country, using this function.

By default, the summary function for each field is defined by the data source, OLAP, or domain definition.

To add a summary to a specific column

- In the table, right-click the column you want to calculate a summary for, and select Add Summary.

The summary information is added to the group header, or is added to the bottom of a column if no groups are included in the table.

To remove a summary from a specific column

- In the table, right-click the column with the summary you want to remove, and select Remove Summary.

The summary information is removed from the table.

To add or remove summaries from all columns

In the **Format Visualization** panel, in the **Appearance** settings, click the **Data Detail** dropdown menu and select the following:

- To add summaries to all columns: **Details and Totals**
- To remove summaries from all columns: **Details**

Column and Header Labels

You can edit a column or header label directly in the Ad Hoc Editor.

To edit a column or header label

Procedure

1. On the Ad Hoc view panel, right-click the column or group header you want to rename.
2. Select Edit Label from the context menu. The Edit Label window opens.
3. In the text entry box, delete the existing name and enter the new name.
4. Click Submit.

If space is at a premium, you can remove labels from the view. When you delete a label, it still appears when you look at the view in the Ad Hoc Editor, but does not appear when you run the report.

To delete a column or header label

Procedure

1. On the Ad Hoc view, right-click the column or header label you want to remove.
2. Select Delete Label from the context menu.

To re-apply a label

Procedure

1. Right-click the column or header label that you want to replace.
2. Select Add Label from the context menu. The Edit Label window opens.

3. Enter the label name, if needed.
4. Click Submit.

Managing Column Size and Spacing

You can change the size of, and spaces between, columns to manage the appearance of your table or use space more efficiently.

To resize a column

Procedure

1. In the Ad Hoc View panel, click to select the column you want to resize.
2. Move the cursor to the right edge of the column.
3. When the cursor changes to the resize icon (\leftrightarrow), click and drag the column edge right or left until the column is the needed size.

Spacers can be added to a table to arrange columns farther apart, or add margins to a table.

To change the spacing between columns

Procedure

1. In the Data Source Selection panel, in the Measures section, click Spacer.
2. Drag the spacer into the Columns box in the Layout Band between the names of the two columns that you want to move apart.
A spacer column, labeled \diamond , appears in the table.
3. Repeat this action to add space as needed between columns.
4. To remove a spacer, right-click the spacer column and select Remove from Table.

To use spacers to create table margins

Procedure

1. In the Data Source Selection panel, click to select Spacer.

2. Drag the spacer into the Columns box in the Layout Band.
3. Repeat until the margins are as wide as needed.
4. Repeat the steps above, adding the spacer to the right edge of the table.

Using "FallbackColumnWidth" Property

The following property, *fallbackColumnWidth*, exists in `applicationContext-adhoc.xml` to the bean `tableDefaults`. This is a fallback value in case of an attempt to set the column width to zero. The default value is `-1`, which disables the fallback. When/if the column width is 0, the *fallbackColumnWidth* value can be changed to get it enabled and set column width to the desired value.

Reordering Columns

You can move columns to the right or left to reorder the data in your table.

To reorder a column


1. In the Ad Hoc View panel, right-click the column you want to move.
2. Select Move Right or Move Left from the context menu.

Sorting Tables

In the Ad Hoc Editor, you can sort the rows of a table by any field, using a number of different methods.





To sort a table


Procedure

1. Click . The Sort window appears. If the table is already sorted, the window shows the fields used.
2. To add a field to sort on, double-click the field in Available Fields. The Available Fields panel now lists only fields not currently in Sort On.

3. Select one or more fields to sort by. You can also use Ctrl-click to select multiple fields.

4. Click  .

5. To arrange the sorting precedence of the fields, select each field in the Sort window and click Move to top, Move up, Move down, or Move to bottom:  ,  ,  , and  .

6. To remove a field, select it and click  .

7. Click OK. The table updates to display the rows sorted by the selected fields. You can also sort a table using the following methods:

- Right-click a field in the Fields section of the Data Source Selection panel, and select Use for Sorting from the context menu. In this case, the table is sorted by a field that is not in the table; you may want to note the sorting fields in the title.
- Right-click a column header on the Canvas of the Ad Hoc View panel, and select Use for Sorting from the context menu.



If a column is already being used and you want to stop using it or change the sorting, then right-click the column and select Change Sorting from the context menu.

Adding a Title

1. Above the table, click the text Click to add a title.
2. Enter the new table title in the text entry box.

Alternatively, in the **Format Visualization** panel, in the **Title** setting, in the **Title** field, enter the table title.

Changing the Data Format

You can change the formatting for columns containing numeric data, such as dates and monetary amounts. The format is applied to all rows as well as the group- and view-level

summaries. By default, non-integer fields use the -1,234.56 data format; integers use -1234.

To change the data format for a column


1. In the Ad Hoc view, right-click the column header.
2. Select Change Data Format from the context menu.
3. Select the format that you want to use. These options vary depending on the type of numeric data contained in the column.
The data in the column now appears in the new format.

Changing the Data Source

You may need to select a new data source for your table. This is a simple task, but you should keep in mind that all view data and formatting are lost when you select a new Topic, Domain, or OLAP connection. Any changes to the view are also lost if you navigate to another page using the browser navigation buttons, the main menu, or the Search field. To preserve changes, accept the current Topic or click Cancel.

To change the table's data source

Procedure

1. At the top of the Data Source Selection panel, click  and select Change Source.
2. Select a different Topic, Domain, or OLAP connection.
3. Click Table to apply the new data source.
4. Click Cancel to return to the editor without changing the Topic.

Controlling the Data Set

You can control the data displayed in the table using the **Appearance** settings in the **Format Visualization** panel.

Your options are:

- **Data Detail:**

- Details, which displays table detail only. For instance, in a table listing sales in dollars for all stores in a region for a given month, the amount sold by each store that month is displayed.
- Totals, which displays the table totals only. In the table described above, the total amount of all sales at all regional stores that month is displayed.
- Details and Totals, which display both the individual store sales numbers, as well as the total sales numbers at the bottom of the store sales column.
- Show Duplicate Rows, which displays only the distinct values in your table if you choose to hide the duplicate rows. By default, the Show Duplicate Rows setting is on. See [Showing Distinct Values](#) for more information. Select the option that you want to apply to your table.

Showing Distinct Values

Tables sometimes contain duplicate values in multiple rows, making it difficult to find relevant data. You can choose to show only distinct values in your tables by choosing to hide duplicate rows, making the table shorter and easier to read.

To show only the distinct values in a table, in the **Format Visualization** panel, in the **Appearance** settings, click the **Show Duplicate Rows** switch to turn the setting off.

When you choose to hide duplicate rows, all columns are sorted in ascending order based on their distinct values by default, but columns explicitly sorted in ascending or descending order by the user will have higher priority. Sorting by hidden fields have no effect.

Working with Charts

Ad Hoc charts are a flexible, interactive way to explore your data graphically. You can choose different levels of aggregation for rows and columns, change a field from a column to a row, pivot the entire chart, hide chart values, and zoom in to see chart details.



Figure 84: Ad Hoc Editor's Chart View

The following sections explain how to populate, edit, and format an Ad Hoc chart. Many tasks related to working with charts are identical (or very similar) to those for tables and crosstabs. For any tasks not discussed in this section, see the information in [Working with Tables](#).

Using Fields and Measures in Charts

You must add at least one measure to view a chart. Before any measures are added to the chart, the Ad Hoc Editor displays a placeholder with the legend displaying a single entry: Add a measure to continue. As you add measures, the editor displays the grand total of each measure in the chart.

The initial display reflects only the measures you add. It does not change when you add fields or dimensions. For example, for each measure you add to a bar chart, you see a bar

with the total value of the measure, regardless of how many fields you add. This means you can add, remove, and arrange measures and fields without waiting for the display to update. Once you have the fields and measures you want, you can use the sliders on the right to select the level of detail you want. See [Effect of the Slider on a Chart](#) for more information.

All available fields are listed in the Data Selection panel, as either standard fields or measures.

- Standard fields can be added to a column or a row.
- Measures contain summarized values. They are typically numeric fields that determine the length of bars, size of pie slices, location of points (in line charts), and height of areas. They can be added to rows or columns, but must all be in the same target — that is, you can add one or more measures to the chart as columns, or add one or more measures to the chart as rows, but you cannot have one measure as a column and another as a row in the same chart.

When creating a chart, keep in mind that row and column groups are arranged in hierarchies, with the highest member of the hierarchy on the left. For an Ad Hoc view based on an OLAP data source, you can change the order of distinct dimensions by dragging, but you cannot change the order of levels within a dimension. For an Ad Hoc view based on a non-OLAP data source, you can drag the field headings to rearrange the hierarchy; the highest level in a group should appear to the left; the lowest level in a group should appear to the right. For example, it doesn't make sense to group first by postal code then by country, because each postal code belongs to only one country.


To add a field or measure to a row or column:

Procedure

1. In the Data Selection panel, select the field you want to add to the chart as a group. Use Ctrl-click to select multiple items.
2. Drag the selected item into the Columns or Rows box in the Layout Band.

Setting Levels

When you add a field or dimension to a column or row, a multi-level slider located at the top of the Filters pane allows you to set the level of aggregation to use for viewing the data. The number of fields or dimensions in the row or column determines the number of levels on the slider. Measures are not reflected in the slider.

 You cannot adjust levels on time series charts.

The following figure shows the effect of the slider on a chart with one level of aggregation for both rows and columns.

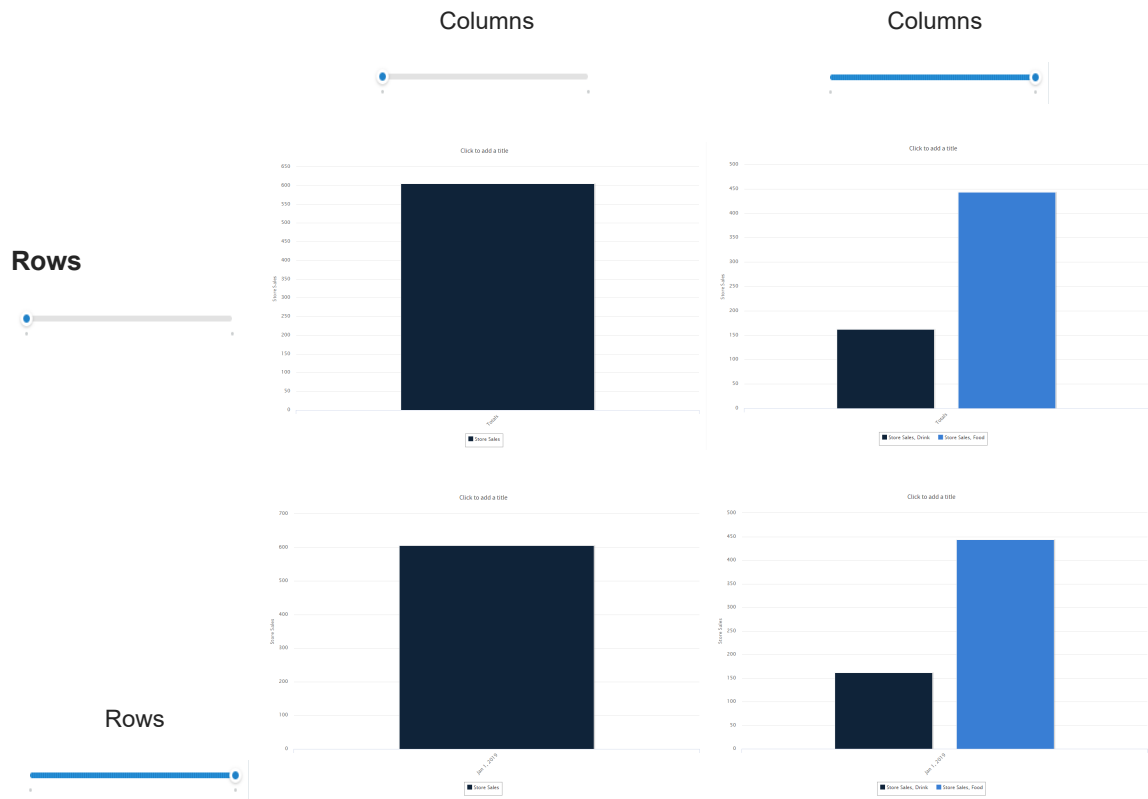




Figure 85: Effect of the Slider on a Chart

To recreate this view

Procedure

1. Select Create > Ad Hoc View.
2. In the Select Data wizard, select foodmart data for crosstab and click OK.
3. Click  to open the Visualization Selector.

4. Click  and then Apply and Close.

5. Drag the following from the Fields panel to the Layout Band:

- Store Sales from Measures to Columns. The view changes to show a column with the total. No slider is added for measures.
- Product Family from Fields to Columns. The Data Level area is shown in the Filters panel, with a Columns slider added.
- Date from Fields to Rows. A Rows slider is added to the Data Level area in the Filters panel.

6. Use the sliders to see how the view changes.

The sliders help you explore your data visually in a number of ways:

- The slider reflects the hierarchy of the row or column groups, as determined by the order in which fields are arranged in the Layout Band.
- Hovering over a setting on the slider shows the name of the field or dimension corresponding to that setting.
- When you pivot a chart, slider settings are preserved and applied to the new target. For example, if you have the Row slider set to Month, the Column slider is set to Month when you pivot. See [Pivoting a Chart](#) for more information.
- When you remove the currently selected level from a row or column, the slider is reset to the total; when you remove a field that is not selected, the level remains the same. When you add a field or dimension to a row or column, the number of levels of the slider changes to reflect your addition. When you change the order of the fields in a row or column, the level on the slider changes to reflect the new level of the field corresponding to the selection.

Changing Date Grouping

If your chart includes data based on a date field, you can change the level of aggregation for the time data. To select the unit of time to chart:

- Right-click on the date field in the Layout Band and select Change Grouping. Then select the time period you want from the cascading sub-menu:
 - Year
 - Quarter (examples: Q1, Q2, etc.)



Quarter groups the data by quarter through the whole selected period. For example, if the period has 2 years selected, then you will see 4 quarters (Q1, Q2, Q3, Q4) and data for each year will be grouped under these 4 quarters **regardless of the year** it belongs to. When Quarter is the only categorizer used, the sorting order will always start from the first quarter. Also, if there is no data for a specific quarter then this quarter **will still be visible** with no data.

- Quarter and Year (examples: Q1 2020, Q2 2020, etc.)



As of version 9.0, *Quarter* is renamed to *Quarter and Year*. Quarter and Year groups the data by quarter and year. For example, if the period has 2 years selected, then you will see potentially 8 quarters (for example, Q1 2020, Q2 2020, Q3 2020, Q4 2020, Q1 2021, Q2 2021, Q3 2021, Q4 2021), and data for each year will be grouped under its own quarter which will **take into account the year** as well. Also, if there is no data for a specific quarter, then this quarter **will not be visible**.

This date is required in order to create PeriodToPeriod (PTP) and YearToDate (YTD) charts.

- Month (examples: January, February, etc.)
- Month and Year (examples, January 2020, February 2020, etc.)



As of version 9.0, *Month* is renamed to *Month and Year*. This date is required in order to create PeriodToPeriod (PTP) and YearToDate (YTD) charts.

- Day
- Hour
- Minute
- Second
- Hour By Day
- Minute By Day
- Second By Day
- Millisecond By Day
- Day of Week

The view updates to reflect the new date grouping.



Time Series charts can use only day, or smaller, intervals.


Changing the Summary Function of a Measure

You can get a new view of your data by changing the summary function of a measure, for example, from sum to average. To select a new summary function for a measure:

- Right-click on the measure in the Layout Band and select Change Summary Function. Then select the function you want from the cascading submenu. The view updates to reflect the new summary function.

Pivoting a Chart

You can pivot a chart in two ways:

- Pivot the entire chart by clicking . The row and column groups switch places; slider levels are maintained. The following figure shows the effect of pivoting a basic column chart.

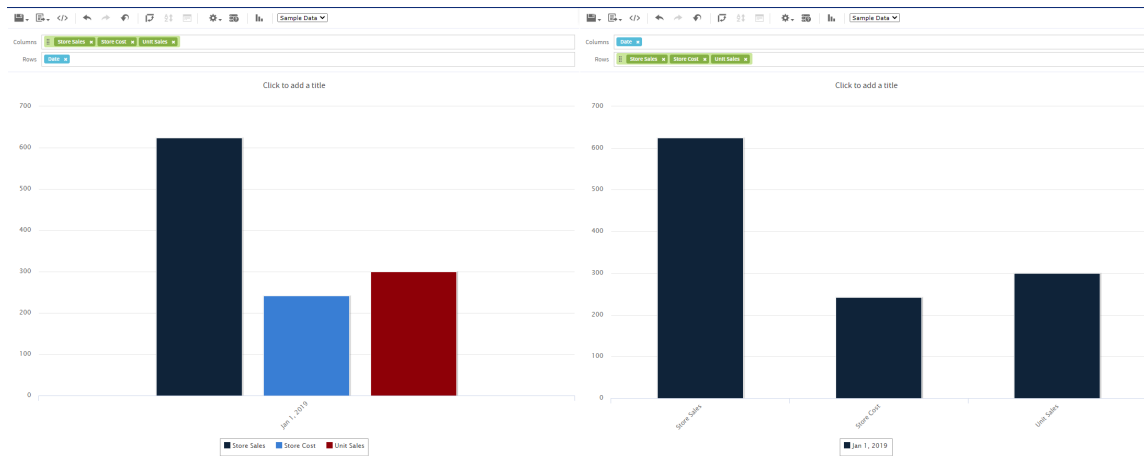


Figure 86: Effect of Pivoting a Chart

- Pivot a single group:
 - To pivot a single row group, right-click it and select Switch To Column Group. You can also move any field or dimension by dragging. You cannot drag a measure to a different group.
 - To pivot a single column group, right-click it and select Switch To Row Group.

You can also move any field or dimension by dragging. You cannot drag a measure to a different group.

Formatting Charts

You can control some aspects of how data points, field names, and labels are displayed on your chart, including:

- Whether data points are displayed.
- Showing a measure name on charts including only a single measure.
- Restricting the number of labels displayed.
- Rotating the direction of label text.
- Selecting the colors used by the chart.
- Defining how gauges are displayed.

JasperReports Server also allows you to edit many of the chart's properties for cases when you want more control over the appearance of a chart.

Displaying Data Points

You can choose whether to display data points in your line, time series, or area chart. Data points can help users visualize chart data more accurately.

To show the data points on a chart, in the **Format Visualization** panel, in the **Appearance** settings, click the **Show data points** switch to turn the setting on.



By default, the **Show data points** setting is on.

To remove data points from the chart, click the **Show data points** switch to turn the setting off.

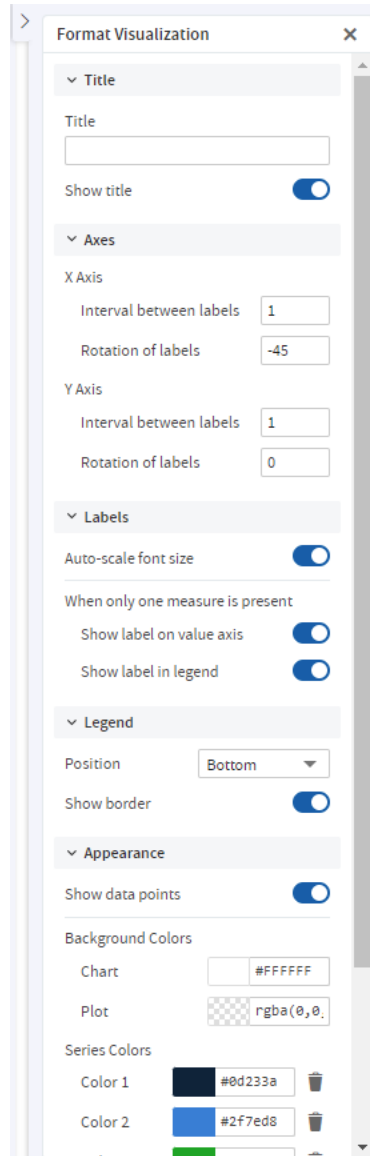


Figure 87: Format Visualization Panel

Displaying the Measure Name/Label on the Value Axis

You can choose to display the measure name/label on the value axis. To show the measure name/label on the value axis, in the **Format Visualization** panel, in the **Labels** settings, click the **Show label on value axis** switch to turn the setting on.

**Note:**

By default, the **Show label on value axis** setting is on.

To remove the measure name/label from the value axis, click the **Show label on value axis** switch to turn the setting off.

Restricting Label Display

By default, every field included in your chart has a label displayed along either axis. Measures show up as numeric values, often along the Y axis, and fields being measured shows up as text along the X axis. On some charts - especially those with many fields included - these labels may overlap, crowd together, or become difficult to read. You can alleviate this problem by "stepping", or reducing, the number of labels displayed on your chart.

To reduce the number of labels on your chart, in the **Format Visualization** panel, in the **Axis** settings:

- For X Axis: Under **X Axis**, in the Interval between labels input, specify how often you want the axis label to appear.
- For Y Axis: Under **Y Axis**, in the **Interval between labels** input, specify how often you want the axis label to appear.

For instance:

- To display every second label, enter 2.
- To display every third label, enter 3, and so on.

To display every label, enter 1 in the **Interval between labels** inputs.

Rotating Label Text

By default, the labels on your chart are displayed horizontally. Multiple labels, or very long ones, can be difficult to read. You can change the direction of these labels, on both the X and Y axes, to improve chart readability.

To rotate label text, in the **Format Visualization** panel, in the **Axes** settings:

- For X Axis: Under the **X Axis**, in the Rotation of labels input, specify the degree of

rotation to apply to labels.

- For Y Axis: Under the **Y Axis**, in the **Rotation of labels** input, specify the degree of rotation to apply to labels.

For instance:

- To rotate the labels clockwise 90 degrees, enter 90.
- To rotate the labels counter-clockwise 90 degrees, enter -90.
- To rotate the labels clockwise 45 degrees, enter 45, and so on.
- To return the labels to their original, horizontal position, enter 0 in the **Rotation of labels** inputs.

Changing the Chart's Colors

You can choose the colors of your chart by defining a series of colors for it to use. You can also choose the background's colors.

To choose the chart's colors

Procedure

1. In the **Format Visualization** panel, go to the **Appearance** settings.

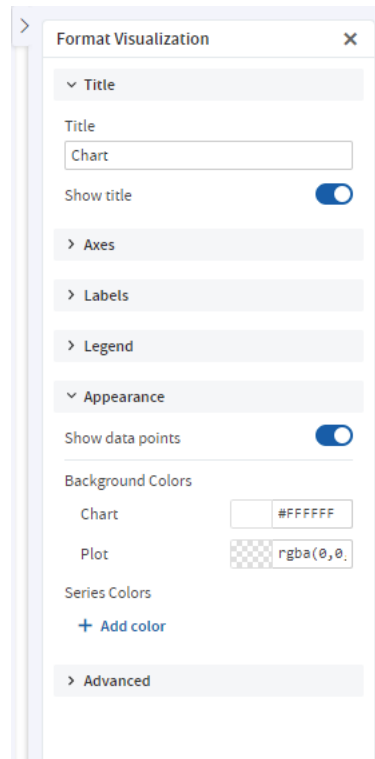


Figure 88: Appearance Settings

2. Under Series Colors, click + Add color to add the first color.
The color picker button appears. The button displays a color and a corresponding Hex value.
3. Click the button to open the color picker window.
4. Select the color that you want to use.
5. Click outside the color picker window to close it.
6. Click + Add color to add additional colors.



Note:

The order of the colors added to the chart is the order they appear in the series.

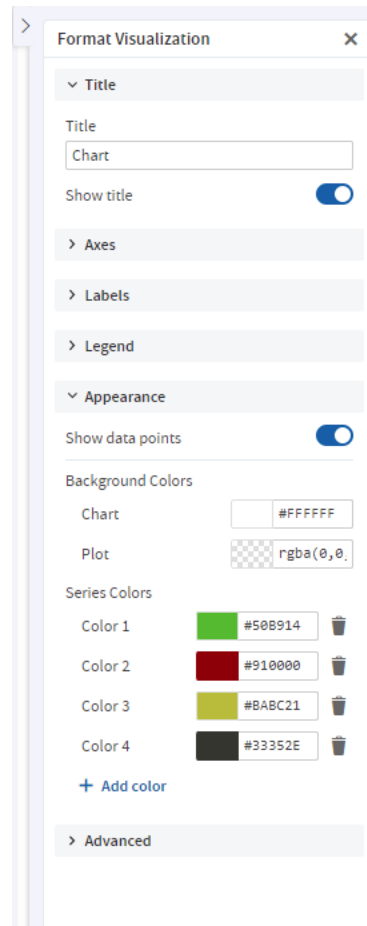


Figure 89: Appearance Settings with Multiple Colors in Series

7. You can change the colors of the chart background and plot using the color picker buttons under Background Colors.

JasperReports Server reloads the chart with the new colors.

Changing the Display Settings for Gauges

Gauges are circular and semi-arc charts. The length of the circle or semi-arc is based on a single data value in proportion to the minimum and maximum measurement amounts that you define.

Gauges have their own display settings under the Appearance settings, where you can select how they appear in the Ad Hoc view. You can specify the layout of the gauges on the canvas, the color stops, and the minimum and maximum values for the gauge's measure.

The settings under the Appearance settings apply to all gauges in the Ad Hoc view.

To edit a gauge's display settings

Procedure

1. In the **Format Visualization** panel, go to the **Appearance** settings.

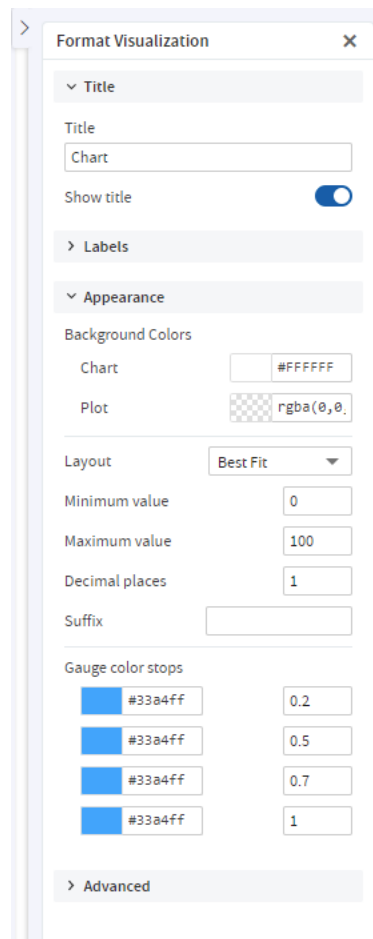


Figure 90: Appearance Settings

2. From the **Layout** dropdown menu, select the layout for displaying the gauges. By default, the layout is **Best Fit**, which displays all the gauges on the canvas in one or more rows. The gauges can also be displayed in a single vertical column or a single horizontal row.
3. Enter the minimum and maximum values for the gauge's measure. For gauge and arc gauge charts, each measure added to the Ad Hoc view is displayed as its own gauge

and the gauge's circle or arc represents how a single data value in the data source compares to the maximum measure. For multi-level gauge charts, each measure is displayed as concentric circles in the gauge. By default, the minimum is 0 and the maximum is 100. The measures selected for the Ad Hoc view also determine whether to display the data as percentages or as numeric values.

4. Enter the number of decimal places to show as part of the value displayed in the gauge. The maximum number of decimal places you can specify is 8.
5. Enter a suffix string if you want to label the value displayed in the gauge.
6. Enter a value for each color stop for the gauge. Color stops define a gradient progression for the gauge's colors in the Ad Hoc view. The default color stop values are 0.2, 0.5, 0.7, and 1.

i Note:

You can have a maximum of four color stops in your gauge. Each color selected is the specific color displayed at the corresponding stopping point. The colors displayed in the gauges are based on where the gauge's value falls on the defined gradient.

7. Click the color picker button for each stop to open the color picker window and select the color.

JasperReports Server reloads the Ad Hoc view's gauges with the new display settings.

Creating and Changing the Display Settings for Pies

Pies are charts displayed in a circle. The circle is divided into slices to display numerical proportion. The length of a slice is proportional to the quantity that it represents.

You can create a pie using the **Fields** and **Measures**. You can select how they appear in the Ad Hoc view. You can specify columns and rows, use the **Drill Down** option, **Data Level** slider and **Format Visualization** panel to create a pie chart. The **New Ad hoc View** page lets you create and change the display settings of the pie chart.

To create a pie

Procedure

1. On the **New Ad hoc View** page, select **Pie** from the **Select Visualization Type** pop-

up.

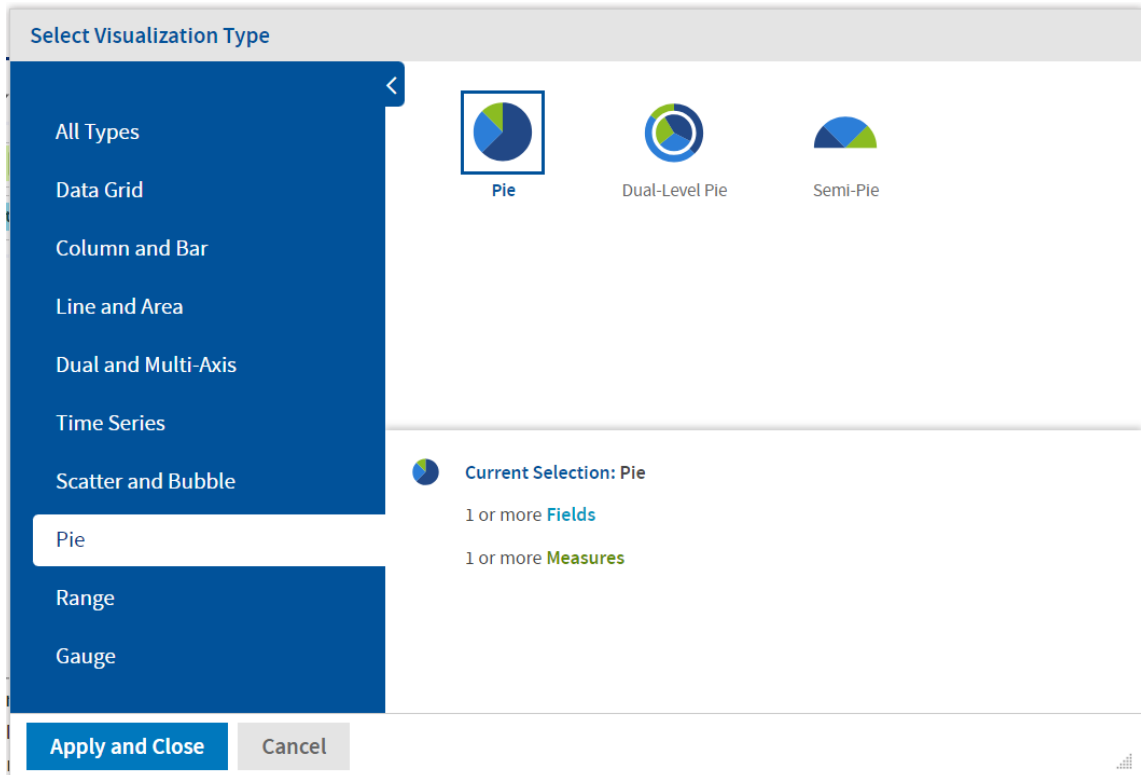


Figure 91: Select Pie

2. View the following sections on the page:
 - **Fields and Measures**
 - Chart canvas
 - **Filters**
 - **Format Visualization**
3. Drag and drop the **Fields** and **Measures** in the **Rows** and **Columns** fields. The pie according to the selected **Columns** and **Rows** is displayed.

The **Title** of the chart (if provided) is displayed at the top of the canvas.



Note:

The **Title** can be provided either from the **Format Visualization** panel or by clicking **Click to add a title** on the canvas.

The name of the pie is displayed at the top-left corner of the pie. The name consists of the names of **Measures** from **Columns**. The name may also consist of fields, if added to **Columns** (also depends on **Columns Data Slider**). The legend is displayed at the bottom of the canvas.

Note:
The Legend is based on **Rows** only.

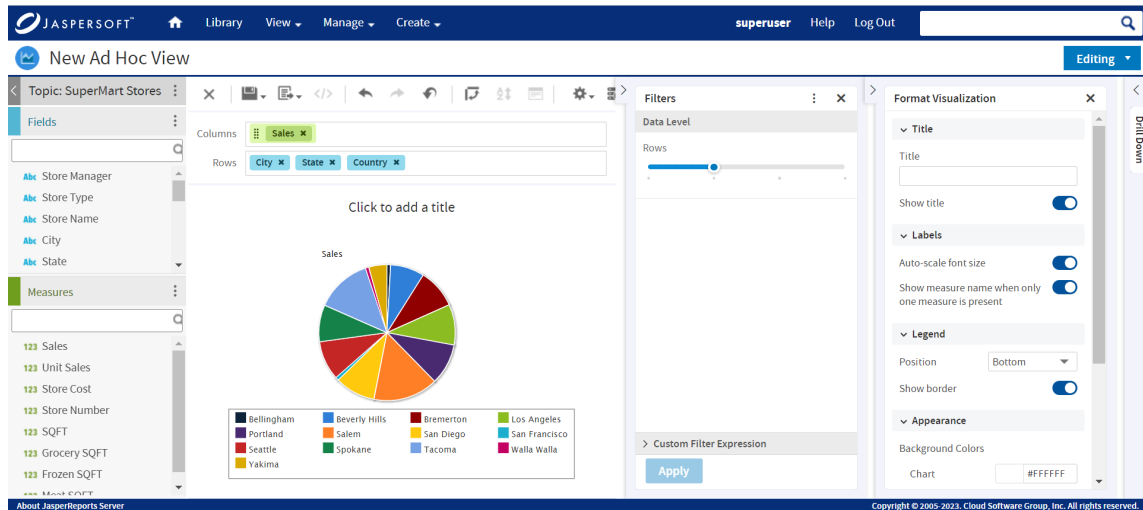


Figure 92: Select Columns and Rows

Note:
The number of pies depends on the number of **Measures** in **Columns**. If there are two **Measures** in **Columns**, then two pies are displayed.

It also depends on the **Fields** added to the **Columns**. There may be one **Measure** but adding **Fields** and setting the **Data Level** slider can increase the number of pies.

- In the **Filters** section, drag the **Row** slider to control the values from the selected fields from **Rows**.

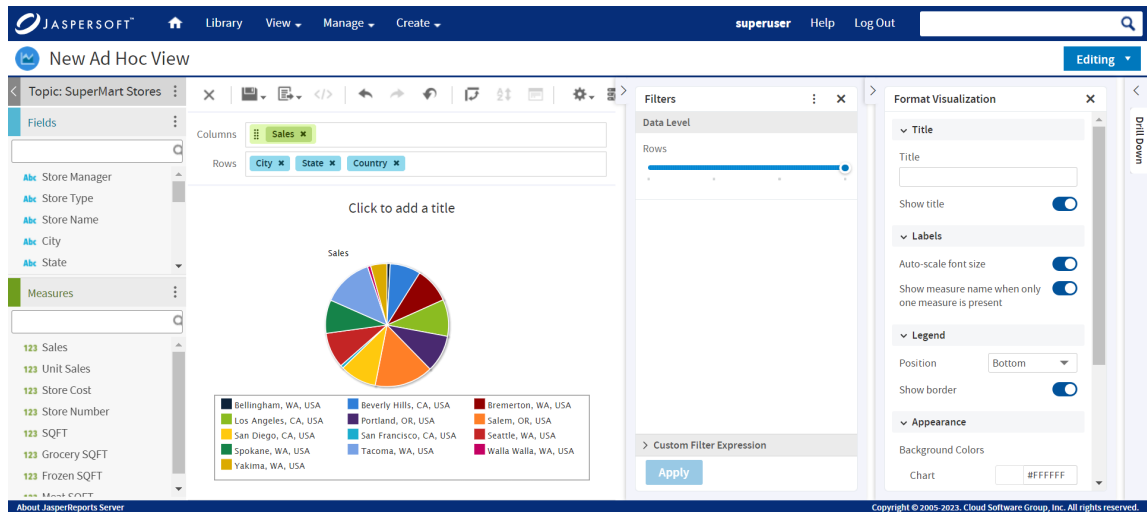


Figure 93: Row Data Level Slider

Note: If there is more than one field selected in **Columns**, a **Column** slider is also displayed. Select the field, across all fields, which must be used to generate pies.

5. Hover the mouse over the pie and view the tool-tip.

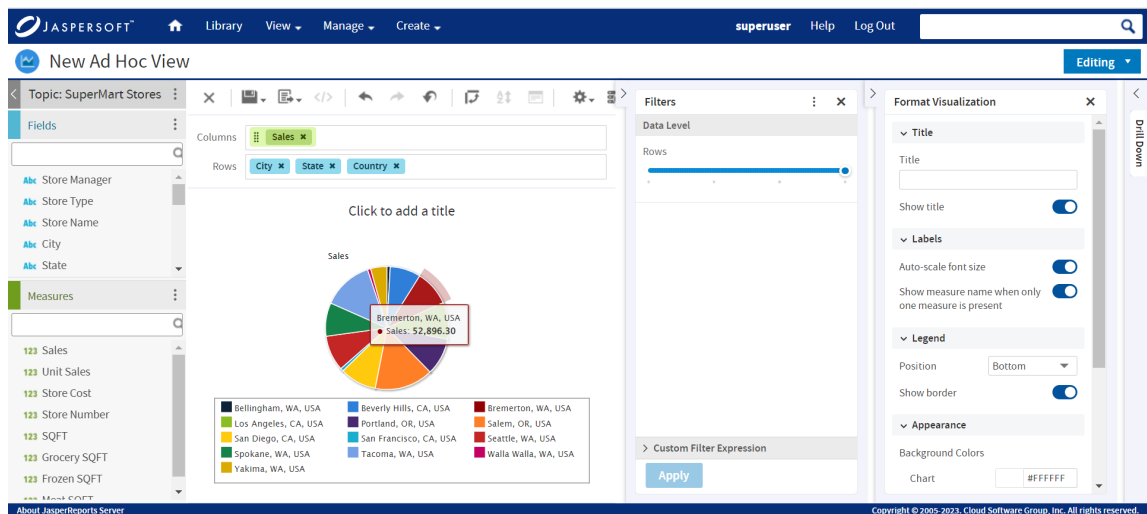


Figure 94: Tool-tip

6. In the **Format Visualization** panel, provide the information, and enable or disable

the toggles in the **Title** and **Labels** sections.

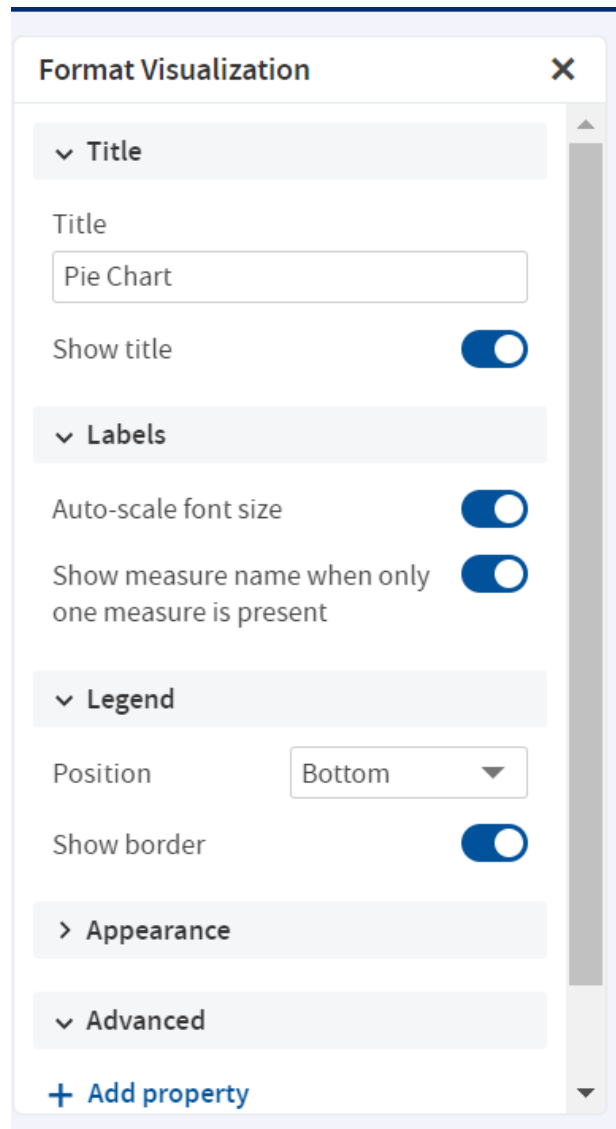


Figure 95: Format Visualization

7. In the **Legend** section, use the **Position** dropdown menu and select the position of the legend display. By default, the position is **Bottom**, which displays the legend below the pie. The legend can also be displayed at the top, left, and right. You may also choose not to display the legend.
8. Go to **Appearance** settings. Click the color picker to select **Background Colors** and **Series Colors**. JasperReports Server reloads the Ad Hoc view's pie with the new display settings.

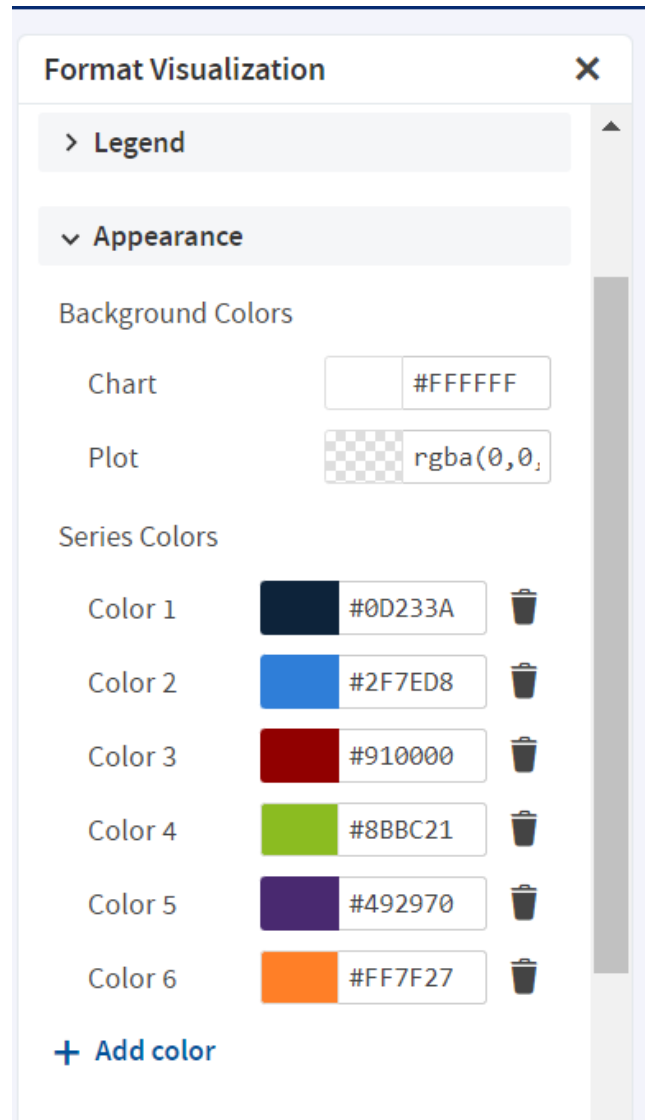


Figure 96: Appearance Settings

Changing the Chart's Appearance Using Advanced Formatting

The Advanced settings in the **Format Visualization** panel gives you more control over the appearance of an Ad Hoc chart by allowing you to edit certain chart properties. For example, you can specify a list of colors for the chart, change the position of the legend, choose whether to display data values in the chart, and much more. You can find a full list



of supported commands by clicking the More Information link on the Advanced tab or browsing to the [Advanced Chart Formatting page](#) on the Jaspersoft Community Site.

To edit the chart's properties

1. In the **Format Visualization** panel, go to the **Advanced** settings.
2. Click Add property.
3. In the **Name** field, enter the chart property you want to format and then enter the values for the property. For instance:
 - To format the chart's colors, enter colors for the property and a comma-separated list of colors in brackets for the values, such as ["red", "blue", "green", "magenta", "purple", "black", "yellow"].
 - To change the vertical alignment of the legend, enter legend.verticalAlign for the property and "top" or "bottom" or "center" for the value.
 - To display data values on the chart, enter plotOptions.series.dataLabels.enabled for the property and true for the value. Click the More Information link to see a list of the properties you can edit.

**Note:**

The Ad Hoc Designer does not validate the property name or values. The chart ignores any invalid property that you enter.

4. Click  to save the property formatting.
The chart is updated with the new formatting.
5. To remove the formatting, click  next to the property you want to remove.

Interacting with Charts

Once you have chosen rows and columns and selected the type of chart that you want, you can further explore your data using interactive features such as brushing an area of the chart to zoom in or clicking a legend to hide the members of a group.

Zooming

Zooming lets you view a specific area of a chart more closely. Zooming is helpful when labels at the bottom of a chart are difficult to read. This is because only the labels corresponding to the selected area are displayed.



Zoom is a viewing feature of the Ad Hoc Editor. When you save an Ad Hoc view, or create a report from an Ad Hoc view, zoom is automatically reset to show the whole chart.

To zoom in on an area of a chart

- Click and drag or brush the area you want to zoom in on. As you are dragging or brushing a pale blue area indicates your selection. When you release the mouse button, the view zooms in on the area you selected.

To view the whole chart again

- Click Reset zoom at the upper right of the canvas.

The following images show a bar chart before and after zooming:

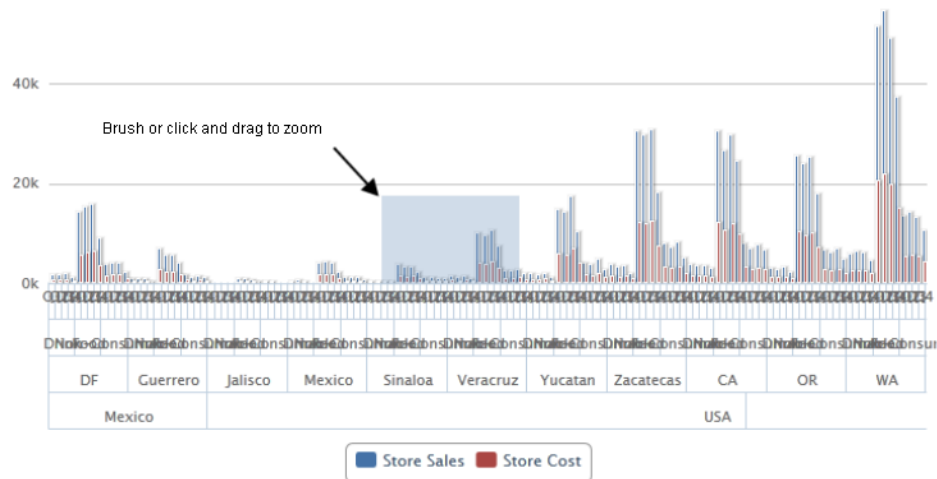


Figure 97: Selecting a Zoom Area



Figure 98: Area After Zooming

Hiding Group Members

Use the legends below the chart to hide or show group members.

- To hide a group member, click the member name in the legend below the chart. The member is removed from the chart and the legend is grayed out.
- To unhide a group member that has been hidden, click the grayed-out legend for the member.

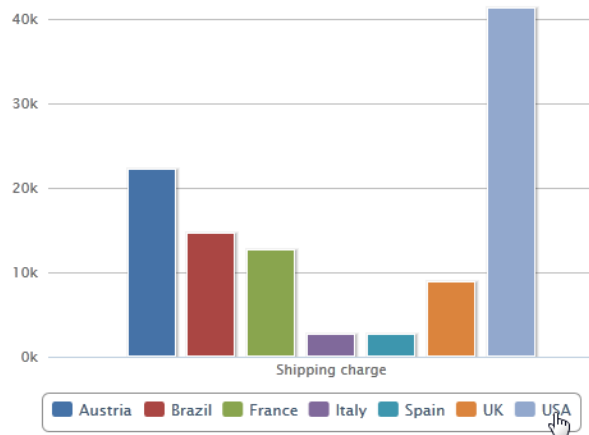


Figure 99: Hiding a Group Member



Hidden members are a view feature of the Ad Hoc Editor. When you save an Ad Hoc view, or create a report from an Ad Hoc view, the chart is automatically reset to show all members.

Using Drill Down

Use drill down to move from a higher level of data to a granular level. Click a data point in a chart that contains hierarchical data to view detailed data. You can view the data at different levels of detail using drill down. The hierarchy for drill down is based on the order of elements in **Rows** and/or **Columns**.

To use drill down, in the **Drill Down** section, enable the toggle. When enabled the level of the visualization changes to the first data point in the drill down axis and the slider of the axis is disabled.

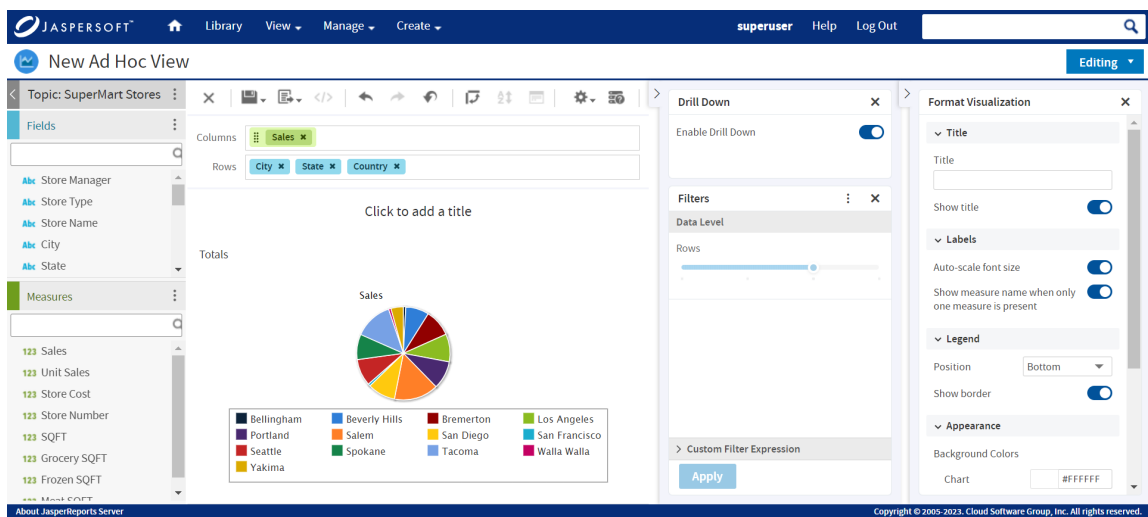


Figure 100: Enable Drill Down

Drill down is an interactive viewer feature and the current path of drill down is not saved in the Ad Hoc View resource. Whenever an Ad Hoc View is open in the viewer or designer, the visualization starts from the first level of data point in the drill down axis.

Currently, only the fields in the **Row** axis are supported for drill down. If there are fields in the **Column** axis too, they do not participate in the drill down.

Charts that do not support drill down include:

- Time Series (all four charts in the group)
- Dual Level Pie
- Gauge (all three charts in the group as all fields are in the column axis)
- Range (all five charts in the group)
- Tree Map and Parent Tree Map (has built-in drill down)



For Tree Map and Parent Tree Map, the **Back** button is replaced with breadcrumbs. This helps you to navigate from one data point to another easily.

When drill down is enabled, the legend of the chart displays only the values of the current level of the drill down hierarchy.

Any changes to adhoc resets drill down to its initial state.

Working with Standard Crosstabs



This section describes crosstabs based on Topics and Domains. For information about crosstabs based on OLAP connections, refer to [Working with OLAP Connection-based Crosstabs](#) and [Working with Topics](#).

Crosstabs have different data, layout, and format options than tables or charts.

Columns: Store Sales 2019 x % Share x

Rows: City x Product Name x

Top 5 Products by City

Measures		Store Sales 2019	% Share
City	Product Name		
Hidalgo	Fort West BBQ Potato Chips	228.92	0.02
	Even Better Large Curd Cottage Cheese	225.15	0.02
	Thresher Spicy Mints	215.35	0.02
	High Top Garlic	193.80	0.02
	Tell Tale Cantelope	183.36	0.02
	Other	99,049.00	9.18
	Totals	100,095.58	9.28
Merida	Totals	79,063.13	7.33
Vancouver	Carlson Head Cheese	182.62	0.02
	Sunset AAA-Size Batteries	174.50	0.02
	Colossal Thai Rice	173.36	0.02
	Hilltop Angled Toothbrush	169.00	0.02
	Carlson Strawberry Yogurt	167.16	0.02
	Other	77,064.53	7.14
	Totals	77,931.17	7.22
Tacoma	Totals	75,219.13	6.97
Salem	Totals	74,965.24	6.95
Other	Modell Rye Bread	1,021.80	0.09
	Even Better Havarti Cheese	1,007.19	0.09
	Great Pumpernickel Bread	991.10	0.09
	Moms Foot-Long Hot Dogs	950.95	0.09
	Hermanos Green Pepper	949.56	0.09
	Other	666,952.62	61.80
	Totals	671,873.22	62.26
Totals	1,079,147.47	100.00	

Figure 101: Ad Hoc Editor's Standard Crosstab View

If you selected Crosstab when you created a view, as described in [Ad Hoc View Types](#), the following sections explain tasks specific to your crosstab development.

Using Fields in Crosstabs

Fields can be added to crosstabs as row groups or column groups. Measures can be added to crosstab rows or columns as well, but all measures must be included as either a row or a column. This means that you can add one or more measures as columns, or add one or more measures as rows, but you cannot have one measure as a column and another as a row in the same crosstab.

Crosstab Rows and Columns

When creating a crosstab view, keep in mind that row and column groups are arranged in hierarchies. Drag the group headings to rearrange the hierarchy; you can also right-click a heading and select a Move option from the context menu or press the cursor keys. Rearranging the groups may change the preview data in the editor.

To add a field or measure to a crosstab group

Procedure

1. In the Data Source Selection panel, click to select the fields you want to add to the crosstab as a group. Use Ctrl-click to select multiple items.
2. Drag your selection into the Columns or Rows box in the Layout Band.

Crosstab Measures

Measure labels are displayed in the crosstab based on their status as a row or column:

- Measures included as rows appear in the crosstab below the Measures heading.
- Measures included as columns appear in the crosstab to the right of the Measures heading.

You can right-click a measure in the crosstab to open a context menu that provides these options:


- **Change Summary Calculation**
- **Change Time Balance Calculation**
- **Change Data Format**
- **Remove From Crosstab**
- **Create Filter**

- **Move Up or Move Down or Move Left or Move Right**

Measures are arranged in cells. You can add any number of measures. All the measures appear together in every cell. To rearrange the measures, drag them in the measure label area.

Pivoting

You can pivot a crosstab in two ways:

- Pivot the entire crosstab by clicking . The row and column groups for switching places. For more information, see [Creating a View from a Domain](#).
- Pivot a single group:
 - To pivot a single row group, right-click it and select Switch To Column Group.
 - To pivot a single column group, right-click it and select Switch To Row Group.



Pivoting removes any custom sorting applied to headings in your crosstab. It does not affect column or row sorts.

Slicing

The slice feature lets you keep or exclude group members in a crosstab. To slice, right-click a group member and select:

- Keep Only to remove all groups except the selected one from the crosstab.
- Exclude to remove this group from the crosstab.

Use Ctrl-click and Shift-click to select multiple groups to keep or exclude.



You can select multiple row groups or multiple column groups; you cannot slice by both row groups and column groups at once. Compare slice to drill-through, drill to details, and filtering.

For more information about filtering, see [Using Filters and Input Controls](#).

Summarizing

All row and column groups are summarized automatically:

- To turn off a group summary, right-click any heading in the group and select Delete Row Summary or Delete Column Summary from the context menu. To reapply the summary, right-click the heading and select Add Row Summary or Add Column Summary.



The Delete Summary option is available only for the outermost group on either axis (that is, either the outermost row group or the outermost column group)

- To select the summary function and data format for a measure, right-click the measure label and select from the context menu. Note that you cannot change the summary function on custom fields that calculate percents (Percent of Total, Percent of Column Group Parent, and Percent of Row Group Parent).
- The summary functions for numeric fields are Sum, Average, Maximum, Minimum, Distinct Count, and Count All. Distinct Count is the number of different items in the row or column. Count All is the total number of items. For instance, if there are 3 widgets of type A and 3 widgets of type B, Distinct Count is 2 and Count All is 6.

Collapsing and Expanding Members

By default, the editor displays each row and column group of a crosstab in a collapsed state. This means you can see the totals for the group, but not the measures for its individual members. To see measures for a group's members, right-click the group label and select Expand Members.

When a group's members are expanded, select Collapse Members from the same menu to hide the measures. Collapsing an outer group also collapses its inner groups. The Expand Members and Collapse Members options are available only for outermost groups, or for inner groups nested in an expanded outer group.

When you collapse a group, its summary is automatically displayed. This prevents invalid crosstab layouts in which there is nothing to display for some totals if the summary has been deleted previously.

Merging and Unmerging Crosstab Cells

By default, the editor merges cells containing the same data into a larger, single cell to make the crosstab data easier to read.

To display all of the individual cells in the crosstab instead of merged cells, in the **Format Visualization** panel, in the **Appearance** settings, click the **Merge cells** switch to turn the setting off.

To merge the crosstab cells, click the **Merge cells** switch to turn the setting on.

Sorting

By default, the rows and columns of crosstabs are sorted in alphabetical order of the group names.

To sort your crosstab

- Right-click the heading that you want to use for sorting and select one of these options:

- Sort Ascending
- Sort Descending
- Don't Sort

The crosstab is updated to reflect your sorting option. A blue dot appears in the context menu next to the currently applied sort option.

When the crosstab includes more than one row group or more than one column group, the inner groups are also sorted according to your selection. Only one measure can be used for sorting at any one time. Changing the sort order for another measure resets all others to the default.



To filter top or bottom N values

You can filter the numeric data shown in a crosstab to show only the rows with the top or bottom N values, where N is a number that you specify. For example, you can filter a crosstab to display only the top 10 values in a column.

Procedure

1. Right-click the heading that you want to use for filtering and select one of these options:
 - Filter Top N Values
 - Filter Bottom N Values

- Don't Filter Values
2. Enter the number of values that you want to show in the crosstab.
 3. Select whether to show an aggregate of the unranked values in the crosstab.
 4. Select whether to apply the filter across all row groups.
 5. Click OK.

The crosstab is updated to reflect your filter option. The  icon appears in the heading when filtering a column for the top N values, while the  icon appears when filtering for the bottom N values. A blue dot appears in the context menu next to the currently applied filter option. Only one measure can be used for filtering at any one time. Changing the filtering or sort order for another measure resets the filtered column.

Changing How Totals Are Calculated Using Time Balance

By default, crosstabs show the Totals of numeric values as the sum of the values in a column. For example, if the crosstab view displays product sales grouped by month, the crosstab displays the total sum sold during those months as the Totals value.

You can change the data that the crosstab displays as the Totals value for time using the Time Balance options. These options allow you to change the Totals to display the first and last numeric values for the period. For example, if you want to see the number of products left in your inventory at the end of a certain time period, use the Time Balance Last option and the Totals fields displays the last numeric value entered for the time period. If you want to see the number of products in your inventory at the beginning of the time period, use the Time Balance First option.



Changing the time balance calculation requires the crosstab to use the Date field. You cannot drill through the data when using a Time Balance option other than the default or when using Day of Week for the grouping.

To change the total calculation using the time balance

Procedure

1. In the Ad Hoc view, right-click the column or row header.
2. Select Change Time Balance from the context menu.

3. Select the option that you want to use. You can select one of the following:
 - Time Balance Default. This option displays the sum of all the numeric data for a period of time as the Total value.
 - Time Balance First. This option displays the first numeric value for a period of time as the Total value. For example, if the period of time is a month, the crosstab displays the first numeric value entered for the month.
 - Time Balance Last. The option displays the last numeric value for a period of time as the Total value. For example, if the period of time is a month, the crosstab displays the last numeric value entered for the month.

The crosstab is updated to show the new Total values.

Changing the Data Format

You can change the formatting for rows and columns containing numeric data, such as dates and monetary amounts. By default, non-integer fields use the -1,234.56 data format; integers use -1234.

To change the data format for a column

1. In the Ad Hoc view, right-click the column or row header.
2. Select Change Data Format from the context menu.
3. Select the format that you want to use. These options vary depending on the type of numeric data contained in the column.

The data in the column or row now appears in the new format.

Resizing and Layout

Many of the layout and formatting options that are set manually in tables are set automatically in crosstabs. In particular, row and column sizes are fixed and no spacer is available.

Drilling Through Data

Drill-through functionality is available for crosstab data. A drill-through table displays the supporting details for the selected roll-up value.

To view the drill-through table for a value in your crosstab

- Click hyperlinked data to display additional columns from that specific fact data.

By default, the drill-through table opens in its own window or tab, depending on your browser settings.

Working with OLAP Connection-based Crosstabs

An OLAP connection is a definition for retrieving OLAP data for use in Ad Hoc views and reports. An OLAP connection is either a direct Java connection (Mondrian connection) or an XML-based API connection (XML/A connection). You must create OLAP client connections in order to use this functionality, which may be restricted by your license. For more information on creating OLAP client connections, as well as other administrative tasks regarding OLAP, refer to the Jaspersoft OLAP User Guide.

The Ad Hoc Editor displays a more focused tool bar when your Ad Hoc view is based on an OLAP connection. It contains a subset of the options available in the standard tool bar, including Display Mode, Redo, Undo All, Switch Group, Display Options, and View MDX Query. For a description of these options, see [Ad Hoc Editor Tool Bar Icons](#).

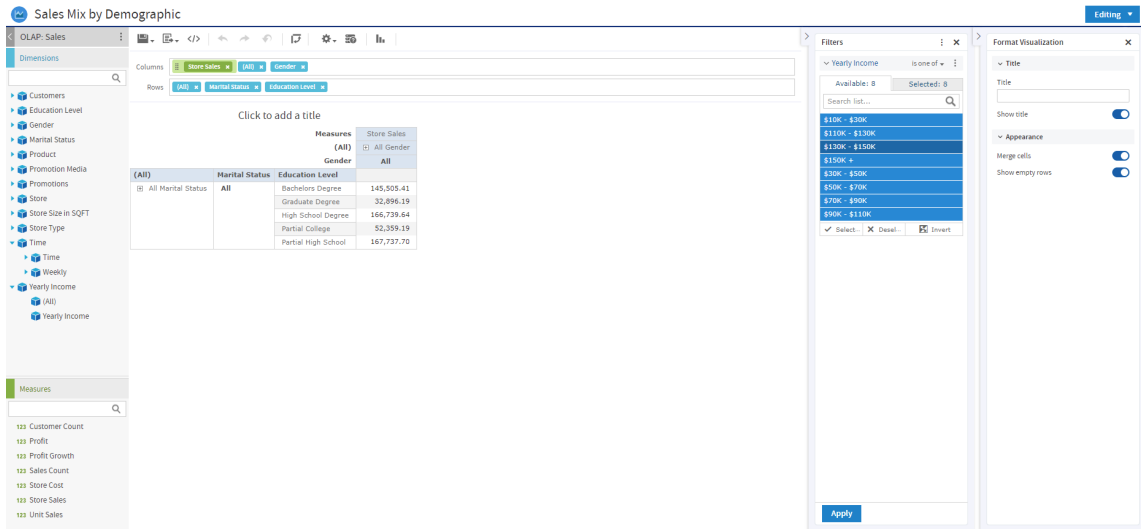


Figure 102: Ad Hoc Editor's OLAP Connection-based Crosstab View

Dimensions and Measures

When you create a view based on an OLAP connection, the cube metadata defined in the connection's OLAP schema is automatically applied to your data: the dimensions and measures in the cube are shown in the Data Source Selection panel.

Dimensions and measures describe your data in terms of these organizing principles and facts:

- **Dimension:** A categorization of the data in a cube. For example, a cube that stores data about sales figures might include dimensions such as time, product, region, and customer's industry. A dimension is a hierarchical series of relationships in which each level has a parent and may also have children. Note that a level is a particular location within the dimension, whereas a member is a specific data element at a particular level. For example, if the dimension is Geography, then one of its levels might be Country; at the Country level, USA might be a member.

Some dimensions include a special level at the top of the hierarchy that includes every level in the dimension. This All member is used to display the summarized data across the dimension. The All member of dimensions is a common feature in many OLAP solutions.

- **Measure:** A field that displays the facts that constitute the quantitative data in a cube. For example, a cube that stores data about sales figures might include measures such as unit sales, store sales revenue, and store sales cost.

The items in the Dimensions section of the Data Source Selection panel may appear in a multi-level tree structure. You can add the entire dimension tree, or any sub-trees, to your crosstab by dragging the top-level name into the Layout Band. Individual items can be added to the crosstab in the same manner.

Items in the Measures section are organized into a single-level list. Any calculated measures are indicated by a calculation icon .

When working with OLAP connections, the Layout Band at the top of the Ad Hoc View panel allows you to drag and drop dimensions and measures into the crosstab. As you add columns and rows, the crosstab automatically builds on the panel. In the Columns and Rows fields, each item in your crosstab is represented as a token; drag tokens left and right to change their position on an axis or drag them between the fields to pivot them.

The cube metadata applied to your view provides structure to your crosstab: you can add a dimension with any number of levels, but it must follow the hierarchy defined in the cube. For example, if a dimension's levels are Country, State, and City, you can place any one of them in the crosstab, but if you add two or more, their order (defined in the OLAP schema) is enforced. For example:

Possible	Impossible
Country, State, City	State, Country, City
Country, City	City, Country
State, City	City, State
Country, State	State, Country

In addition, you can't mix members from different dimensions. For example, consider a crosstab that includes both a Geography dimension (Country, State, and City) and a Time dimension (Year, Quarter, and Month): you can't insert the Year level between the Country and State levels. The levels of each dimension are always kept together.

All measures in the crosstab must be either rows or columns. You can't have measures on both axes at the same time. To move measures between dimensions, right-click and select Switch To Column Group or Switch To Row Group. All the measures move to the other axis.

Drilling Through Data

Drill-through functionality is available for crosstab data. A drill-through table displays the supporting details for the selected roll-up value.

To view the drill-through table for a value in your crosstab

Procedure

1. Click hyperlinked data to display additional columns related to that information.
2. Use the page controls to navigate the table.

The drill-through table opens in its own window or tab, depending on your browser settings.

Sorting

Like standard crosstabs, the rows and columns of an OLAP crosstab are sorted in alphabetical order of the group names.

To change the sorting of your OLAP crosstab

- Right-click the heading you want to use for sorting and select one of these options:
 - **Sort Ascending**
 - **Sort Descending**
 - **Don't Sort**

The crosstab is updated to reflect your sorting option. A blue dot appears in the context menu next to the currently applied sort option.

When the crosstab includes more than one row group or more than one column group, the inner groups are also sorted according to your selection. Only one measure can be used for sorting at any one time; changing the sort order for another measure resets all others to the default.

Viewing the MDX Query

You may want to view the MDX query created for the OLAP connection used with your crosstab, to verify what data users are hitting. If this option is enabled, you can do this in

the Ad Hoc Editor with the View Query button.

The query is read-only, but can be copied to a document for review.

To view the MDX query

- In the tool bar, click  . The View Query window opens, displaying the query.

Working with Microsoft SSAS

The Ad Hoc Editor allows you to view data from Microsoft SQL Server Analytical Services (SSAS) to populate views and reports with multi-dimensional OLAP data. XML/A connections that point to your SSAS data are listed with the other OLAP connections when you create an Ad Hoc view, as in the following chart example.

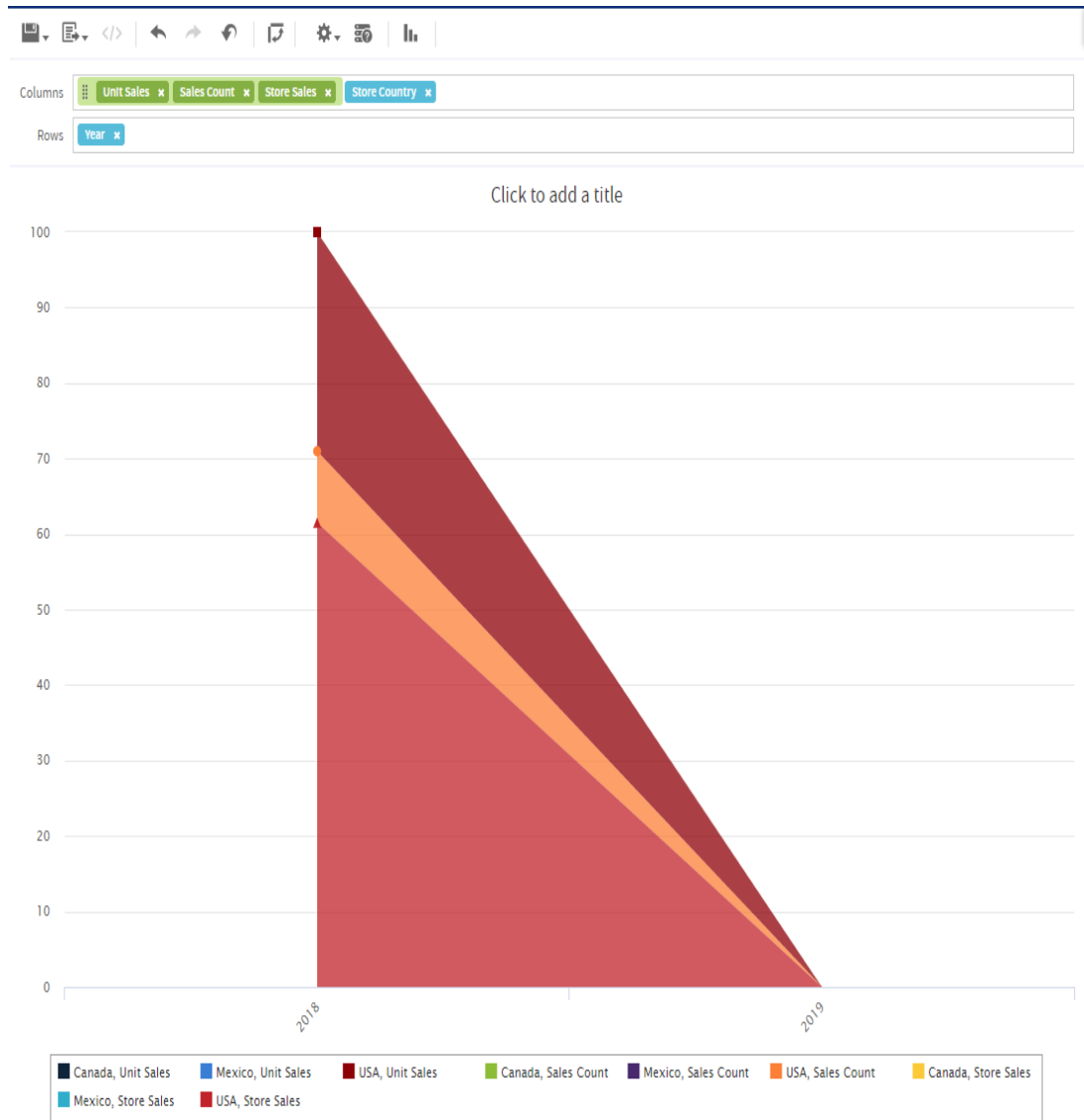




Figure 103: Search Results Listing

For details, refer to the Jaspersoft OLAP User Guide.

Calculated Fields and Measures

You can create new fields or measures in an Ad Hoc view by applying formulas to a view's existing fields and measures. For example, consider a view that includes both a Cost and a Revenue field. You could calculate the profit for each record by creating a custom field that subtracts the Cost field from the Revenue field. For example, you can divide the Profit

custom field in the previous example by the Revenue field to express each record's margin as a percent.




If you have installed the samples, the Ad Hoc view 10. Calculated Fields and Measures includes examples of calculated fields (shown by the icon ) or calculated measures (shown by the icon ). You can explore their formulas by right-clicking the field or measure name and selecting Edit. You can also create tables, charts, or crosstabs to see how these calculations work in views.

Overview of the Calculated Fields Dialog

The Calculated Field or Calculated Measures dialog creates a calculated field or measure and set its summary function. This section describes the functionality available in this dialog.

To open the calculated fields dialog for Ad Hoc views

Procedure

1. Create or open an Ad Hoc view.
2. Open the calculated fields dialog using one of these methods:
 - Click  at the top right of either the Fields section or the Measures section of the Data Source Selection panel and select Create Calculated Field... from the context menu.
 - Right-click on an existing calculated field (shown by the icon ) or calculated measure (shown by the icon ) and select Edit.

The dialog displays a text field for the name and two tabs, Formula Builder and Summary.



The following are reserved words and cannot be used as field names: AND, And, and, IN, In, in, NOT, Not, not, OR, Or, or. Names containing these strings, such as "Not Available", can be used.

The Formula Builder Tab

The Formula Builder tab is where you create the formula for your calculated field or measure. This tab includes the following:

- **Formula entry box** - Shows the current formula for calculating your field or measure. You can edit the formula by typing directly in the panel. You can also add Fields, Measures, and Functions by double-clicking them. Click the buttons below the Formula field to add operators. Formulas must use the following syntax:
 - a. Labels for fields and measures must be in double quotes ("): "Customer ID", "Date ordered".
 - b. Text must be in single quotes ('): '--'.
 - c. Levels must be in single quotes ('): 'ColumnGroup', 'Total'. See [Levels in Aggregate Functions](#) for more information about levels.
For more information on syntax, see [Calculated Field Syntax](#).
- **Operator buttons** - Click these buttons to insert the operator in the Formula entry box. For more information on operators, see [Operators in Ad Hoc Views](#)
- **Fields and Measures** - Lists all the fields and measures currently in your Ad Hoc view, including any calculated fields or measures you have already created.

**Note:**

Hovering over a field or measure displays additional information in a tooltip. This information includes the data type of the field or measure, its description if any is given in the Domain, and its default summary function if applicable. Use this information to choose the appropriate field or measure, and to use it correctly in the formula.

- The tooltip content includes:
 - **Field Path** (for example: Sales > Stores > Regions > City) for Domain-based Ad Hoc
 - **Original name** (from the domains)
 - **Formula** (for previously created calculated fields only)
 - **Field type** (Field, Measure, Calculated Field, Calculated Measure)
- **Functions** - Lists all the available functions that you can use in your formula. For more information, see [Calculated Field Reference](#).
- **Function Description panel** - Gives a brief description of the function selected in the Functions list, if any. The sample inputs are intended to be as descriptive as possible. See [Calculated Field Reference](#) for the precise syntax that each function requires.

- Show arguments in formula checkbox - When this checkbox is selected, double-clicking a function name in the Functions list adds the full description to the Formula entry box. When the checkbox is not selected, double-clicking a function name adds only the function. For example, double-clicking Round adds Round ("NumberFieldName", Integer) when the checkbox is selected, and adds Round() when the checkbox is not selected. If you select this checkbox, you can double-click a string, such as NumberFieldName, and then replace it by double-clicking a name in the Fields and Measures list.
- Validate button - Checks the formula for syntax errors, such as missing parentheses or quotes. Your calculated field or measure must be valid before you can create it. Syntax validation does not guarantee that your formula gives the results you want.

The Summary Tab



Summaries show a result applied to all data values. For example, for a numeric field such as Cost, the summary value might be the sum of all the costs; for a text field such as Customer Name, the summary value might be the count of all customers. The Summary tab sets the default summary function for your calculated field or measure.

- Calculation list - Displays allowed summary functions for your calculated field or measure. The available options depend on the data type of the calculation. See [Summary Calculations](#) for more information. Depending on your selection, you may see additional options:
 - Custom selection - Displays the same options available in the Formula Builder tab, including the Formula entry box, operator buttons, Fields and Measures list, Functions list, and Validate button. You can use these options to build a formula for your custom summary. However, for summaries, you are limited to aggregate functions, that is, functions that operate on all the values in your field. For example, Sum and Mode are valid summary functions, because they use all available field values to get a result. Round is not a valid summary function, because it operates on a single value at a time. See [Summary Calculations](#) for more information.
 - Weighted Average - Displays a Weighted On dropdown list, which allows you to choose another field or measure to use as the weight for the average.

Creating a Calculated Field

To create a calculated field

Procedure

1. First, create the Ad Hoc view to use. To do this, select Create > Ad Hoc View from the menu. The Select Data wizard appears.
2. Click  and navigate to Domains.
3. Select Supermart Domain. Click Choose Data. The Data Chooser window appears.
4. In the Data Chooser window, double-click Sales to select it and click OK. A new Ad Hoc view opens.
5. In the Ad Hoc view, click  at the top right of the Fields section and select Create Calculated Field... from the context menu. The New Calculated Field dialog box appears, displaying the Formula Builder.

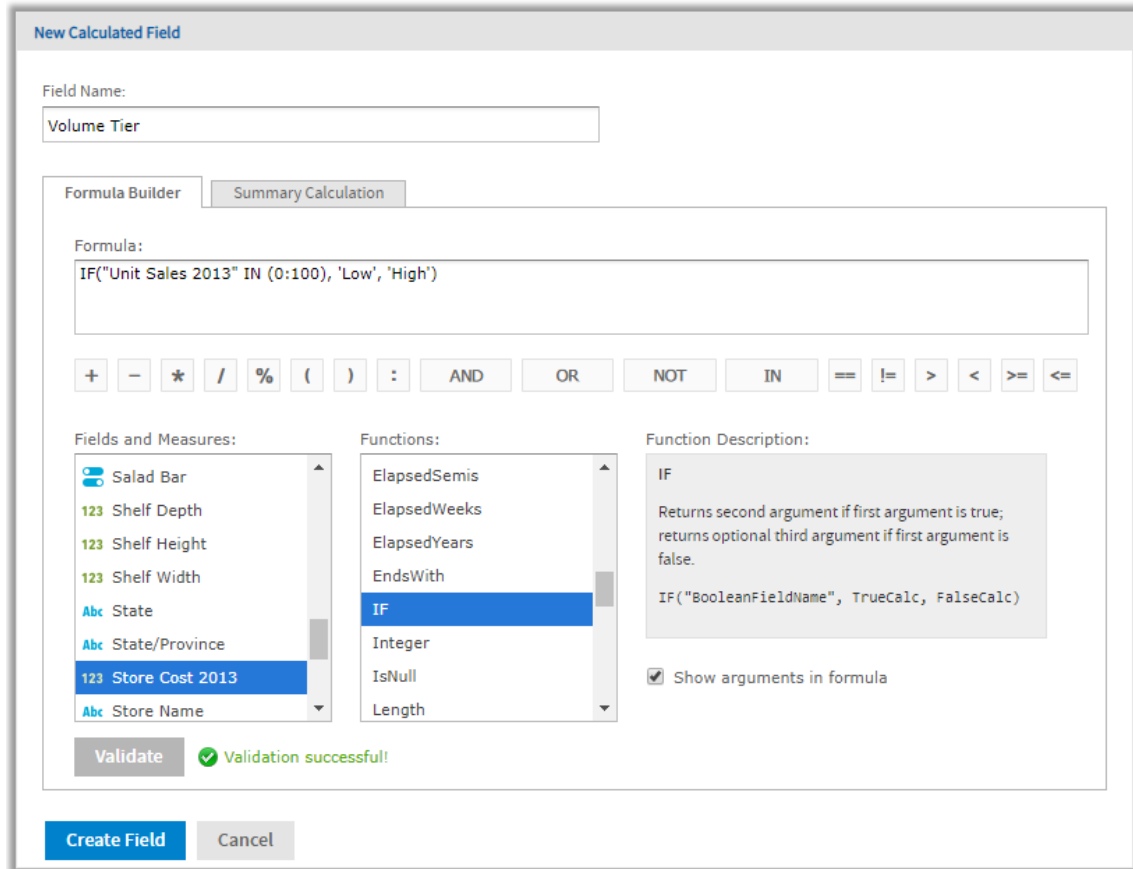


Figure 104: Formula Builder Tab in New Calculated Measure Dialog Box

6. Enter Volume Tier for the Field Name.

Creating the formula

This section shows how to create a simple text formula that says Low when the Unit Sales amount is under 100 and High otherwise.

Formulas must use the following syntax:

- a. Labels for fields and measures must be in double quotes ("): "Customer ID", "Date ordered".
- b. Text must be in single quotes ('): '--'.
- c. Levels must be in single quotes ('): 'ColumnGroup', 'Total'.

7. Make sure Show arguments in formula is selected.
8. Now create the formula. Double-click IF() in the Functions list. Because Show arguments in formula is selected, IF("BooleanFieldName", TrueCalc,

FalseCalc) is entered in the Formula Builder.

9. Double-click BooleanFieldName to select it, then double-click Unit Sales 2013 in the Fields and Measures list.

The Formula Builder displays IF("Unit Sales 2013", TrueCalc, FalseCalc).

10. Edit the expression in the Formula Builder to read as follows: IF("Unit Sales 2013" IN (0:100), 'Low', 'High').
11. Click Validate to verify that the formula does not have any syntax errors.

Creating a summary calculation

The Ad Hoc Editor creates a default summary calculation based on the type of formula you have entered. This section shows how to select a different summary function.

12. Click the Summary Calculation tab.

The screenshot shows a dialog box titled "New Calculated Field". It has two tabs: "Formula Builder" and "Summary Calculation", with the latter being selected. Under "Field Name:", there is a text box containing "Volume Tier". Below that, under "Calculation:", there is a dropdown menu with "Mode" selected. At the bottom, there are two buttons: "Create Field" (in blue) and "Cancel" (in grey).

Figure 105: Summary Tab in New Calculated Measure Dialog Box

13. Select Mode from the Calculation menu.
14. Click Create Field.

The calculated field appears in bold text at the bottom of the list of available fields. A special icon indicates it is a calculated field *fx*.

If you have installed the samples, the Ad Hoc view 10. Calculated Fields and Measures includes examples of calculated fields and measures (indicated by *fx*). You can explore their formulas by right-clicking the field or measure name and selecting Edit. You can also create tables, charts, or crosstabs to see how these calculations work in views.

Planning and Testing Calculated Fields and Measures

When you are creating calculated fields and measures, you may need to follow an iterative process: first create your new fields and measures, then view the results, and finally adjust as needed. The following practices can help:

- Reduce the size of your data set — To speed field creation and testing, reduce the size of your working data set in the following ways:
 - Select Sample Data from the drop-down menu in the Ad Hoc tool bar.
 - Create one or more filters. This is especially useful for tables, which display all data by default.
 - Limit the number of fields and measures you add to your test reports to restrict the number of summary levels to one or two.
- Create one or more formulas, as described in [Creating a Calculated Field](#).
- After you have created your fields and measures, add them to a table or crosstab in your view and verify that they behave as you expect. You may need to edit your fields to get the desired behavior. See [Creating a Calculated Field](#) for more information.

In addition, keep the following in mind when creating calculated fields:

- When you create a calculated field, it appears at the bottom of the list.
- Calculated fields that use aggregate functions cannot be added to groups and should not be used as filters.
- By default, the Ad Hoc Editor supports only two decimal places. If the calculated fields return data that are significant to the third decimal place, you can add new masking options by editing configuration files. For more information, refer to the JasperReports Server Administrator Guide.
- You can't delete a calculated field that is in use; these fields have their name in italics.
 - If the calculated field is used in the Ad Hoc view panel, remove the calculated field from the Ad Hoc View panel and then delete it from the Data Source Selection panel.
 - If the calculated field is the basis of another field, you can't delete it until you delete the one that builds on it.



- If the calculated field uses an item that was removed from the data source, the Ad Hoc Editor displays an error message. You will need to either edit or delete the calculated field.

Calculated Field Reference

This section lists all functions that can be used to create calculated fields and measures in Ad Hoc views. For details of the supported syntax, see [Calculated Field Syntax](#).



These functions are available for calculated fields and measures in Ad Hoc views only. See *JasperReports Server Data Management Using Domains* for supported operators and functions in Domains.

The examples in this section indicate correct syntax, but are not necessarily associated with an Ad Hoc view. If you have installed the Jaspersoft samples, the Ad Hoc view 10. Calculated Fields and Measures include examples of calculated fields (shown by the icon ) or calculated measures (shown by the icon ). You can explore their formulas by right-clicking on the field or measure name and selecting **Edit**. You can also create tables, charts, or crosstabs to see how these calculations work in views.

Absolute(*NumericExpression*)

Returns the absolute value of a number or field, that is, the non-negative value of the number.

Examples:

Absolute("Transaction Amount") — Shows the magnitude of each transaction, regardless of whether the transaction is positive or negative.

"Commission Rate" * Absolute("Transaction Amount") — Computes a positive commission on all transactions, regardless of whether the transaction is positive or negative.

Attribute('StringExpression1', ['StringExpression2'])

Given the name of an attribute as the first argument and an optional category as the second argument, returns the attribute's current value as a String. If a category is specified (USER, TENANT, or SERVER), returns a categorical attribute, otherwise returns a hierarchical

attribute. This value can be cast to a different datatype using one of the casting functions available in Ad Hoc: `Boolean()`, `Date()`, `Decimal()`, `Integer()`, `Time()`, or `Timestamp()`. It is your responsibility to ensure the attribute's format and values work correctly with your Ad Hoc view. See the *JasperReports Server Administrator Guide* for more information about creating and using attributes.

Example:

```
Attribute('my_attribute')
```

Average(*NumericExpression*['*Level*'])

Returns the average value of a measure or numeric field, based on an optional level. Null values are not included. See [Levels in Aggregate Functions](#) for more information.

Example:

```
Average("Salary", 'RowGroup')
```

Boolean ('*StringExpression*')

Casting function that takes a String expression and converts it to a Boolean data type. The String can be any expression that returns a supported string, including a field value or an attribute retrieved with the `Attribute()` function. The `Boolean()` function requires one of the following Strings: `true`, `false`, `True`, `False`, `TRUE`, or `FALSE`. Other Strings will return an error.

Examples:

```
Boolean('true')
```

```
Boolean(Attribute('my_boolean_attribute'))
```

Case(*Expression*, *ValueExpression1*, *ReturnExpression1*, *ValueExpression2*, *ReturnExpression2*[,..., *ValueExpressionN*, *ReturnExpressionN*][,*DefaultReturnExpression*])

Takes $2N+1$ or $2N+2$ arguments: an expression followed by one or more value expression/return expression pairs, with an optional final return expression. Compares the expression in the first argument to each value expression in order of appearance. Returns

the value of the expression immediately following the first value expression that matches. If no expression matches, returns the final `DefaultReturnExpression` if present, null otherwise.

The types of all the return expressions must be compatible. For example, you cannot mix numeric and text return value types.

Example:

```
Case("Shipped by", 1, 'FedEx', 2, 'UPS', 3, 'USPS', 'Unknown')
```

CaseRange (*NumericExpressionInput*, *NumericExpression1*, *ReturnExpression1*, *NumericExpression2*, *ReturnExpression2*[,...], *NumericExpressionN*, *ReturnExpressionN*)[, *DefaultReturnExpression*])

Takes $2N+1$ or $2N+2$ arguments: an expression followed by one or more numeric expression/return expression pairs, with an optional final return expression. Finds the first numeric expression that is greater than the input expression and returns the value of the corresponding return expression. If no expression is greater, returns the final `DefaultReturnExpression` if present, null otherwise.

The types of all the return expressions must be compatible. For example, you cannot mix numeric and text return value types.

Examples:

```
Case("Temperature", 60, 'too cold', 80, 'just right', 'too hot')
```

```
CaseRange(CountAll("Shipping charge") % CountAll("Shipping charge", 'Total'), 2.0, 'Less than 2%', 5.0, '2% - 5%', 'More than 5%')
```

CaseWhen(*BooleanExpression1*, *ReturnExpression1*, *BooleanExpression2*, *ReturnExpression2*[,...], *BooleanExpressionN*, *ReturnExpressionN*)[, *DefaultReturnExpression*])

Takes $2N$ or $2N+1$ arguments: one or more pairs of Boolean expressions followed by return expressions, with an optional final return expression. Returns the expression immediately following the first true Boolean expression. If no expression is true, returns the final `DefaultReturnExpression` if present, null otherwise. This is the most flexible construct.

The types of all the return expressions must be compatible. For example, you cannot mix numeric and text return value types.

Examples:

```
CaseWhen("Shipped by" == 1, 'FedEx', "Shipped by" == 2, 'UPS', "Shipped by"==
3, 'USPS', 'Unknown')
```

```
Case("Temperature" <= 60, 'too cold', "Temperature" > 80, 'too hot', 'just
right')
```

Concatenate(*TextExpression1*[,*TextExpression2*,...,*TextExpressionN*])

Combines multiple text strings and/or fields into a single text field. Text strings are enclosed in single quotes; labels for fields or measures in Ad Hoc are enclosed in straight quotes.

Examples:

```
Concatenate("Last Name", ' , ', "First Name")
```

```
Concatenate("Product Category", ' -- ', "Product Name")
```

Contains(*TextExpression1* ,*TextExpression2*])

A boolean that returns true if the first string contains the second, false otherwise.

Example:

```
Contains("Product Name", 'Soda')
```

CountAll(*Expression*['*Level*'])

Returns the count of non-null items in a field or measure. Note that CountAll always returns a non-negative integer. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
CountAll("Transaction Amount", 'RowGroup') — Counts the total number of non-null
transactions in the specified group.
```

CountDistinct(*Expression*['Level'])

Returns the distinct count of non-null items in the input. Always returns a non-negative integer. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

CountDistinct("Customer Name", 'Total') — Counts the number of distinct customers.

Date('StringExpression')

Casting function that takes a String expression and converts it to a Date data type. The String can be any expression that returns a supported string, including a field value or an attribute retrieved with the Attribute() function. The Date() function requires a String value formatted as 'yyyy-MM-dd'. Other Strings will return an error.

Examples:

```
Date('2015-07-17')
```

```
Date(Attribute('my__date_attribute'))
```

Decimal('StringExpression')

Casting function that takes a String expression and converts it to a Decimal data type. The String can be any expression that returns a supported string, including a field value or an attribute retrieved with the Attribute() function. The Decimal() function requires a String value in decimal format, for example, '123.45'. Other Strings will return an error.

Example:

```
Decimal('1234.567')
```

DayName (DateExpression)

Given a date field, returns a text field with the name of the day of the week.

Examples:

DayName("Open Date") - Displays the day of the week on which a store was opened.

Mode(DayName("Open Date"), 'Total') - The day of the week on which the most stores were opened.

DayNumber (*DateExpression*)

A numeric field that returns the day of the month from a date field.

Example:

DayNumber("Open Date") - Displays the day of the month on which a store was opened.

ElapsedDays (*DateExpression1, DateExpression2*)

Calculates the number of days elapsed between two date fields that contain time values.

Example:

ElapsedDays ("Date shipped","Date required")

ElapsedHours (*DateTimeExpression1, DateTimeExpression2*)

Calculates the number of hours elapsed between two date fields that contain time values.

Example:

ElapsedHours ("Date shipped","Date required")

ElapsedMinutes (*DateTimeExpression1, DateTimeExpression2*)

Calculates the number of minutes elapsed between two date fields that contain time values.

Example:

ElapsedMinutes ("Date shipped","Date required")

ElapsedMonths (*DateTimeExpression1, DateTimeExpression2*)

Calculates the number of months elapsed between two date fields that contain time values.

Example:

```
ElapsedMonths ("Date shipped","Date required")
```

ElapsedQuarters (*DateExpression1, DateExpression2*)

Calculates the number of quarters elapsed between two date fields.

Example:

```
ElapsedQuarters ("Date shipped","Date required")
```

ElapsedSeconds (*DateTimeExpression1,DateTimeExpression2*)

Calculates the number of seconds elapsed between two date fields that contain time values.

Example:

```
ElapsedSeconds ("Date shipped","Date required")
```

ElapsedSemis (*DateExpression1,DateExpression2*)

Calculates the number of semi-years elapsed between two date fields.

Example:

```
ElapsedSemis ("Date shipped","Date required")
```

ElapsedWeeks (*DateExpression1,DateExpression2*)

Calculates the number of weeks elapsed between two date fields that contain time values.

Example:

```
ElapsedWeeks ("Date shipped","Date required")
```



This replaces the two-date custom field operation **Date Difference > Weeks** available in Ad Hoc views created in Server 5.5 or earlier.

ElapsedYears (*DateExpression1,DateExpression2*)

Calculates the number of years between two date fields.

Example:

```
ElapsedYears ("Date shipped","Date required")
```

EndsWith(*TextExpression1, TextExpression2*)

Boolean that returns true if the first text input ends with the string specified in the second input; false otherwise.

Example:

```
EndsWith("Product Name", 's')
```

IF (*BooleanExpression, ExpressionWhenTrue[, ExpressionWhenFalse]*)

Given a Boolean field or calculation as the first argument, returns the second argument if true, optionally returns the third argument if false. Returns null if the first argument is null.

ExpressionWhenFalse must be of the same type as ExpressionWhenTrue. For example, if ExpressionWhenTrue is a date, ExpressionWhenFalse must be a date in the same format. If ExpressionWhenFalse is not set, then a false result returns a null value.



You can create a BooleanExpression using the comparison operators("==", "!=", ">", ">=", "<", "<="); any functions that return Boolean values (StartsWith, EndsWith, IsNull, Contains) and logical operators (and, or, not).



When dates are used in comparisons or the IF function, they must be the same type, (date only, date/time, or time only). Make sure to use the correct modifier (d, ts, t) when using date constants in comparisons.

Example:

```
IF(Contains("Product Name", 'Soda'), 'Yes', 'No') - Uses the Contains function to see whether the product name contains the string "Soda". If it does, sets the field value to Yes.
```

Integer(*StringExpression*)

Casting function that takes a String expression and converts it to an Integer data type. The String can be any expression that returns a supported string, including a field value or an attribute retrieved with the `Attribute()` function. The `Integer()` function requires a String value that can be read as an integer, such as '123'. Other Strings will return an error.

Examples:

```
Integer('123')
```

```
Integer(Attribute('my_integer_attribute'))
```

IsNull(*Expression*)

Boolean that returns true if the field value is null; false otherwise.

Example:

```
IsNull("First Name")
```

Length(*TextExpression*)

Given a text string, returns its length. Null values return null.

Example:

```
Length("First Name")
```

Max (*NumericExpression*|*DateExpression*['*Level*'])

Returns the maximum value reached by the specified field or calculation. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
Max("Salary")
```


Median (*NumericExpression|DateExpression*['Level'])

For an odd number of values, returns the middle value after all values are listed in order. For an even number of values, returns the average of the middle two values. For example, if a field has only five instances, with values {1,1,3,10,20}, the median is 3. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
Median("Salary")
```

Mid (*TextExpression,Integer1,Integer2*)

Given a text string, returns the substring starting at Integer1 with length Integer2.

Example:

Mid("Phone", 1, 3) - Given an American phone number starting with a 3-digit area code, extracts the area code.

Min (*NumericExpression|DateExpression*['Level'])

Returns the minimum value reached by the specified field or calculation based on an optional level. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
Min("Salary")
```

Mode (*Expression*['Level'])

Returns the most frequent value reached by the specified input, based on an optional level. For example, if a field has only five instances with values {1,2,2,4,5}, the mode is 2. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

Mode (DayName ("Order Date",RowGroup)) - For each row group, returns the day of the week on which the most orders were placed.

MonthName (*DateExpression*)

Returns a text field with the name of the month.

Example:

```
MonthName ("Order Date" )
```

MonthNumber (*DateExpression*)

Returns the number of the month, with January = 1 and December = 12. Null values return null.

Example:

```
MonthNumber ("Order Date")
```

Now (*StringExpression*)

Returns the current value Date-Time with time zone. The time zone is picked from the logged in user's time zone.

Offset Date and Time for Now Functions

Offset for Today() uses only the date. Offset works the same as Today() function - filter ranges created with using Today() or Now() will remember Date-Time and time zone during creation, and if another user with another time zone uses this range, then Date-Time will be offset according to the Time Zone time difference.



When using the *Elapsedhours* calculation, the function Now(), which would return Date-Time, needs to be used. The Today() function stays as is.

Example:

```
Offset for Today("")
```

PercentOf (*NumericExpression*['Level'])

Returns the value as a percent of the total for the specified level. Null values are ignored. Note that possible values for `Level` are `ColumnGroup`, `ColumnTotal`, `RowGroup`, `RowTotal`, `Total` (default). See [Levels in Aggregate Functions](#) for more information.



`PercentOf (NumericExpression, Total)` replaces the custom field calculation **Percent of Total Group** available in Ad Hoc views created in Server 5.5 or earlier.



Calculated fields using the `PercentOf` function should not be used as filters. If `PercentOf` is used as a filter, then the total percent may not be 100.

Example:

```
PercentOf("")
```

PeriodOverPeriod (POP) (*NumericExpression*, 'AggregateFunctionName')

The ratio between last (previous) period and current period is described as:

$\text{AggregateFunction}(\text{CurrentValue}) / \text{AggregateFunction}(\text{PreviousValue}) - 1$
calculation for the specified field where *AggregateFunction* can be 'Sum', 'Average', 'CountAll', 'CountDistinct', 'Max', 'Median', 'Min', 'Mode', 'Range', 'StdDevP' (Standard Deviation P) or 'StdDevS' (Standard Deviation S). `CurrentValue` and `PreviousValue` are row values grouped by date field, where `Previous` is taken based on selected date categorizer: year, month, quarter etc.

The *PeriodOverPeriod* function accepts *NumericExpression* and *AggregateFunctionName* as string, and then performs calculations based on aggregate functions results.

Example:

```
PeriodOverPeriod("NumericExpression", 'AggregateFunctionName')
```



You can only apply POP calculations on the measure field grouped by a date/timestamp field with *year/quarter* by *year/month* by *year* categorizer. Also, these calculations only work for crosstabs and charts. They do not work with tables. Specifically for charts, it is recommended to add the date/timestamp field to both columns (with Year grouping) and rows (Quarter or Month grouping).

PeriodToPeriod (PTP (*NumericExpression*, '*AggregateFunctionName*'))

The difference between last (previous) period and the current period can be described as:

$AggregateFunction(CurrentValue) - AggregateFunction(PreviousValue)$ calculation for the specified field where *AggregateFunction* can be 'Sum', 'Average', 'CountAll', 'CountDistinct', 'Max', 'Median', 'Min', 'Mode', 'Range', 'StdDevP' (Standard Deviation P) or 'StdDevS' (Standard Deviation S). CurrentValue and PreviousValue are row values grouped by date field, where Previous is taken based on selected date categorizer: year, month, quarter etc.

The *PeriodToPeriod* function accepts *NumericExpression* and *AggregateFunctionName* as String, and then performs calculations based on aggregate functions results.

Example:

```
PeriodToPeriod("NumericExpression", 'AggregateFunctionName')
```



You can only apply PTP calculations on the measure field grouped by a date/timestamp field with *year/quarter* by *year/month* by *year* categorizer. Also, these calculations only work for crosstabs and charts. They do not work with tables. Specifically for charts, it is recommended to add the date/timestamp field to both columns (with Year grouping) and rows (Quarter or Month grouping).

Range (*NumericExpression*['*Level*'])

The difference between the largest and smallest values of the given input.

Example:

```
Range("Salary", 'ColumnGroup')
```

Rank (*NumericExpression*)

Returns the position of each value relative to the other values after all the values are listed in order. For example, the top ten in sales are the top ten in rank. Null values are ignored.

Example:

```
Rank("Store Sales")
```

Round (*NumericExpression*[,*Integer*])

Rounds a number to a specified number of digits. Default is zero (0) digits. Decimal values greater than 0.5 are rounded to the next largest whole number, and values less than 0.5 are rounded down.

Example:

```
Round("Sales")
```

StartsWith(*TextExpression1*, *TextExpression2*)

Boolean that returns true if the first text input starts with the string specified in the second input; false otherwise.

Example:

```
StartsWith("Product Name", 'Q')
```

StdevP (*NumericExpression*['*Level*'])

Standard deviation is based on the entire population, taken over the values at the specified (optional) level. Null values are excluded. *Level* can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
StdevP("Sales", 'RowTotal')
```

StdevS (*NumericExpression*['*Level*'])

Standard deviation based on a sample, taken over the values at the specified level. Null values are excluded. *Level* can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
StdevS("Sales", 'RowTotal')
```

Sum (*NumericExpression*['Level'])

The sum of all values in the range. Null values are excluded. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Example:

```
Sum("Sales", 'RowGroup')
```

Time('StringExpression')

Casting function that takes a String expression in the format 'HH:mm:ss.SSS' and converts it to a Time data type. The String can be any expression that returns a valid String, including a field value or an attribute retrieved with the Attribute() function.

Examples:

```
Time('17:12:33:147')
```

```
Time(Attribute('my_time_attribute'))
```

Timestamp('StringExpression')

Casting function that takes a String expression in the format 'yyyy-MM-dd HH:mm:ss.SSS' and converts it to a Timestamp data type. The String can be any expression that returns a valid String, including a field value or an attribute retrieved with the Attribute() function.

Examples:

```
Timestamp('2015-07-17 17:12:33:147')
```

```
Timestamp(Attribute('my_timestamp_attribute'))
```

Today (*Integer*)

Calculates the date that is the specified number of days from the current system date.

Examples:

Today (0) - The current system date.

Today(1) - The day after the current system date.

Today(-1) - The day before the current system date.

WeightedAverage (*NumericExpression1,NumericExpression2,'Level'*)

Returns the weighted average for the first input weighted with respect to the second input, calculated at an optional level. Null values are excluded. Level can be one of the following: Current (default), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Examples:

WeightedAverage ("Price","Units", 'Current') - The extended price based on the number of units.

WeightedAverage ("Price","Units", 'RowGroup') - The sum of the extended price for all units in the row group.

Year (*DateExpression*)

Given a date field, returns the year.

Example:

Year("Order Date")

YearToDate (YTD) (*NumericExpression, 'AggregateFunctionName'*)

Given a date field, returns an accumulated aggregated value from a specific start of the fiscal year to the current date. The *YearToDate* function accepts *NumericExpression* and *AggregateFunctionName* as string, and then performs calculations based on aggregate functions results.

Available options for *AggregateFunctionName*: 'Sum', 'Average', 'CountAll', 'CountDistinct', 'Max', 'Median', 'Min', 'Mode', 'Range', 'StdDevP', and 'StdDevS'



You can start the year from a specific month, for example, if your fiscal year starts in July, you can set this to July 1 instead of January 1. Then the first quarter of the year will be July 1 to September 30.

Example:

```
YearToDate("NumericExpression", 'AggregateFunctionName')
```



You can only apply YTD calculations on the measure field grouped by a date/timestamp field with *year/quarter* by *year/month* by *year* categorizer. Also, these calculations only work for crosstabs and charts. They do not work with tables. Specifically for charts, it is recommended to add the date/timestamp field to both columns (with Year grouping) and rows (Quarter or Month grouping).

Calculated Field Syntax

This section describes the syntax required when creating calculated fields in Ad Hoc views. See [Calculated Field Reference](#) for more information.

Use the following syntax for inputs:

- To reference a text string, use single quotes (') - 'Text String'.
- To reference a field label, use double quotes (") - "Ad Hoc Label".
- To reference date constants, indicate the date type as part of the syntax, as listed below:
 - To reference a date without time data (for example: yyyy-dd-mm), use d followed by single quotes (') - d'2014-06-10'.
 - To reference a date with day and time data (for example: yyyy-dd-mm hh:mm:ss) use ts followed by single quotes (') - ts'2014-06-10 01:30:00'. If you use ts and enter the date information only, the time is automatically set to 00:00:00.
 - To reference a date with time data only (hh:mm:ss), use t followed by single quotes (') - t'01:30:00'.
- To reference a date field label, use double quotes (") - "Ad Hoc Date Field Label".



The following are reserved words and cannot be used as field names: AND, And, and, IN, In, in, NOT, Not, not, OR, Or, or. Names containing these strings, such as "Not Available", can be used.



When dates are used in comparisons or the IF function, they must be the same type, (date only, date/time, or time only). Make sure to use the correct modifier (d, ts, t) when using date constants in comparisons.

In the function descriptions for calculated fields in [Calculated Field Reference](#), the argument name describes the type of input the function accepts. For more information about input types, see *JasperReports Server Data Management Using Domains*:

- **BooleanExpression** - Any expression that takes on Boolean values, including the label of a Boolean field or measure, a Boolean calculation, or a Boolean value.



You can create a BooleanExpression using the following: comparison operators (==, !=, >, >=, <, <=, in); functions that return Boolean values (StartsWith, EndsWith, IsNull, Contains) and logical functions (AND, OR, NOT).

- **DateExpression** - Any type of date or timestamp values, including the label of a date field or measure, or a calculation that returns dates.
- **DateTimeExpression** - Date expressions that contain time values, including the label of a date field or measure, or a calculation that returns dates. These values are also known as timestamp values.
- **Expression** - Any valid date, date-time, numeric, or string expression.
- **NumericExpression** - Numeric values, including the label of a numeric field or measure, or a calculation that returns numbers.
- **TextExpression** - Text values, including the label of a text field or measure, or a text string.
- **Level** - For aggregate functions, specifies the set of values used to compute the calculation. Possible values include Current (not available for PercentOf), ColumnGroup, ColumnTotal, RowGroup, RowTotal, Total. See [Levels in Aggregate Functions](#) for more information.

Operators in Ad Hoc Views

Ad Hoc views support the following operators in calculated fields. Operators are evaluated in the order they are shown in the table:

Operator	Syntax	Description
multiply, divide	$i * j / k$	Arithmetic operators for numeric types only.
percent	$i \% j$	Calculates i as a percent of j ; numeric types only.
add, subtract	$i + j - k$	Arithmetic operators for numeric types only.

Operator	Syntax	Description
equal	<code>i == j</code>	Comparison operators for string, numeric, and date types.
not equal	<code>i != j</code>	
less than	<code>i < j</code>	Comparison operators for numeric and date types only.
less than or equal	<code>i <= j</code>	
greater than	<code>i > j</code>	
greater than or equal	<code>i >= j</code>	
IN set	<code>i IN ('apples', 'oranges')</code>	Sets can be of any type.
IN range	<code>i IN (j:k)</code>	Ranges must be numeric or date types.
NOT	<code>NOT(i)</code>	Boolean operators. Parentheses are required for NOT.
AND	<code>i AND j AND k</code>	
OR	<code>i OR j OR k</code>	
parentheses	<code>()</code>	Used for grouping.



When dates are used in comparisons or IF functions, they must be the same type, (date only, date/time, or time only). Make sure to use the correct modifier (d, ts, t) when using date constants in comparisons.



The following reserved words cannot be used as field names: AND, And, and, IN, In, in, NOT, Not, not, OR, Or, or. Names containing these strings, such as "Not Available", can be used.

Aggregate Functions

Aggregate functions in calculated fields perform calculations based on groups of rows, rather than on single rows. For example, it doesn't make sense to use Sum or Average on a single value; instead, you want to take the sum or average over a row or column group or

over the total set. In many cases, aggregate functions in the Ad Hoc Editor are analogous to SQL functions that can be used with the GROUP BY clause in a SELECT statement.

The aggregate functions are as follows:

Average	Median	Range	WeightedAverage
CountAll	Min	StdDevP	
CountDistinct	Mode	StdDevS	
Max	PercentOf	Sum	

Because aggregate functions already operate on groups, their use is restricted in the following ways:

- You can use aggregate functions only in calculated measures; aggregates should not be used to create non-measure fields.
- You cannot add an aggregate function to a group.
- You should not use an aggregate function as a filter.
- Only Aggregate Formula, Custom, or None are supported as summary calculations for aggregate functions. Custom appears in the Change Summary right-click menu only if you have defined a custom function in the Create Calculated Field dialog box.
- A calculated field will always be calculated in memory, if you have an aggregate expression, and the calculated field itself also has an aggregate expression. It's no longer necessary to set the **inMemory** setting to *true*.

Levels in Aggregate Functions

Many aggregate functions accept an optional level to specify the grouping of the aggregate. A level used in an aggregate, must be enclosed in straight quotes ('), for example, 'RowGroup'.

The available levels are as follows:

- Current (default) — use the current value when at a looking at detail rows in a table view.
- RowGroup — use the parent values from a row location.
- RowTotal — use the grand total value from a row location.
- ColumnGroup — use the parent values from a column location.

- ColumnTotal — use the grand total value from a column location.
- Total — use the grand total value from a cross tab and the RowTotal from a Table.

The following example shows how RowGroup works with the PercentOf() function.

Setting up the Ad Hoc view

The examples in this section uses the Ad Hoc view created in [Creating a Calculated Field](#). The initial view for these examples can be set up as follows:

Procedure

1. Select Crosstab from the Visualization Selector.
2. Add Store Sales 2019 and Low Fat to the Columns entry bar.
3. Add Country and Store Type to the Rows Entry Bar.
4. To make the example clearer, the data has been restricted. To do this, create three filters:
 - a. Expand Regions in the Fields Picker, right-click on Country, and select Create Filter. In the Filters pane, set the filter to is one of then select Canada and USA.
 - b. Create a filter for Store Sales 2013. In the Filters pane, set the filter to is greater than, and enter 19.70.
 - c. Right-click on Store Type and select Create Filter. In the Filters pane, set the filter to is one of then select Deluxe Supermarket, Gourmet Supermarket, and Mid-Size Grocery.

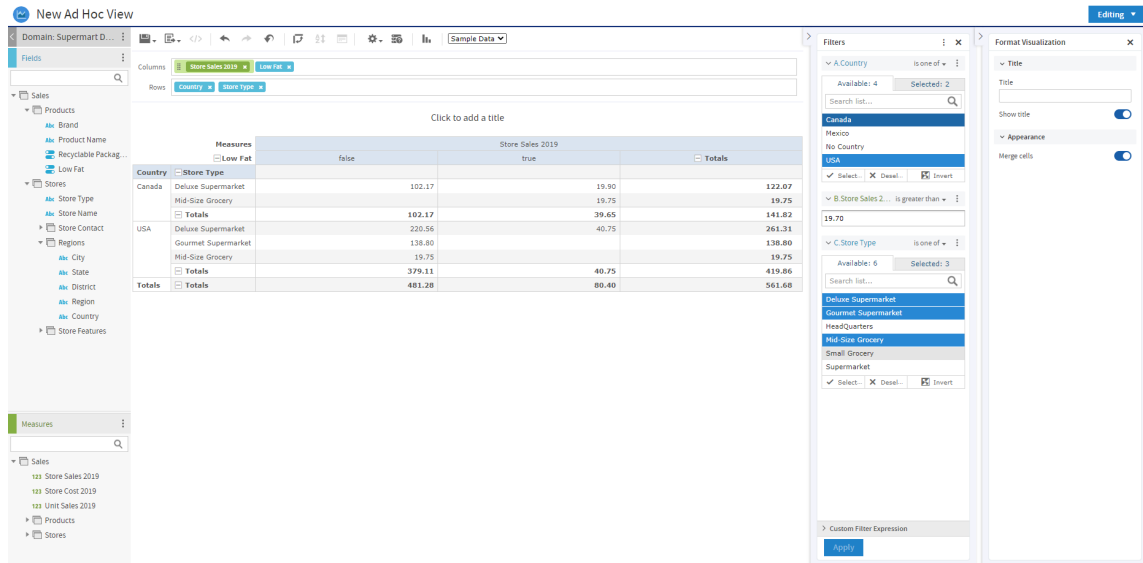



Figure 106: Base Example for Levels

RowGroup example

To create the layout for this example:

Procedure

1. Click  at the top right of the Measures section of the Data Source Selection panel and select Create Calculated Measure... from the context menu.
2. In the Create Calculated Measure dialog box, enter Percent of Row Group for the name, and enter PercentOf("Store Sales 2019",'RowGroup') in the Formula entry box. Then click Create Measure.
3. Drag the measure you just created to the Columns bar, between Store Sales 2019 and Low Fat.

The crosstab appears as shown in the following figure.

Click to add a title

Country	Store Type	Store Sales 2019			Percent of Row Group		
		Low Fat		Totals	Low Fat		Totals
Canada	Deluxe Supermarket	102.17	19.90	122.07	100.00	50.19	86.07
	Mid-Size Grocery		19.75	19.75		49.81	13.93
	Totals	102.17	39.65	141.82	21.23	49.32	25.25
USA	Deluxe Supermarket	220.56	40.75	261.31	58.18	100.00	62.24
	Gourmet Supermarket	138.80		138.80	36.61		33.06
	Mid-Size Grocery	19.75		19.75	5.21		4.70
Totals	Totals	379.11	40.75	419.86	78.77	50.68	74.75
Totals	Totals	481.28	80.40	561.68	100.00	100.00	100.00

Figure 107: Example for RowGroup

Look at the Low Fat values for "false" in the Canada group. The only non-null value under Store Sales 2019 is in the first row, for Deluxe Supermarket. This value, 102.17, is 100% of the row group total of 102.17 on the third line of the crosstab. This percentage is shown in the "false" subcolumn of the Percent of Row Group column.

Compare this to the "true" entry under Store Sales for the same (first) row. There, the value is 19.90, and the row group total is 39.65. The corresponding percentage shown in the "true" sub-column of Percent of Row Group is 50.19%.

Summary Calculations

Summary calculations are aggregate functions used for sub-totals and totals. Summary calculations can be set in the Domain Designer or in the Ad Hoc view.

- In Ad Hoc table views, each field can display a single summary calculation. The summary calculation is automatically applied to all groups in the table. Summaries appear at the bottom of each group, as well as at the bottom of the view. When a new group is added, it includes a summary for each column.
- In crosstabs, each measure displays a summarized value. Summaries determine the values of the Totals at the intersection of each row and column.
- In charts, the type of chart determines whether measures are summarized. If summaries are used, they determine the size or location of the graphical elements that represent your data.



For dual pie charts, the summary function for the field needs to be Sum or CountAll. Dual pie charts with other summary functions may give unexpected results.

In general, you can change the summary calculation of any measure. By default, JasperReports Server summarizes fields of each datatype as shown in the following table.

Default Summary Functions in Calculated Fields

Datatype	Default Summary Calculation	Description
Numeric	Sum	Displays the sum of all values in the set.
Date	CountAll	Displays the total number of values in the set.
String	CountAll	Displays the number of values in the set.
Boolean	CountAll	Displays the number of values in the set.
Aggregate	Aggregate Formula	For a calculated field that uses an aggregate function, uses the same aggregate formula as the summary.
Combined	None	For a calculated field that combines an aggregate function with a non-aggregate function, the summary calculation is null.

Select from the following options to set a measure's summary function in any type of view.

Function	Meaning	Available for....
Aggregate Formula	For a calculation that uses an aggregate function, uses the same aggregate formula as the summary.	Aggregate
Average	Displays the average of all values in the set.	Numeric
CountAll	Displays the number of rows in the set.	Boolean, Date, Numeric, and String
CountDistinct	Displays the number of unique values in the set.	Boolean, Date, Numeric, and String

Function	Meaning	Available for....
Custom	Allows you to enter an aggregate calculation for the summary. Only available for calculated fields and measures in the Ad Hoc Editor; not available for Domains.	Aggregate, Date, Numeric
Maximum	Displays the highest value in the set.	Date, Numeric
Median	Displays the median value of the set.	Date, Numeric
Minimum	Displays the lowest value in the set.	Date, Numeric
Mode	Displays the value that occurs most frequently in the set.	Boolean, Date, Numeric, and String
None	The aggregate function is null; no summary function is displayed.	Aggregate, Boolean, Date, Numeric, and String
Range	Displays the difference between the minimum and maximum values of the set.	Numeric
RangeDays	Displays the difference in days between the minimum and maximum values of the set.	Date
RangeHours	Displays the difference in hours between the minimum and maximum values of the set.	DateTime
RangeMinutes	Displays the difference in minutes between the minimum and maximum values of the set.	DateTime
RangeMonths	Displays the difference in months between the minimum and maximum values of the set.	Date

Function	Meaning	Available for....
RangeQuarters	Displays the difference in quarters between the minimum and maximum values of the set.	Date
RangeSemis	Displays the difference in semi-annual periods between the minimum and maximum values of the set.	Date
RangeWeeks	Displays the difference in weeks between the minimum and maximum values of the set.	Date
RangeYears	Displays the difference in years between the minimum and maximum values of the set.	Date
Standard Deviation P	Displays the standard deviation for the population of the set.	Numeric
Standard Deviation S	Displays the standard deviation on a sample for the set.	Numeric
Sum	Displays the grand total for the set.	Numeric
WeightedAverage	Displays the weighted average for the set, based on a second numeric field or expression. Only available for calculated fields and measures in the Ad Hoc Editor; not available for Domains.	Numeric

Note the following about summaries:

- If you select a summary calculation other than the default, that calculation is shown in parentheses after the field name in the fields picker.
- In Ad Hoc views, you see special behavior when you create a calculated field or measure with the following type of summary calculation:

- If you create a Custom summary calculation for a field or measure, Custom is available on the Change Summary Calculation menu for that field. It is not available otherwise.
- If you create a WeightedAverage summary calculation for a field or measure, WeightedAverage is available on the Change Summary Calculation menu for that field. It is not available otherwise.
- You can remove summaries by setting the summary function to None.
- Only AggregateFormula, Custom, or None are supported as summary calculations for aggregate functions. Custom only appears in the Change Summary right-click menu if you have defined a custom function in the Create Calculated Field dialog box.

Using Filters and Input Controls

JRXML Topics, Domains, and OLAP connections use different mechanisms for screening the data they return:

- JRXML Topics can contain Parametrized queries. The parameters can be mapped to input controls that allow users to select the data they want to include.
- Domains (and Domain Topics) can be filtered by selecting fields in the Domain and specifying comparison values. The filters can be configured for users to select the data to include.
- Within the Domain design, filters based on conditions can also be defined; these filters are not displayed in the Report Viewer when the report runs.
- OLAP connections rely on XML schemas to filter the data in an underlying transactional database. Input controls are never generated directly from the OLAP schema.

You can define filters in the Ad Hoc Editor regardless of whether you are working with data from a Domain, Topic, or OLAP connection. Such filters can be helpful in improving the view's initial performance by reducing the amount of data the view returns by default. For more information, see [Input Controls and Filters Availability](#). To prevent users from seeing the full dataset, you can also use input controls in a JRXML Topic or filters defined in the Domain design, which can be hidden from end users.

If you want to return different data to different users of the same view, define data-level security based on a user roles and profile attributes. This is available for reports based on a

Domain, Domain Topic, or OLAP client connection. For more information, refer to the JasperSoft OLAP User Guide.

Input controls and filters interact seamlessly. For example, you can create filters in an Ad Hoc view that gets data from a JRXML Topic that includes input controls.

The server refreshes the editor against both the filters and the input controls. Because some combinations of input controls and filters don't return data, this can result in an empty view.



If the result set is empty, check for an incompatible combination of filters and input controls, such as a standard filter (set to Mexico against a Country field) and a Keep Only filter (set to Canada against a Country field), or an incorrectly-defined advanced filter expression (data must meet all criteria in multiple filters, rather than meeting criteria in a subset of those filters). See [Custom Filtering](#) for information on advanced filter expressions.

In rare cases, filters can conflict with view parameters, and you'll need to rename the field causing the conflict by editing the JRXML file. Refer to the JasperSoft Studio User Guide for more information about editing JRXML files.

For more information about:

- JRXML Topics and input controls, see [Adding Input Controls](#).
- Domain Topic filters, see [Creating Topics from Domains](#).
- Localizing input control prompts and lists of values, see [Localizing Reports](#).

Using Filters

Filters can be defined at three levels:

- In the Domain Designer.
- When creating a view from a Domain (with the Data Chooser).
- In the Ad Hoc Editor (even when the view is based on a JRXML Topic or OLAP connection).

In this section, we discuss how to define filters in the Ad Hoc Editor. For information on defining filters in the Domain Designer, see *JasperReports Server Data Management Using Domains*. For information on defining filters in the Data Chooser, see [The Pre-filters Page](#).


In addition, you can control how and what filters are applied to a field or fields by using custom expressions. For more information, see [Custom Filtering](#).





To create a filter in the Ad Hoc Editor

Procedure

1. Right-click a field in the Data Source Selection panel and select **Create Filter**. A new filter appears in the Filters panel. If the Filters panel was hidden, it appears when you create a new filter.



If the results are empty and you do not understand why, check for an incompatible combination of filters and input controls. Click  to compare the input controls with the filters in the Filters panel.

2. Use the fields in the filter to change its value. Depending on the datatype of the field you selected, the filter maybe multi-select, single-select, or text input.
3. Click  and select **Minimize All Filters** or **Maximize All Filters** to toggle expansion of the items in the filter.
4. Click  and select **Remove All Filters** to remove the filters.
5. Click  to hide the filter's details. Click  to display them again.
6. Click the **Select All** checkbox (if it appears in the Filters panel) to select all values currently available in the dataset. The **Select All** checkbox does not appear in the Filters panel for numbers and dates.

Note that the **Select All** checkbox does not guarantee that all values are selected every time the report runs. Instead, the checkbox is a shortcut to help you quickly select all the values currently available in the dataset. To ensure that all values appear in the view whenever it is edited or a report is run, remove the filter entirely. On the panel, you can also create a filter from the right-click context menu of a column in a table. On the Chart tab, you must right-click the field in the Data Source Selection panel.

When you change a filter, the server uses the filter's new value to determine what data to display. If you change only the operator in a filter, you must deselect the value in that filter, then reselect it to apply the updated filter.

For filters with multiple values, you do not need to reselect all values. After changing the operator, use Ctrl-click to deselect just one of the values, then Ctrl-click to reselect that value.

Relative Dates

You can filter information in your view based on a date range relative to the current system date. You can accomplish this using date-based filters, and entering a text expression describing the relative date or date span you want to display, using the format <Keyword>+/-<Number> where:

- **Keyword:** Indicates the time span that you want to use. Options include: DAY, WEEK, MONTH, QUARTER, SEMI, and YEAR. An option used by itself (without +/-<Number>) gives the current value for that option.
- **+ or - :** Indicates whether the time span occurs before or after the chosen date.
- **Number:** Indicates the number of the above-mentioned time spans you want to include in the filter.

For example, if you want to look at all Sales for the prior week, your expression would be: WEEK-1.

To create a relative date filter

Procedure

1. Following the instructions in [Using Filters](#), create a filter based on a date field. The filter appears in the Filters panel.
2. In the filter's first text entry box, enter an expression describing the relative date or date span you want to display.
3. In the filter's second text entry box, enter the date you want to base your filter on.
For instance, if you want to display all the sales numbers for one month before the current date, enter MONTH-1 in the first text entry box, and enter today's date in the second box.



When you right-click a group member in a crosstab and select Keep Only or Exclude, you create complex filters. When you create a filter against an inner group, the filter that appears may be created as a complex filter. You cannot edit a complex filter, but you can remove it. Complex filters also appear in the Ad Hoc Editor if a Data Chooser filter was created and locked.

Custom Filtering

When you create multiple filters they are, by default, connected with an implicit AND operator. That is, the data displayed in your table, chart, or crosstab is what remains after

all your filters are applied.

However, with the custom filter functionality, you can exercise greater control over the displayed data by applying a custom expression that includes more complex, nested AND, OR, and NOT operators, as well as by applying multiple filters to a single field.



Custom filters are not available for Ad Hoc views created from OLAP connections.

Custom filters are useful in a number of situations, including:

- When using the AND operator is not sufficient. Consider an international company that wants to view data for stores located on the Pacific Rim; they may create a custom expression with the following criteria:
 - Country is USA
AND
 - State is California OR Washington OR Oregon OR Hawaii OR Alaska.
OR
 - Country is Japan OR Indonesia
Using the AND operator for all of these criteria returns an empty view, as no store is located in all of those areas.
- When you need to eliminate some results in a field. For example, if your food and beverage distribution company wants to view sales for all drinks except for high-price items, you might include the following criteria in a custom expression:
 - Product Group is Beverages
NOT
 - Price is greater than 39.99
This filter displays all items in the Beverage Product Group, but filters out those with prices over \$39.99

These are only two scenarios where custom filters can hone your results and make your view more precise. There are, of course, many other situations where they can be applied.

In this section, we take you through these tasks:

- Creating a custom expression
- Editing a custom expression

- Removing a custom expression
- Applying multiple filters to a single field



Custom filters are applied to views, but filter details do not appear on previews or on the report generated from that view.

To create and apply a custom filter

Procedure

1. Create two or more filters for your data, as described in [Using Filters](#). These can be standard field-based filters, or Keep Only and Exclude filters.
Note that as you create the filters for use in a custom expression, you may find that the data in your view disappears, since most (if not all) of the data will not meet all of the filter criteria. When you create your custom expression and change some of the ANDs to ORs and NOTs, the data reappears in the panel.
2. At the bottom of the Filters panel, expand the Custom Filter Expression section.
3. In the text entry box, enter a filter expression using the letter designations, and including the following operators:
 - AND narrows your results and includes only fields that meet the criteria of both filters before and after the operator.
 - OR broadens your results and includes fields that meet the criteria of either filter before or after the operator.
 - NOT excludes results that match the criteria.
 - Parentheses combine multiple filters into a single item in the expression.



Filter letter designations are case-sensitive, and must be UPPERCASE.

4. Click Apply. Your view is updated to reflect the newly applied filter criteria.

After creating a custom filter, you may want to add another filter to the expression or remove one already included in the expression.



If the simple filter you want to delete is part of a custom filter, you must first remove it from the custom filter expression. Otherwise deleting the filter deletes the custom filter expression.

To add a new filter to an existing custom expression

Procedure

1. If necessary, create the new filter in the Filter panel.
2. In the Custom Filter Expression section, click inside the text entry box to edit the expression.
3. Add the new filter to the expression.
4. Click Apply to apply the new filter criteria.

To remove a filter from a custom expression

Procedure

1. Expand the Custom Filter Expression section.
2. In the text entry box, remove the unwanted filter from the expression and adjust the expression as needed.
3. Click Apply to apply the new filter criteria.



When working with custom expressions, you may decide to delete an expression and create a new one.

To remove a custom expression from a view

Procedure

1. Expand the Custom Filter Expression section.
2. Clear the expression from the text entry box.
3. Click Apply. The expression is removed, leaving the remaining filters intact.

When you refine your custom expression, you may also want to delete unused filters from the Filters panel.

- If the filter you want to remove is not part of the custom filter, hover your mouse over  in the filter's title bar and select Remove Filter.
- If you want to remove all existing filters, including the custom expression, hover your mouse over  in the upper right corner of the Filters panhandle and select Remove All Filters.

You can apply multiple simple filters to a single field, if needed further to refine your custom filter results. For example, a user may want to view the data in the Shipping Cost field, but only when it meets certain criteria combinations:

- When shipping costs to French cities with postal codes that begin with the number 5 are under five Euros.
- When shipping costs to German cities with postal codes that begin with the number 1 are under five Euros.



You can recreate the scenario below using the demo for an ad hoc topic.

In the following example a user has a table including the following columns:

- Country
- Postal Code
- Shipping Charge

To analyze the specific shipping costs described above, the user creates the following (simple) filters - including two filters each for the Country and Postal code fields:

- A. Country equals France.
- B. Postal code starts with 5.
- C. Country equals Germany.
- D. Postal code starts with 1.
- E. Shipping Charge is less than 5.


Then, to display only the information she needs, she creates the following custom expression:

- ((A and B) or (C and D)) and E

This translates to:

- ((FRANCE and POSTAL CODES THAT START WITH 5) or (GERMANY and POSTAL CODES THAT START WITH 1)) and SHIPPING CHARGES LESS THAN 5 EUROS.




Using Input Controls

In the Ad Hoc Editor, you can display the input controls defined in the Topic as visible to users. You can accept the controls' default values or enter other values. The Ad Hoc Editor indicates that the view has input controls by displaying an input control icon  as active on the tool bar. Click this icon to select new values or to save values as the new defaults for this view.

There are two types of input controls: Single-select and multi-select. The input control type is determined by the operator that you use. In turn, the available operators are determined by the field type (date, text, numeric, or boolean) you use as a filter.

Single select controls present a calendar or dropdown list of values, from which you can choose a single value. To create this type of input control select one of the following operators:



- equals
- is not equal to
- is greater than
- is less than
- is greater or equal to
- is less or equal to
- contains
- does not contain
- starts with
- does not start with
- ends with
- does not end with
- is before
- is after
- is on or before
- is on or after

Multi-select controls display a calendar or dropdown list of values, from which you can choose multiple values. You can click to select individual values or shift-click to select multiple sequential values. You can also search for values,  select all available values,  deselect all available values, or  invert the selection. A Selected tab shows only items that are selected and allows you to delete them. To create this type of input control select one of the following operators:

- is one of
- is not one of
- is between
- is not between

To add an input control to the view using a filter

Procedure

1. Create a new filter or use an existing one in the Filters panel.
2. In the Filters panel, click the operator dropdown menu in the filter's title bar.
3. Select an operator from the dropdown. The operator you select determines whether the input control is single-select or multi-select.
4. Click Apply. The filter appears as an input control when the view is used to run the report.
5. Place your cursor over  and select Save Ad Hoc View as.
6. Name the view, select a location, and click Save.
7. On the tool bar, click .

Only the input controls defined in the topic appear here. Again, if no input controls were defined in the topic, the button appears inactive. You can create a report and open it in the Report Viewer to see a filter listed as an input control.

To edit the values for a view's input controls

Procedure

1. On the tool bar, click . A window listing the input controls defined in the Topic

appears.



The Parametrized Report Topic already includes three input controls created when the report was uploaded: Country, RequestDate, and OrderId.

2. Select new values. For example, select USA from the Country dropdown.
3. To change default values of input controls, select the checkbox, Set these values as defaults when saving your view. The selected values become the default values when you save the view.
4. Click OK. The Ad Hoc view shows USA data.

Input Controls and Filters Availability

Input controls and filters can appear in the Editor and when a report runs:

- Input controls can be set to be visible or invisible when you edit a view:
 - Input controls set to Always prompt are displayed in the editor and always appear before the report is run.
 - Input controls that are not set to Always prompt are always hidden in the editor and hidden when the report is run.
- Filters defined in the Domain design are always hidden in the editor and when the report is run.
- Filters created in the Data Chooser can be locked or unlocked:
 - Filters that are unlocked display filter information in the editor and are available from the Options button when the report is run.
 - Filters that are locked display input controls in the editor when you see the view in display mode but are not available from the Options button when the report is run. Users can remove the filter while in the editor, allowing them to see all the data unfiltered when the report is run.
 - You cannot change whether the filter is displayed after the report is created.
- Filters defined in the editor are always available in the Filters panel of the editor and from the Options button when the report is run.

When setting up input controls for a huge view that takes a long time to run, consider setting the view to Always prompt. Before a report is run, the Report Viewer prompts you

to provide the input options, preventing the report from running with the default input options.

Filters that are unlocked are available. When input controls or filters do not appear in the Report Viewer, click the Options button to view them. You can learn more about how filters and input controls interact in the editor by walking through the data exploration tutorial with the Filters panel open.

To set an input control to always prompt

Procedure

1. Locate a Topic, such as the Parametrized Report Topic, in the repository and click Edit.
2. On the Controls & Resources page of the JasperReport wizard, under Input Control Options, select Always prompt:

To determine whether an input control is visible

Procedure

1. Locate a Topic, such as the Parametrized Report Topic, in the repository and click Edit.
2. On the Controls & Resources page, click the name of an input control, such as Country.
3. On the Locate Input Control page, click Next.

At the bottom of the Create Input Control page, if the Visible checkbox is selected, the input control appears on the report when it runs. For more information, see [Adding Input Controls](#).




If you do not provide a default value for the input control, users are prompted to select a value when they create a view based on the Topic.

To lock a filter

Procedure

1. Click Create > Ad Hoc View.

2. In the Select Data wizard, click  and browse to Domains to create a new view based on a Domain.
3. Click Choose Data.
4. In Fields, move tables and fields from Source to Selected Fields.
5. Click Pre-filters.
6. Double-click a field in the Fields panel.
7. In the Filters panel, define a filter as described in [The Pre-filters Page](#).
8. Check the Locked checkbox, and click OK.
9. Click Table to open the Ad Hoc Editor.

In the Filters panel, the name of the filter and a note about the lock appears under the heading Locked.

Creating a View from a Domain


Like Topics and OLAP connections, administrators and data analysts create Domains for reuse to simplify access to data during view design. Domains give view makers more flexibility than Topics in choosing fields from the database and allow filtering of the data before it is included in a view and the subsequent report.

A view based on a Domain can prompt the user for input that determines what data is presented. For example, if a Domain includes all sales data for a company, the view can present detailed information grouped by postal code and prompt the user to select the geographic area, such as a US state. The view displays only the pertinent information.

For a more complete description of how to create Domains, see *JasperReports Server Data Management Using Domains*.

To begin create a basic view from a Domain

Procedure

1. On the Home page, click Create > Ad Hoc View. The Select Data wizard opens.
2. Click  and navigate to Domains. A description of the selected Domain appears at the bottom of the Domains tab.

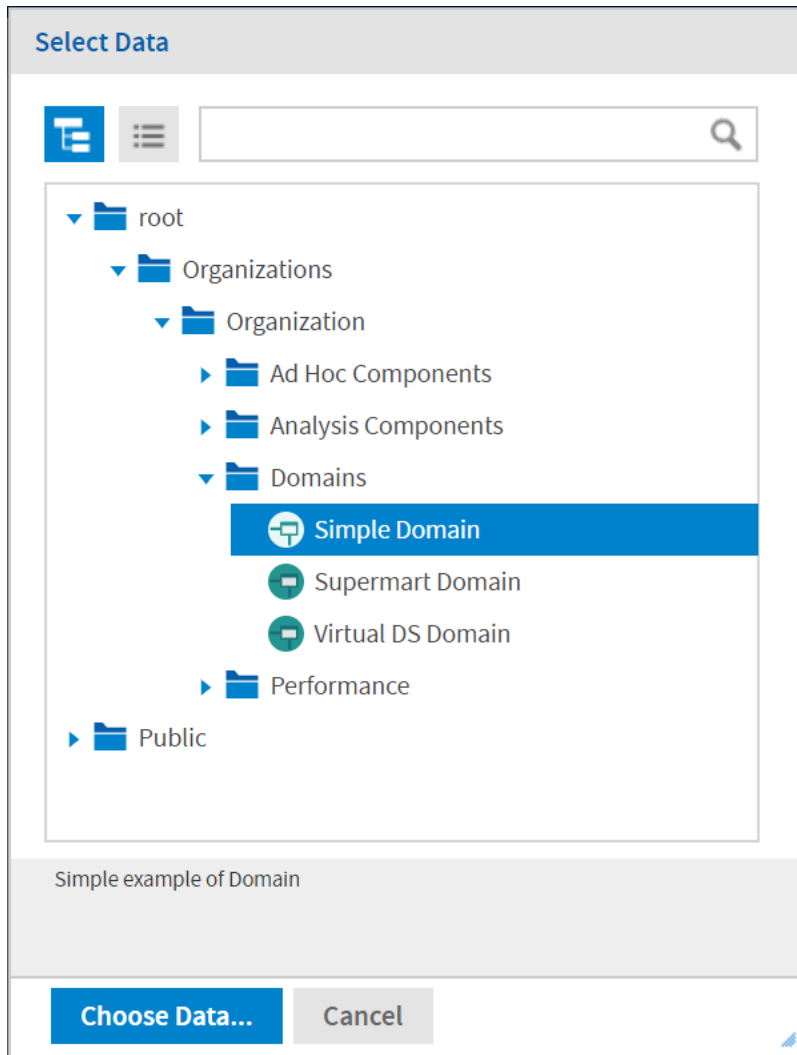


Figure 108: Simple Domain Selected in the Select Data Dialog

3. Select the domain you want to use.
4. Click Choose Data. the Data Chooser opens to the Fields page.
You are now ready to configure your data using the Data Chooser Wizard.

Referential Integrity


When you create an Ad Hoc view from a Domain, the two elements are connected - the data in the view is dependent on the Domain. This relationship affects users working with the Domain and the dependent view in a number of ways:

- When an item or items from the Domain are used in the dependent Ad Hoc view, removing the items from the Domain will result in a Missing Data error message when opening the Ad Hoc view in the editor. The user is prompted to remove the items from the Ad Hoc view. The removed items no longer appear in the Data Source Selection panel when the editor opens.
- Items not used in dependent views can be removed from the Domain by the Domain's administrator; those items no longer appear in the view's Available Fields list.

Using the Data Chooser Wizard

To design a Domain Topic or a view based on a domain, use the Data Chooser wizard. To open the Data Chooser wizard:

Procedure

1. Click Create > Ad Hoc View.
2. Click  and browse to a Domain, then click Choose Data to access the following pages of the Data Chooser:
 - [The Select Fields Page](#)– Choose the fields to make available in the Ad Hoc Editor.
 - [The Pre-filters Page](#)– Define a filter on any field, with the option of prompting for user input, or to compare fields.
 - [The Display Page](#)– Change the order and names of fields that appear in the Ad Hoc Editor.
 - [The Save as Topic Page](#)– Save the settings as a Domain Topic.

Start by selecting some fields on the Select Fields page, but the other three pages are optional and can be completed in any order. Click Table, Chart, or Crosstab at any time to begin designing a view based on the chosen data.

The Select Fields Page

Use this page to choose fields and sets of fields to use in the view or make available in the Domain Topic:

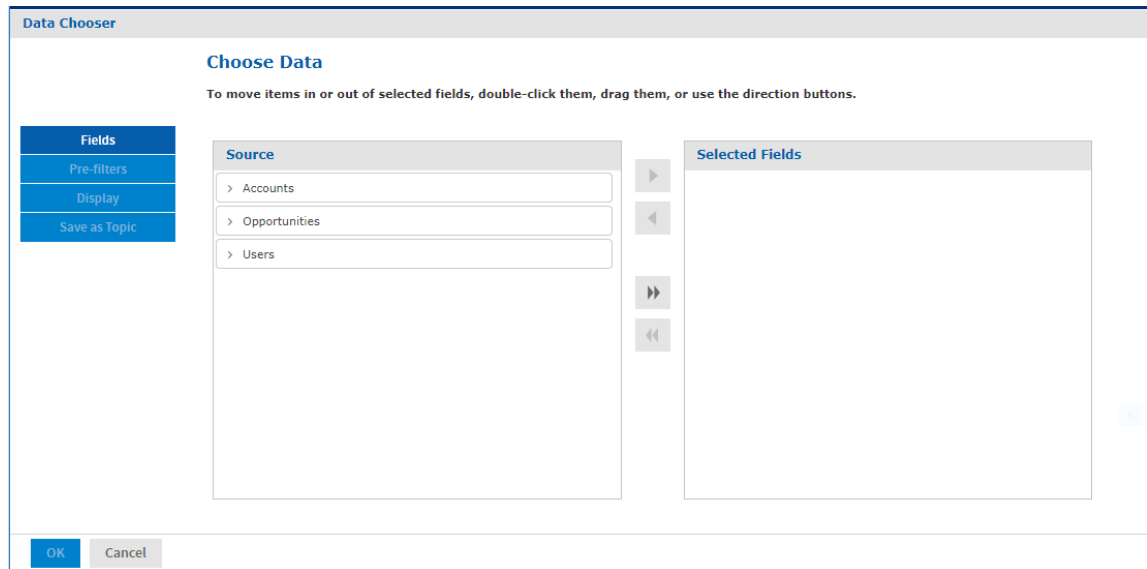



Figure 109: The Fields Page of the Data Chooser

- The Source panel displays the sets of fields in the Domain. Use ▼ and ► to collapse or expand each set.
- The Selected Fields panel shows the items that you selected. You can move a field or set back and forth between the panels by dragging, double-clicking, or selecting the item and clicking an arrow button, such as  .
- When you select any field from a set in the Source panel, the set name appears with the field in the Selected Fields panel. If you do not want sets, then use the settings on the Display page.
- Some Domains define sets that are not joined, also called data islands. When you select a field from such a set, the behavior on the Select Fields page depends on how the joins were created in the Domain:
 - If the Domain uses basic joins, the unjoined sets are not available. The Domain Designer only creates basic joins.
 - If the Domain uses advanced joins, all joins are available regardless of the join set of the fields you add. In this case, you must manually make sure that you do not add fields that are in different data islands to a single Ad Hoc view. Otherwise you receive errors when attempting to work with the view.

The Pre-filters Page

You can pre-filter the data in the Data Chooser before launching the Ad Hoc Editor or creating a Domain Topic. Pre-filtering data limits the data choices available in a Domain Topic or the fields that ultimately appear in the Ad Hoc view. You can also define a filter on a field that does not appear in the final report. The filter is still applied and only data that satisfies all defined filters appear in the final report. For example, you can filter data to select a single country, in which case it does not make sense for the Country field to appear as a row, column, or group. You can also design reports that prompt users to input data to use as a filter.

The Pre-filters page provides powerful functionality for designing views within the server.

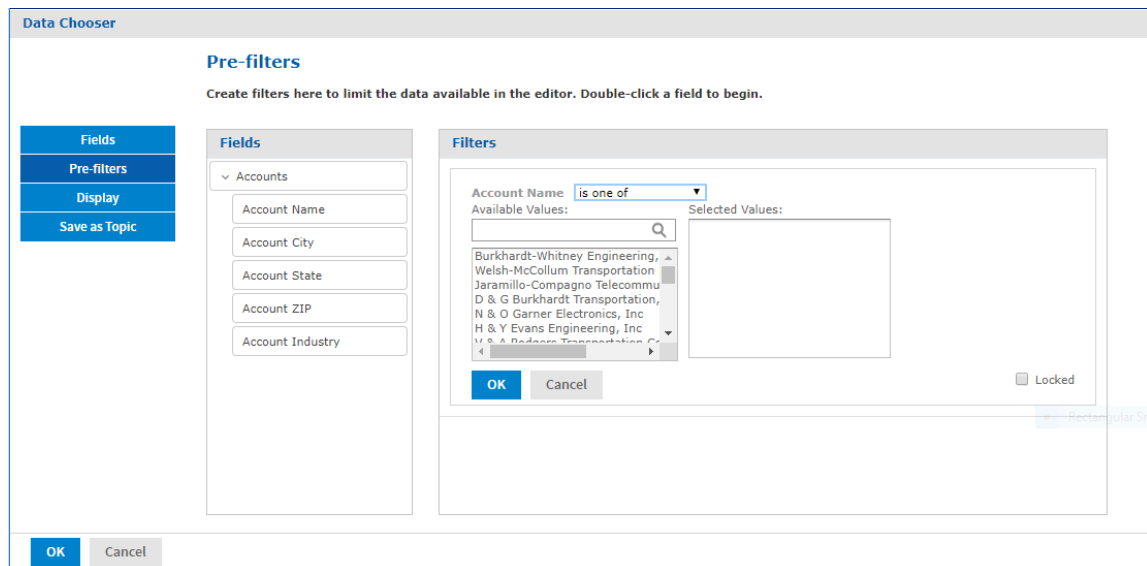


Figure 110: Condition Editor in the Filters Panel on the Pre-filters Page

To define a filter

Procedure


1. In the Data Chooser, click Pre-filters.
2. Expand the options in the Fields panel.
3. Double-click to select a field in the Fields panel. Choices appear for filtering the selected field:
4. Choose a comparison operator.

Text fields have both substring comparison operators such as “starts with” or “contains” and whole string matching such as “equals” or “is one of”. When you select a whole string matching operator, a list appears to show all existing values for the chosen field retrieved in real time from the database.

In the Filters panel, a dropdown appears to contain the account names from which you can select multiple values.

5. Click each value for comparison in Available Values to move it to Selected Values. The account names appear in Selected Values.



If there are more than 50 Available Values, click  to search for the value. The maximum number of items that can be displayed in Available Values is configurable. For details, see the JasperReports Server Administrator Guide.

6. To limit the view design to the four account names in Selected Values, check the Locked checkbox.

By default, the Locked checkbox is unchecked, making the filter available to end users running the report.

In the Report Viewer, users can click the Options button to enter a comparison value for this condition. When the user clicks Apply or OK, the report preview refreshes with data that match the condition. The condition is available as a prompt even if the filtered field does not appear in the report. For example, the final report might present data for a single country, but the country is chosen by the user. Once defined, filter prompts can be modified in the Ad Hoc Editor, as explained in [Using Input Controls](#).

Note that when the Locked checkbox is checked, the filter is not available to end users running the report. The condition can be removed from the view, if needed, but not edited.

7. Click OK to create the filter.
The Filters panel shows the filters that you have defined.
8. In the Filters panel, click Change to modify the condition. Click OK to save the changes. After selecting a row, you can also click Remove to delete it from the list.



Data rows must match all conditions. In other words, the overall filter applied to the data is the logical AND of all conditions you have defined.

The Display Page

Use the Display page to change the default label and order of the fields as they should appear in the list of fields in the Ad Hoc Editor. You can always change the field labels and order in the Ad Hoc Editor, but setting them here makes them available in a Domain Topic. The page includes these options:

- To change the order of fields, click once anywhere in a field's row and use the Move to top, Move up, Move down, or Move to bottom buttons:



Fields may be moved only within their set, but sets as a whole may also be moved.

- By default, the field name becomes the display label for the row, column, or measure that you create from it. To change the default display label of a field or set, double-click anywhere in the row and type the new label in the text box.
- Sets and the fields they contain appear in the list of fields in the Ad Hoc Editor. Sets are not used in views, but can be used to add all their fields at once, expediting view creation.
- If you do not want to use sets in the Ad Hoc Editor, select Flat List at the top of the Data Source Selection panel. You can now relabel the fields and reorder them.

The Save as Topic Page

Here you can enter a name and a description to save the Data Chooser settings as a Domain Topic. Thereafter, you can create different views from the Domain Topic, using its fields, filters, and display label settings. You can also edit the Domain Topic to change the settings.

If an administrator has enabled the Data Staging feature, you can turn data staging on for your domain topic. With data staging, the entire dataset for a Domain Topic is indefinitely cached in the server's Ad Hoc cache. Ad Hoc views and reports from that Domain Topic run faster because they fetch data from the local cache, not by querying the production database. To keep data fresh, you can specify a refresh interval, and the server will periodically access the database in the background to reload the entire dataset.

- By default, Domain Topics are saved in the standard Topics folder. This corresponds to the Ad Hoc Components > Topics location in the repository; JRXML Topics and

Domain Topics in this folder appear on the Topics tab when you start a view. Do not modify this folder name.

- The description text appears with the Domain Topic in the repository and at the bottom of the Topics tab on the Ad Hoc Source dialog. Enter an informative description that helps users understand the nature and purpose of this Domain Topic.

Working with Topics

When a user clicks Create > Ad Hoc View on the Home page, the Select Data wizard offers a path to the list of Topics populated from the Ad Hoc Components/Topics folder in the repository. There are two types of Topics:

- JRXML-based Topics—Created by administrators using Jaspersoft Studio and uploaded as JRXML files to the proper location in the repository. Topics are typically of this type.
- Domain Topics—Created from a Domain by administrators using JasperReports Server.

Either type of Topic is an empty view associated with a data source in the server, and is then built on in the Ad Hoc Editor.

Uploading a Topic Through the Web UI

JRXML-based topics are the most common type of topic. You can upload previously created JRXML topics via the repository.

To upload a JRXML-based Topic

Procedure

1. Log in to the server as an administrator and select View > Repository.



While any user with sufficient repository permissions can upload a Topic to the server, this example requires an administrator login to access the JServer Jdbc data source.

2. Locate the folder where Topics are stored. The location of the Topics folder depends

on your system configuration. By default, Topics are in the Ad Hoc Components > Topics folder.

3. Right-click the Topics folder name and select Add Resource > JasperReports® from the context menu. The Set Up the Report page of the Jasper Report wizard appears.



Add Resource appears on the context menu only if your login account has write privilege to the folder.

4. In the Set Up the Report page, give the Topic a name, a Resource ID, and an optional description, then click Next.
 - The Name field is the visible name of the file in the repository, such as Example Topic.
 - The Resource ID field is the internal ID of the object, such as Example_Topic. The server does not accept spaces in an internal ID.
 - The Description field, such as Topic uploaded for User Guide example, helps users understand the purpose of the file.
5. In the Locate the JRXML File section, select Upload a Local File, and click Browse to locate the file and upload the Topic from the file system. In this example, the file is <js-install>/samples/adhoc/topics/adhoc_sample.jrxml.



To locate adhoc_sample.jrxml, you need access to the server host file system.


6. Click Data Source.



Because this is a simple Topic without parameters, there are no controls and resources associated with it. If the Topic has a Parametrized query, you can create input controls for it. See [Selecting a Data Source for Running the Complex Report](#). Such input controls can appear in the Ad Hoc Editor and when the report is run.

7. Click Select data source from repository and Browse to locate the data source named Data Sources/JServer Jdbc data source.
8. Select Data Source, then click Select. Topics must be associated with the data source that they were designed for.
9. Click Submit at the bottom of the screen.

Topics usually do not need a query or customization, but you can define them.

When you select Create > Ad Hoc View and click  in the Select Data wizard, you can browse to Ad Hoc Components > Topics. If you select the Example Topic, you can create a report using the columns available in the data source selected in [step 7](#).

The JRXML file that the Topic is based on must contain a query and a field list.



Any report layout in the Topic's JRXML file is ignored by the Ad Hoc Editor. We recommend that a Topic's JRXML file not include anything other than the query and field list.

When you create a JRXML file for use as a Topic, you can specify the name to display for each field that the Topic returns. To do so, define a field property named `adhoc.display` for each field declared in the JRXML. The `adhoc.display` field property must have the following syntax:

```
<property name="adhoc.display" value="Any Name"/>
```



If the Topic includes fields with unusual datatypes, those fields do not appear in the Ad Hoc Editor because it is not equipped to manage them properly. For example, if the Topic is defined against a MongoDB instance that returns data of type array, this field is not available in the Ad Hoc Editor. For more information on datatype support in the Ad Hoc editor, see the JasperReports Server Administrator Guide.

For example, this JRXML code declares a `StoreState` field that is displayed in reports as `Store State`:

```
<field name="StoreState" class="java.lang.String">
  <property name="adhoc.display" value="Store State"/>
</field>
```

Topics also support the `$R` expressions for field names; for more information, see [Localizing Reports](#).

For fields in a non-domain topic the following properties may be of interest:

- `dimensionOrMeasure`: Marks a field as a field or a measure.
- `defaultAgg`: Which aggregation should be used for this measure (avg, etc.).
- `semantic.item.desc`: A description for the field.
- `defaultMask`: Set a measure as a \$, date etc.

For more information on working with JRXML topics, see the JasperReports Studio User Guide.

Creating Topics from Domains

In some circumstances it is important to create a Topic based on the Domain and data settings you chose, but it's not always necessary. The main consideration is how reports based on the Domain-based view are used. The following table explains the choices.

If you want to ...	Then do this	Explanation
Create a single-use report from the Domain with your settings.	Click Table, Chart, or Crosstab after defining your settings in the Data Chooser, then format the view and create your report.	Your field selections appear in the Ad Hoc Editor and you can create views from them, but the settings themselves are not saved.
Run a report repeatedly as is or with prompting for new input, or make very similar reports in the Ad Hoc Editor.	Click Table, Chart, or Crosstab after defining your settings in the Data Chooser, then format and save the view in the Ad Hoc Editor.	After you save a view, users can create reports to be run from it repeatedly and be prompted for input each time if you defined unlocked filters.
Reuse your field, filter, and display settings on this Domain to create new views with different formatting.	After saving your settings as a Domain Topic in the Data Chooser, start a new view and choose your Domain Topic from the Domains tab.	Domain Topics are saved in JRXML format in the repository. They appear on the Topics tab when you start a view.
Be able to modify one or more of the settings you made in the Data Chooser wizard.	After saving your settings as a Domain Topic in the Data Chooser, find your Domain Topic in the repository and open it in the Domain Designer.	Domain Topics can be edited as described in Editing a Domain Topic . After you save your changes, you can create views based on the modified Domain Topic.
Create views from the same repository data source but with different Domain settings, such as	Edit the Domain and save it with a new name. Then start a new view and choose your data from	Domains provide advanced functionality such as table joins and derived fields based directly on a data source. Domains usually require

If you want to ...	Then do this	Explanation
derived fields and different joins to make new fields available in a report.	the new Domain.	administrator permissions to create and modify.


Warning:

Ad Hoc views based on Domain topics may return duplicate data if Data Staging is enabled.

Access Permissions in Domain Topics

If other users create reports from your Domain Topic-based view, and the Domain is configured for security, it's important to consider everyone's access permissions. You might not have access to all of the fields in the Domain nor to all the data in those fields. There may be fields that can be seen only by other users, and in the fields that you can see, some data may be hidden from you. When you save the Domain as a Topic, only the fields that you selected appear in the Domain Topic. When you create a view from the Topic, only the data that you can access in those fields appears. When others create views from the Topic, they see only fields that they have permission to access. These rules also apply to the reports generated from these views.

For example, in a Domain, user Tomas can access fields B-C and data rows 1-3; Anita can access fields C-E and data rows 2-5. Tomas uses the Data Chooser and saves a Domain Topic based on the Domain. When Tomas and Anita create reports from the same view, they see different combinations of fields and the data in them.

	Fields	Data
Tomas's report from his Domain Topic	B C	1 2 3
Anita's report from the same Domain Topic	C	2 3 4 5

Even though Anita has permission to see more fields, they're not available to her because Tomas did not have access to them when he created the Domain Topic. However, Anita does have permission to see more data than Tomas, so when she creates a view, or opens

or runs the report based on that view, she can see more rows than Tomas can when he views the report. See the JasperReports Server Security Guide for a technical explanation of data security for Domains.

Saving Domain Settings as a Domain Topic

To save settings in the Data Chooser wizard as a Domain Topic

Procedure

1. While making selections in the Data Chooser, navigate to the Save Topic page.
2. Enter a Topic name and description.
Do not change the location folder. Using the default /adhoc/topics folder makes the saved Domain Topic available in the Ad Hoc Components > Topics folder when you select Create > Ad Hoc View.
3. If your data selections, filter definitions, and display settings are complete, click Table, Chart, or Crosstab.



If settings are incomplete, navigate to the other pages to finish, then click Table, Chart, or Crosstab

The new Topic appears in the Ad Hoc Components > Topics folder.

Because a Domain Topic is a type of report, it appears when the Search page is filtered to show reports:

Editing a Domain Topic

You can modify a Domain Topic you created using the Data Chooser.

To edit the settings in a Domain Topic

Procedure

1. Select View > Repository and search (or browse) for the Domain Topic you want to modify. Domain Topics are usually kept in the Ad Hoc Components > Topics folder.
2. Right-click the Domain Topic and select Open in Designer from the context menu.

The Domain Topic opens in the Data Chooser wizard.

3. Follow the guidelines in [Using the Data Chooser Wizard](#) to edit the Domain Topic as needed.
4. To save changes to the selected Domain Topic, click Table, Chart, or Crosstab on any page.



Warning:

Use caution when editing Domain Topics that may have been used to create other views. Users relying on the Domain Topic might receive unexpected data or errors. It's safer to save changes as a new Domain Topic.

To save changes as a new Domain Topic, navigate to the Save as Topic page and enter identifying information for the new Topic, then click Table, Chart, or Crosstab.

User Favorites

JasperReports Server user Favorites enables you to add the repository resources to your Favorites. By adding repository objects to Favorites, you can access frequently used files quickly in your Favorites. Using user Favorites, you can add, remove and access the repository objects in the Favorites list, including reports, dashboards, Ad Hoc views, domains, and data sources.

This chapter includes the following sections:

- [Adding Resources to Favorites](#)
- [Removing Resources from Favorites](#)
- [Accessing Favorites](#)

Adding Resources to Favorites

User Favorites lets you add the repository objects using a star icon or option in the context menu. You can add the multiple objects of different types to your Favorites list in the following ways:

File Listing Page

You can add the items to Favorite in the Library page, Repository page, and Search Results page. In the Library page, you can add only Ad Hoc views, reports, and dashboards to the Favorites list, while in the Repository page and Search Results page, you can add reports, dashboards, Ad Hoc views, domains, data sources, and other files also to the Favorites list.

The following example shows you to add items in the Library page.

To add an item to Favorites using the star icon

Procedure

1. Click Library and hover over the library list.

2. Select any item from Ad Hoc views, dashboards, and reports and click the star icon to the left of the item name. The item will be added to Favorites.
3. Repeat the step 1 and step 2 to add more items to your Favorites list.

The screenshot shows the TIBCO Jaspersoft interface. At the top, there is a navigation bar with 'TIBCO Jaspersoft' logo, a home icon, and menu items: 'Library', 'View', 'Manage', and 'Create'. On the right, it shows the user 'superuser' and options for 'Help' and 'Log Out'. Below the navigation bar is a search bar and a 'Show favorites only' toggle switch. The main content is a table titled 'Library' with columns: 'Name', 'Description', 'Type', 'Created Date', and 'Modified Date'. The table contains several rows, with two rows highlighted in blue and marked with a star icon in the left margin, indicating they are favorites. The highlighted rows are '02. Sales Mix by City Report' and '04. Product Results by Store Type Report'.

Name	Description	Type	Created Date	Modified Date
01. Geographic Results by Segment	Sample Multi-axis column chart from Domain showing Sales, Units, and \$ Per Squ...	Ad Hoc View	Yesterday	10/16/2019
01. Geographic Results by Segment Report	Sample Report containing hyperlinks and a map	Report	Yesterday	10/17/2019
★ 02. Sales Mix by City	Sample Spider chart from Domain data source and multi-select filter	Ad Hoc View	Yesterday	8/28/2019
★ 02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with an in page multi-sele...	Report	Yesterday	8/28/2019
03. Store Segment Performance	Sample Gauge Chart with multi-select filter from a Domain	Ad Hoc View	Yesterday	10/11/2019
03. Store Segment Performance Report	Sample Gauge Report Created from an Ad Hoc View with multi-select pop-up filter	Report	Yesterday	10/11/2019
04. Product Results by Store Type	Sample Filtered Table Report Showing Multiple Measures	Ad Hoc View	Yesterday	8/28/2019
04. Product Results by Store Type Report	Sample Filtered Table Report Showing Multiple Measures. Created from Sample A...	Report	Yesterday	8/28/2019

Figure 111: Item Added to Favorites

Similarly, you can add the other files to the Favorites in Repository page and Search Results page.

To add an item to Favorites using the context menu

Procedure

1. Click Library and hover over the library list.
2. Select a report you want to add to Favorites.
3. Right-click the report and select Add to Favorites from the context menu.
4. To select multiple items, use the shift or control key with arrow keys, and then right-click the selected items and select Add to Favorites from the context menu. The multiple items will be added to Favorites at once.

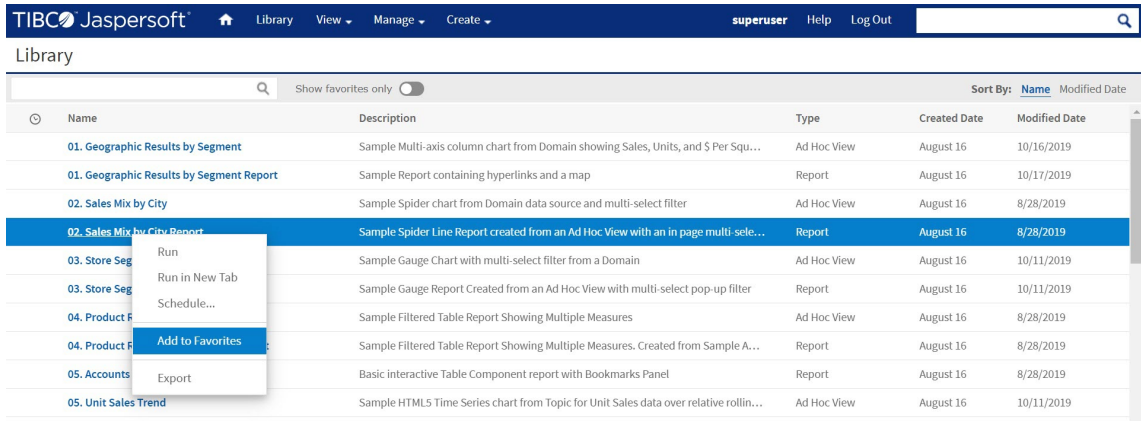


Figure 112: Adding Report to Favorites

Each object type has different options in its associated context menu. See the table below for the Add to Favorites option for each object type.

Object Type	Library	Repository Browse	Repository Search
Ad Hoc Views	<ul style="list-style-type: none"> Open Create Report <li style="background-color: #0070C0; color: white;">Add to Favorites Export 	<ul style="list-style-type: none"> Open Create Report <li style="background-color: #0070C0; color: white;">Add to Favorites Copy Cut Delete Permissions... Properties... Export 	<ul style="list-style-type: none"> Open Create Report <li style="background-color: #0070C0; color: white;">Add to Favorites Delete Permissions... Properties... Export

Reports

Run
Run in New Tab
Schedule...
Add to Favorites
Export

Run
Run in New Tab
Run in Background...
Schedule...
Edit
Add to Favorites
Copy
Cut
Delete
Permissions...
Properties...
Export

Run
Run in New Tab
Run in Background...
Schedule...
Edit
Add to Favorites
Delete
Permissions...
Properties...
Export

Dashboards

Run
Run in New Tab
Schedule...
Open in Designer...
Add to Favorites
Export

Run
Run in New Tab
Run in Background...
Schedule...
Open in Designer...
Add to Favorites
Copy
Cut
Delete
Permissions...
Properties...
Export

Run
Run in New Tab
Run in Background...
Schedule...
Open in Designer...
Add to Favorites
Delete
Permissions...
Properties...
Export

Data Sources

Domains

Edit
Add to Favorites
Copy
Cut
Delete
Permissions...
Properties...
Export

Edit
Add to Favorites
Delete
Permissions...
Properties...
Export

Datatype

Input Control

Content Resource

List of Values

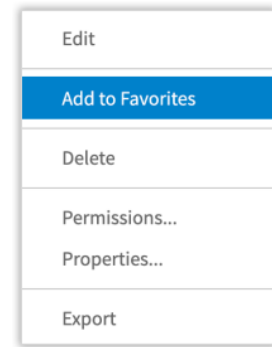
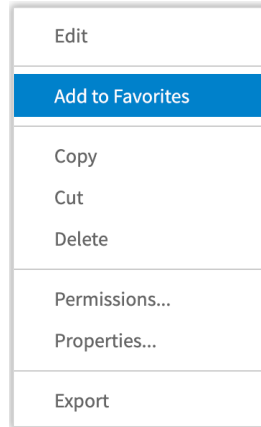
OLAP Client

Connection

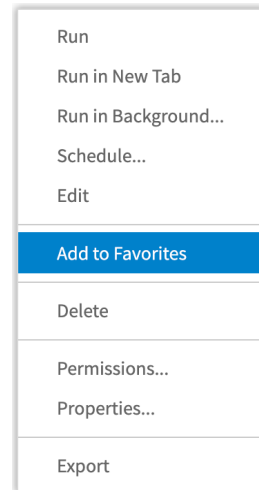
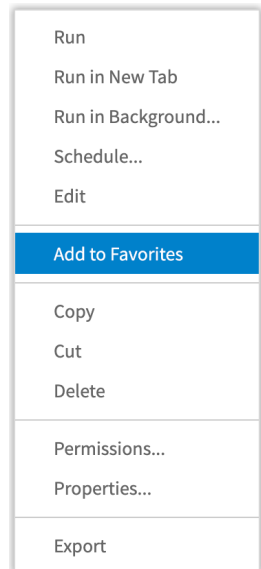
Mondrian XML/A

Source

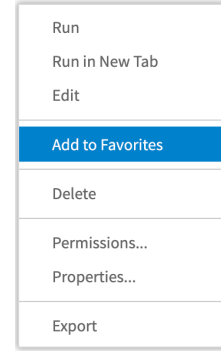
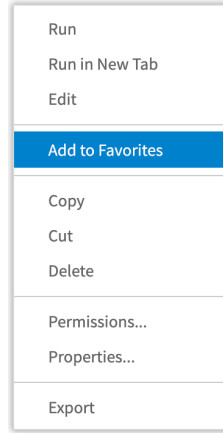
Query



JasperReport



OLAP View



File:

Access Grant

Schema

Content Resource

CSS

Font

Image

JAR

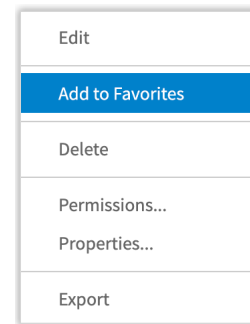
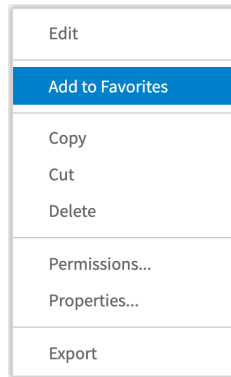
JRXML

OLAP Schema

Resource Bundle

Style Template

XML



Removing Resources from Favorites

Like you have added the resources to Favorites, you can also remove multiple resources of different types from the Favorites list. Resources can be removed from Favorites list in file listing page.

File Listing Page

From the Library page, Repository page, and Search Results page, you can remove any file from Favorites list either by deselecting the star icon or selecting Remove from Favorites option from the context menu.

For example:

- To remove a report listed in Favorites from the Library page, locate the report and deselect the star icon to the left of the report name. You can also remove multiple files by deselecting the star icon.

The figure consists of two screenshots of the TIBCO JasperSoft Library interface. The top screenshot shows a table of reports with a star icon next to '02. Sales Mix by City Report'. A callout box with an orange border and arrow points to the star icon, containing the text 'Deselect the star icon to remove report from Favorites'. The bottom screenshot shows the same table, but the star icon next to '02. Sales Mix by City Report' is now a hollow star, indicating it has been removed from favorites. The table columns are Name, Description, and Type.

Name	Description	Type
★ 01. Geographic Results by Segment	Sample Multi-axis column chart from Domain showing Sales, Units, and \$ Per Squ...	Ad Hoc View
01. Geographic Results by Segment Report	Sample Report containing hyperlinks and a map	Report
02. Sales Mix by City	Sample Spider chart from Domain data source and multi-select filter	Ad Hoc View
★ 02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with an in page multi-sele...	Report
03. Store Segment Performance	Sample Gauge Chart with multi-select filter from a Domain	Ad Hoc View
03. Store Segment Performance Report	Sample Gauge Report Created from an Ad Hoc View with multi-select pop-up filter	Report
04. Product Results by Store Type	Sample Filtered Table Report Showing Multiple Measures	Ad Hoc View
04. Product Results by Store Type Report	Sample Filtered Table Report Showing Multiple Measures. Created from Sample A...	Report
★ 05. Accounts Report	Basic interactive Table Component report with Bookmarks Panel	Report
★ 05. Unit Sales Trend	Sample HTML5 Time Series chart from Topic for Unit Sales data over relative rollin...	Ad Hoc View

Figure 113: Removing Report from Favorites using Star Icon

Similarly, you can remove other files listed in Favorites from the Repository page and Search Results page.

- To remove a report from the Favorites list in the Library page, locate the report, right-click it and select Remove from Favorites option from the context menu. You can also remove multiple items from Favorites at once. To select the starred items, use shift or control key with arrow keys, and then right-click the selected items and select Remove from Favorites from the context menu.

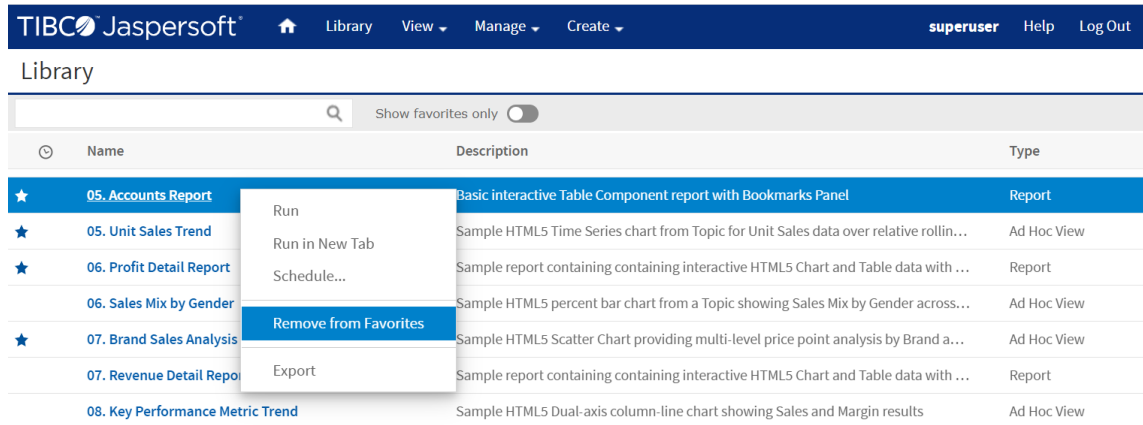


Figure 114: Removing Report from Favorites using Context Menu

Similarly, you can use Remove from Favorites option from the context menu in Repository page and Search Results page.

Accessing Favorites

Once you have added the items to Favorites, you can access those items quickly in your Favorites list. The Favorites list can be accessed in the following ways:

- Home page - On the Home page, a Favorites list appears above the Recent Items list. The Favorites list displays the top five runnable items, sorted alphabetically, such as reports, Ad Hoc views, OLAP views, and dashboards. You can access these items by clicking them, if you want to see the list of all items added to Favorites, click See all Favorites. This takes you to the Search Results page with the Favorites filter.

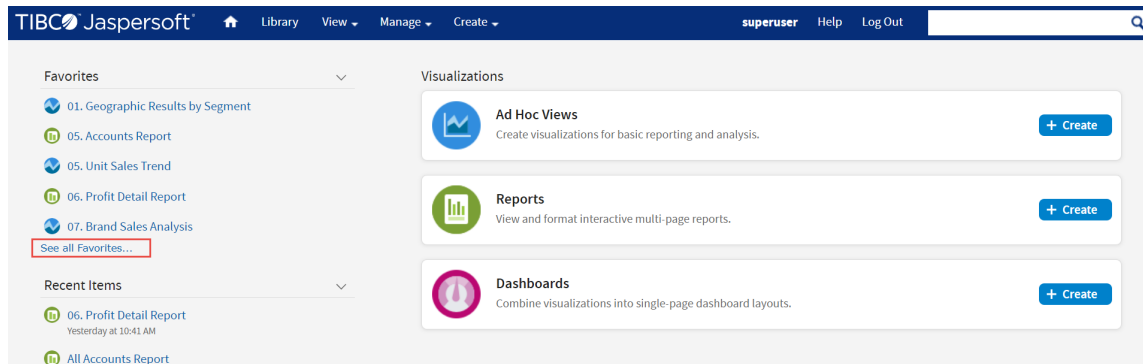


Figure 115: Favorites option on Home Page

- View Menu - In the View menu, the Favorites option is available. When you select the Favorites option, the Search Results page appears with the Favorites filter selected in the left panel.

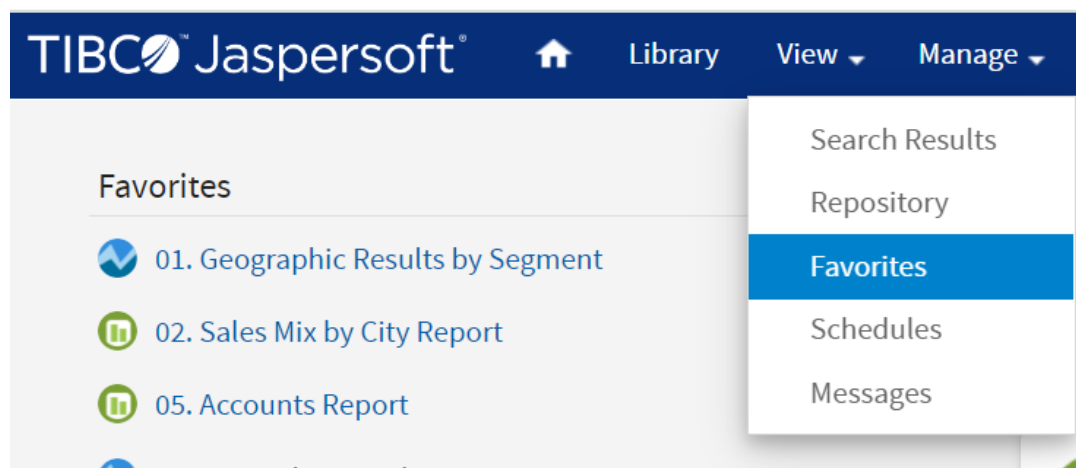


Figure 116: Selecting Favorites from View Menu

- Search Results Page - On the Search Results page, in the Filters panel, the Favorite Status section allows you to filter the list and show a list of items that are added to Favorites. When you click the Favorites filter, the Favorites list displays all the items added to Favorites.

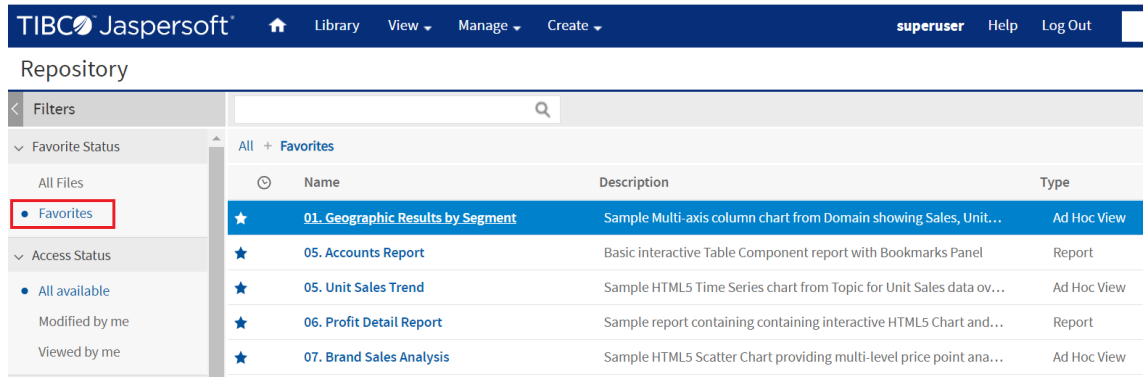


Figure 117: Favorites Filter on Search Results Page

- Repository Page - You can access the reports, dashboards, and other files with the solid blue star icon on the Repository page.

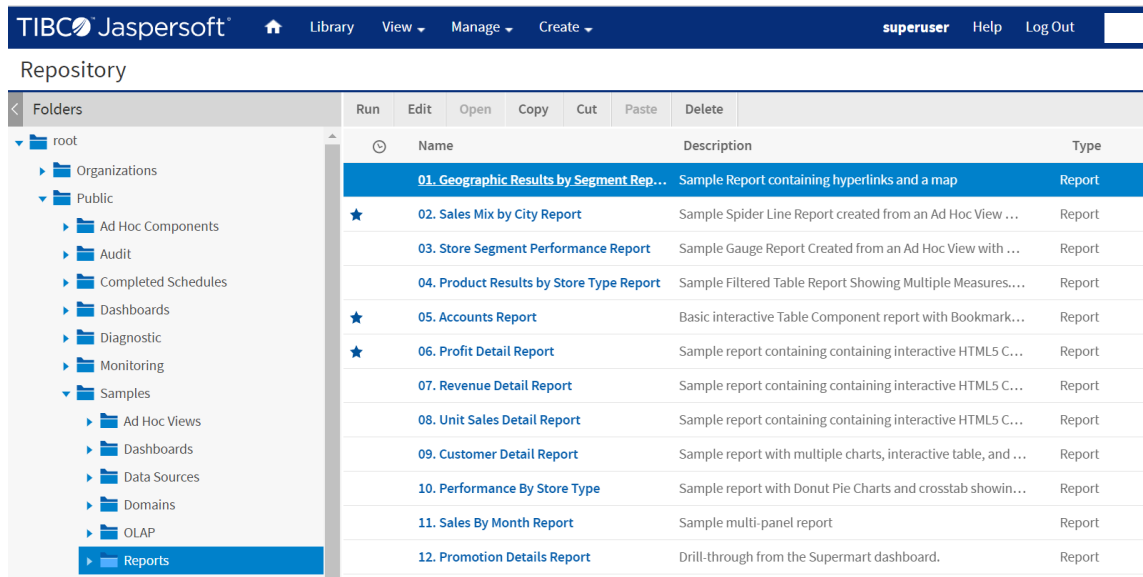


Figure 118: Accessing Favorites List on Repository Page

- Library - On the Library page, you can see the list of all files, but the files with a solid star icon to the left of the file name are added to Favorites. You can also apply the filter to see a Favorites list. To filter the list, turn on the Show favorites only toggle, a Favorites list appears on the Library page.

TIBCO JasperSoft home Library View Manage Create superuser Help Log Out

Library

Search Show favorites only

Name	Description	Type
★ 01. Geographic Results by Segment	Sample Multi-axis column chart from Domain showing Sales, Units, and \$ Per Squar...	Ad Hoc View
01. Geographic Results by Segment Report	Sample Report containing hyperlinks and a map	Report
02. Sales Mix by City	Sample Spider chart from Domain data source and multi-select filter	Ad Hoc View
★ 02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with an in page multi-sele...	Report
03. Store Segment Performance	Sample Gauge Chart with multi-select filter from a Domain	Ad Hoc View

Figure 119: All Files when Show favorites only toggle is not selected

TIBCO JasperSoft home Library View Manage Create superuser Help Log Out

Library

Search Show favorites only

Name	Description	Type
★ 01. Geographic Results by Segment	Sample Multi-axis column chart from Domain showing Sales, Units, and \$ Per Squar...	Ad Hoc View
★ 02. Sales Mix by City Report	Sample Spider Line Report created from an Ad Hoc View with an in page multi-selec...	Report
★ 05. Accounts Report	Basic interactive Table Component report with Bookmarks Panel	Report
★ 05. Unit Sales Trend	Sample HTML5 Time Series chart from Topic for Unit Sales data over relative rolling ...	Ad Hoc View
★ 06. Profit Detail Report	Sample report containing containing interactive HTML5 Chart and Table data with i...	Report
★ 07. Brand Sales Analysis	Sample HTML5 Scatter Chart providing multi-level price point analysis by Brand an...	Ad Hoc View
★ 3.1 Sales Metrics	Sample Dashboard containing Sales related data, hyperlinks, and chart formatting	Dashboard
★ 3.3 Expense Metrics	Sample Dashboard containing Expense related data, advanced chart properties and...	Dashboard
★ 5. Top Performers	Sample Dashboard with advanced formatting	Dashboard
★ All Accounts Report	All Accounts Report	Report

Figure 120: Favorites List when Show favorites only toggle is selected

Adding Reports Directly to the Repository



This section describes functionality that can be restricted by the software license for JasperReports Server. If you do not see some of the options described in this section, your license may prohibit you from using them. To find out what you are licensed to use, or to upgrade your license, contact Jaspersoft.

Using the Ad Hoc Editor, you can create reports within JasperReports Server from pre-defined Topics and Domains. You can also create reports outside of JasperReports Server and add them to the repository. To add a report to the repository, you need a valid JRXML file. To create and validate this file, you can use Jaspersoft Studio. Jaspersoft recommends Jaspersoft Studio for most users because its graphical user interface simplifies the job. If you have a thorough understanding of the file structure, you can use a text editor to create the file containing JRXML code.

You can add a report to the server's repository in two ways:

- From within the server

Add the JRXML file and any other resources that the report needs as a report unit. A wizard guides you through each step.

- From Jaspersoft Studio

Design the report in Jaspersoft Studio, and use a connection to JasperReports Server to add the JRXML and resources to the JasperReports Server repository. See the Jaspersoft Studio User Guide for information.

To add the sample report units to the server, you need access to the sample data in the server installation directory on the file system (<js-install>/samples). Contact your administrator for help with locating these files.



In most cases, it is preferable to upload the JRXML file from Jaspersoft Studio. Uploading through JasperReports Server is included for completeness.

This chapter includes examples of adding a report to the repository using the server's wizard and the plug-in. The chapter contains the following sections:

- [Overview of a Report Unit](#)
- [Adding a Report Unit to the Server](#)
- [Modifying the Query When Uploading a Report](#)

- [Adding a Complex Report Unit to the Server](#)
- [Adding Cascading Input Controls to a Report](#)
- [Editing JRXML Report Units](#)
- [Localizing Reports](#)

Overview of a Report Unit

In the server, a report unit is the collection of elements used for retrieving data and formatting output. The [Anatomy of a Report Unit](#) shows these elements:

- The data source and the query that retrieves data for the report.
- The main JRXML that determines the layout and is the core of the report unit.
- The main JRXML defines other elements in one of the following ways:
 - Creating definitions internally
 - Referring to existing elements in the repository using the repo: syntax
- The input controls and other resources.

For more information about the report unit, refer to the JasperReports Server Ultimate Guide.

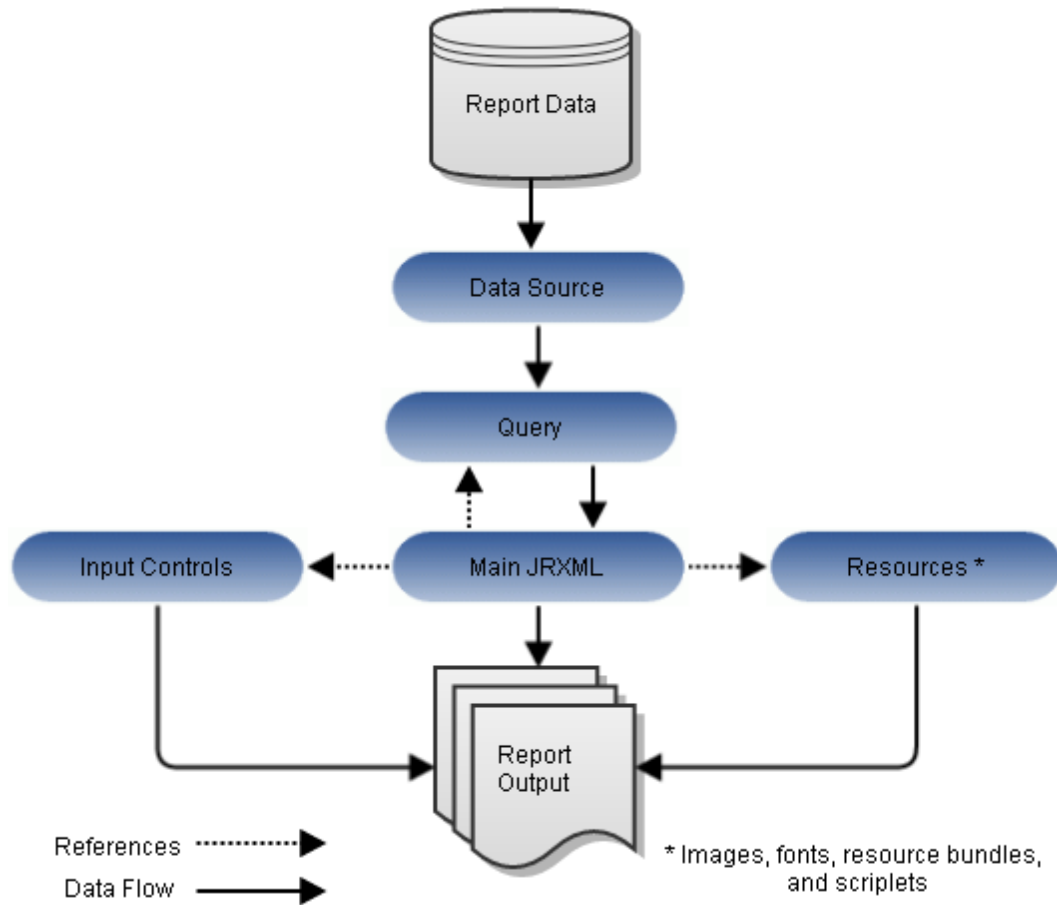


Figure 121: Anatomy of a Report Unit

Adding a Report Unit to the Server

This section presents an example of uploading a JRXML with resources to the server. This report has two images that need to be added.

Selecting the Main JRXML File

If you want to validate the JRXML before uploading it, use JasperSoft Studio. The server does not validate the JRXML when you upload it.

This procedure shows you how to set up a name for the report in the repository and select the main JRXML file that references all other elements.

To upload the main JRXML for this example

Procedure

1. Log in to the server as an administrator and select **View > Repository**.



If you log in as a user, you can upload a report unit to the server, but this example requires an administrator login to access the image resources.

2. Locate the folder where you want to add the report. For example, go to **Public > Samples > Reports**.
3. Right-click the Reports folder and select **Add Resource > JasperReport** from the context menu. The Set Up the Report page of the JasperReport wizard appears.



Add Resource appears on the context menu only if you have write permission to the folder.

4. In **Naming**, enter the name and description of the new report and accept the generated Resource ID:
 - Name - Display the name of the report: New Simple Report
 - Resource ID - Permanent designation of the report object in the repository: New_Simple_Report
 - Description - Optional description displayed in the repository: This is a simple example.
5. Select **Upload a Local File** and **Browse** to `<js-install>/samples/reports/AllAccounts.jrxml`.



This example shows how to upload a JRXML file from the samples folder in the installation directory. You can also **Select a JRXML from the Repository** or **Use a blank JRXML**. On selecting the **Use a blank JRXML** option, a report unit with blank JRXML is saved after clicking **Submit**. This blank JRXML is then opened in an embedded JasperReports Web Studio, which gives you the ability to create pixel perfect reports from JasperReports Server.

In [Required Set Up Values](#), you can see the Set Up the Report page.

Add JasperReport:

Set Up the Report

Set the required values for the report, then, optionally, proceed to other pages in the flow.

Set Up

Controls & Resources

Data Source

Query

Customization

Name:

Resource ID (required):

Description:

Locate the JRXML File

Upload a Local File

Select a JRXML from the Repository

Use a blank JRXML

Figure 122: Required Set Up Values

6. Click **Controls & Resources**.

The Controls & Resources page appears. If the server detects that the report needs additional resources, then you are prompted to locate those resources.

The screenshot shows a web-based configuration window titled "Add JasperReport: New Simple Report". On the left is a vertical navigation menu with buttons for "Set Up", "Controls & Resources" (which is selected), "Data Source", "Query", and "Customization". The main area is titled "Controls & Resources" and contains the instruction "Locate the controls and resources used by your report." Below this is a "Resources" section with a table listing resources: "LogoLink" and "AllAccounts_Res2", each with an "Add Now" button. There is also an "Add Resource..." link. Below the resources is an "Input Controls" section with an "Add Input Control..." link and "Input Control Options". The "Display Mode" is set to "Pop-up window" with a dropdown arrow and an "Always prompt" checkbox. An "Optional JSP Location" text box is present with a note "(within /WEB-INF/jsp)". At the bottom are "Submit" and "Cancel" buttons.

Figure 123: Suggested Resources in the Resources List

A JRXML file does not embed resources, such as images. When the server uploads the JRXML, it tries to detect any missing resources. For example, the [Suggested Resources in the Resources List](#) shows that two image files are missing:

- LogoLink
- AllAccounts_Res2

Uploading Suggested File Resources

If needed files are missing, as shown in [Suggested Resources in the Resources List](#), you need to take one of the following actions:

- Upload resources that the report needs
- Select a resource from the repository



If the Controls & Resources page doesn't suggest resources, perhaps the report doesn't reference any. However, the server can't always detect all the referenced resources, as discussed in [Uploading Undetected File Resources](#).

To upload a resource from the file system

Procedure

1. On the Controls & Resources page, click Add Now in the row of the missing resource, for example, LogoLink. The Locate File Resource page appears.
2. Choose Upload a Local File then click Choose File.
3. Browse to <js-install>/samples/images. The LogoLink file is not available, but you can use an alternate image, such as <js-install>/samples/images/jasperreports.png.
4. Click Open to return to the Locate File Resource dialog.
5. Click Next. The Add a Report Resource page appears.

Add JasperReport: New Simple Report

Add a Report Resource
Set the properties for the resource.

Type: Image

Selected Resource:
jasperreports.png

Name (required):

Resource ID (read-only):
LogoLink

Description:

Figure 124: Properties of a Resource



The properties include the LogoLink name, resource ID, and description.

6. Click Next to accept the default naming of the file resource.

The Controls & Resources page appears again, showing that the LogoLink resource was added.

To add a resource from the repository

Procedure

1. To add the second resource, click Add Now in the row for AllAccounts_Res2.
2. Choose Select a resource from the Repository and Browse to an image file, for example, Public > Samples > Images > Jaspersoft_logo.png.



Any image file works.

3. Click Select.
The path to the image appears in the wizard.
4. Click Next. The Add a Report Resource page displays the properties of the image as set in the uploaded JRXML file.



The properties include the LogoLink name, resource ID, and description. These properties don't redefine the properties of the Jaspersoft_logo.png file in the repository.

5. Click Next to accept the default naming of the file resource.
The Controls & Resources page reappears, showing the addition of both resources referenced in the main JRXML.
6. Click Data Source and define a data source as described in the next section.

Defining the Data Source

Data sources are not defined directly in the report JRXML file. It must be specified when you upload a file to JasperReports Server. On the data source page of the Add JasperReport wizard, you can select a data source in the repository or create a new data source.

If you want to create a data source, the application server must be able to find the driver for the database you want to use. For example, in a default installation of JasperReports Server, Tomcat looks for data source drivers in `<js-install>/apache-tomcat/lib`. Put a copy of the driver in this location.

To define a data source for the simple report example

Procedure

1. In the JasperReports wizard, click Data Source. The Link a Data Source to the Report page presents these choices:

- Do not link a data source - Select or define the data source later. You see an error if you run the report in this state.
 - Click here to create a new data source - Define a new data source available only to your report.
 - Select data source from repository - Select an existing data source from the repository.
2. Choose Select data source from the Repository and Browse to Public > Samples > Data sources > JServer JNDI Data Source.
 3. Click Select. The Link a Data Source to the Report page reappears with the path to the data source.

Figure 125: Data Source Page

4. Click Submit to add the new report unit to the repository.

Saving the New Report Unit

To submit a new report unit to the repository, click Submit on any page of the JasperReport wizard, from the Set Up page to the Customization page. You do not have to set options, which are not needed, such as Customization. When you click Submit, the server attempts to upload the JRXML report and its resources. If the upload is successful, a message appears at the top of the repository page, indicating that the report was saved. The report appears in the repository with the description that you entered on the Set Up page. To run the report and view the output, click its name, New Simple Report.

Name	Description	Type	Created Date	Modified Date
11. Sales By Month Report	Sample multi-panel report	Report	July 15	10/16/2019
12. Promotion Details Report	Drill-through from the Supermart dashboard.	Report	July 15	10/9/2019
14. World Map	Report with simple Geographic Map and Hyperlink	Report	July 15	10/11/2019
16. Interactive Sales Report	Interactive table and chart.	Report	July 15	8/27/2019
17. Report Workbook	Sample report book with table of contents.	Report	July 15	10/27/2015
20.1 Account List	Sample Report used for basic Visualize.js demo	Report	July 15	5/16/2014
20.2 Cities	Sample Report used for basic Visualize.js demo	Report	July 15	4/24/2014
20.3 SalesPerCityReport	Sample Report created from Ad Hoc View for Basic Visualize.js Demo	Report	July 15	4/24/2014
20.6 Store Details	Sample Report used for basic Visualize.js demo	Report	July 15	4/24/2014
New Simple Report	This is a simple example	Report	Today	Today

Figure 126: New Report Added to the Repository

In the report viewer, click ►► to go to the end of the report, where the logo images that you added appear. The following figure shows the output.

Name	Phone	Address
10. Taryle-Spencer Transportation Holdings	470-555-2278	3732 Camino Norte
11. K & R Brandon Communications Group	315-555-7829	8067 Olympic Drive






Figure 127: Output of the New Simple Report

Modifying the Query When Uploading a Report

The query in the report unit determines the data that the server retrieves from a data source. You can create multiple reports that look the same but contain different data by defining different queries for the same JRXML file each time you upload it. You can choose to use a stored query in the repository or define a new one. This example uses a query that returns accounts from a single country.

You can only override the main query for a report (specifically, the query defined directly within the JRXML root element `<jasperReport>`). If the report has elements that use a sub-dataset (including all table elements and all elements that use a different dataset), then the queries for these elements is not be affected.

First you need to upload the report and select a data source, as in the previous example. Then you can create a query that replaces the original query in the report.

To locate the sample report for this example

Procedure

1. Log in to the server as an administrator and select View > Repository.
2. Locate the folder where you want to add the report. For example, go to Public > Samples > Reports.
3. Right-click the Reports folder and select Add Resource > JasperReport from the context menu. The Set Up the Report page of the JasperReport wizard appears.



Add Resource appears on the context menu only if you have write permission to the folder.

4. In Naming, enter the name and description of the new report and accept the generated Resource ID:
 - Name - Display the name of the report: Sample Query Report.
 - Resource ID - Permanent designation of the report object in the repository: Sample_Query_Report.
 - Description - Optional description displayed in the repository: Example of changing a query in a report.
5. Select Upload a Local File and Browse to <js-install>/samples/reports/SimpleReport.jrxml.
6. Click Open to upload the file.

To select a data source for the report

Procedure

1. In the Add JasperReport wizard, click Data Source. The Link a Data Source to the Report page appears.
2. Choose Select data source from the Repository and Browse to Public > Samples > Data sources > JServer JNDI Data Source.
3. Click Select. The path to the data source appears on the page.

To define a custom query for the simple report example

Procedure

1. In the Add JasperReport wizard, click Query. The Locate Query page presents the following choices:
 - Do not link a Query - Select this option to use the existing query already defined within the main JRXML.
 - Click here to create a new Query - Guides you through defining a new query for this report only.
 - Select a Query from the Repository - Select this option to use a saved query from the repository.



The SimpleReport.jrxml file already contains a query. Choosing the second or third option overrides the existing query by defining a new one.

Figure 128: Query Page

2. Select Click here to create a new Query. The link becomes active.
3. Click the link, Click here to create a new Query. The Add Query wizard appears and displays the Name the Query page.
4. Enter the name, resource ID, and description of the query. The query in this example retrieves only Mexican accounts. Enter the following values:
 - Name - MexicoAccounts
 - Resource ID - MexicoAccounts
 - Description - Query for example in User Guide

This query and its properties are visible only within the report unit.

Figure 129: Name the Query Page

- Click Next. The Link a Data Source to the Query page appears. Here you have the option to select a data source to use only with this query. This can be different from the data source you selected for uploading the report. You can choose an existing data source from the repository, define a new one, or select not to link a data source.
- Select Do not link a data source to use the same data source you already selected.
- Click Next. The Define the Query page appears.
- Select SQL in the Query Language dropdown and enter the following query string to retrieve only Mexican accounts:

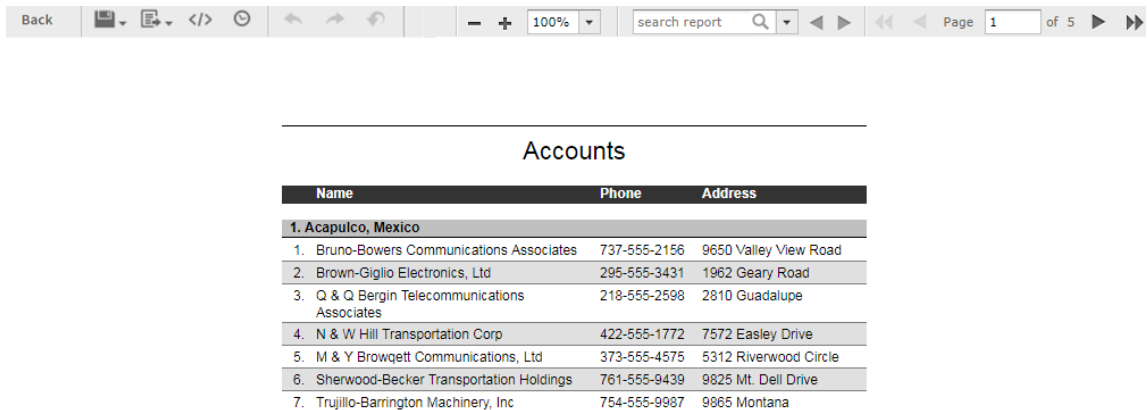
```
SELECT * FROM accounts WHERE billing_address_country = 'Mexico' ORDER
BY billing_address_city
```

Figure 130: Definition of a Query

9. Click Save to save the query. The Customization page appears. No customization is required for the example.
10. Click Submit to submit the new report unit to the repository.

To run the report

Locate the report in the repository and click to run it. Only accounts in Mexico are shown in the report.



Accounts		
Name	Phone	Address
1. Acapulco, Mexico		
1. Bruno-Bowers Communications Associates	737-555-2156	9650 Valley View Road
2. Brown-Giglio Electronics, Ltd	295-555-3431	1962 Geary Road
3. Q & Q Bergin Telecommunications Associates	218-555-2598	2810 Guadalupe
4. N & W Hill Transportation Corp	422-555-1772	7572 Easley Drive
5. M & Y Browgett Communications, Ltd	373-555-4575	5312 Riverwood Circle
6. Sherwood-Becker Transportation Holdings	761-555-9439	9825 Mt. Dell Drive
7. Trujillo-Barrington Machinery, Inc	754-555-9987	9865 Montana

Figure 131: Output of the Report

Adding a Complex Report Unit to the Server

This section includes an example of how to add a report unit with all these resources:

- SalesByMonth.jrxml - The main JRXML file.
- SalesByMonthDetail.jrxml - The subreport.
- sales.properties - An English resource bundle file.
- scriptlet.jar - A scriptlet class JAR file.
- JR Logo - An image in the repository.
- JServer JNDI data source - A data source file in the repository.

These resources are part of the sample data installed with the server. To complete this example and run the report without server errors, you need access to these resources.

The example also guides you through defining every type of input control:

- Text
- Checkbox
- Dropdown
- Date
- Query

If you are not interested in creating all types of input controls, but want to work through part of the example, then delete parameters for the input controls that you do not want to create before you run the report.

The complex report that you create in this example is almost exactly like the SalesByMonth report in the Reports folder of the repository.

To upload the main JRXML and suggested resource files for the complex report unit

Procedure

1. Log into JasperReports Server as administrator and select View > Repository.



If you log in as a user, you can upload a report unit to the server, but this example requires an administrator login to access the image resources.

2. Navigate to the folder containing your report. For example, navigate to Organization > Reports.
3. Right-click the Reports folder and select Add Resource > JasperReports® from the context menu. The Set Up the Report page appears.



Add Resource appears on the menu only if you have write privilege to the folder.

4. Enter these properties:
 - Name - New Complex Report
 - Resource ID - New_Complex_Report
 - Description - This is a complex report
5. Select Upload a Local File and Browse to `<js-install>/samples/reports/SalesByMonth.jrxml`.

6. Click Controls & Resources.

The Controls & Resources page in [Suggested Resources for the Complex Report](#) suggests resources to be uploaded for the report:

- A sub-report (the SalesByMonthDetail.jrxml file)
- A logo image

Add JasperReport: New Complex Report

Controls & Resources

Locate the controls and resources used by your report.

Resources	
SalesByMonthDetail	Add Now
Logo	Add Now
Add Resource...	

Input Controls

Add Input Control...

Input Control Options

Display Mode:

Pop-up window Always prompt

Optional JSP Location:

(within /WEB-INF/jsp)

Submit Cancel

Figure 132: Suggested Resources for the Complex Report

7. On the Controls & Resources page, upload the sub-report:

- Click Add Now in the SalesByMonthDetail row. The Locate File Resource page appears.
- Select Upload a Local File.
- Click Browse and locate the file `<js-install>/samples/reports/SalesByMonthDetail.jrxml`. Select SalesByMonthDetail.jrxml. The path to SalesByMonthDetail.jrxml appears in the Upload a Local File field.
- On the Locate File Resource page, click Next.
- On the Add a Report Resource page, click Next to accept the default report

resource name and resource ID.

8. On the Controls & Resources page, upload the logo image resource:
 - a. Click Add Now in the Logo row. The Locate File Resource page appears.
 - b. On the Locate File Resource page, click Select a resource from the Repository.
 - c. Click Browse to locate the file /Images/JR Logo and select JR Logo.
 - d. Click Next. The Add a Report Resource page appears.
 - e. On the Add a Report Resource page, click Next to accept the default name, resource ID, and description.

Uploading Undetected File Resources

The JasperReport wizard cannot detect every type of resource referenced in the main JRXML. You need to add the undetected resources before the server can upload the report. For the following example, we provide the names of these resources. To discover undetected resources, open the JRXML in Jaspersoft Studio and examine its parameters and properties. For more information about the JasperReports Server Plug-in, see the Jaspersoft Studio User Guide.

These are the undetected resources in the SalesByMonth.jrxml:

- A scriptlet JAR - The scriptlet writes the message, “I’m a scriptlet in a jar”, to the last page of the report output.
- An English language resource bundle.
- The optional Romanian language resource bundle.

If you are interested in working with a multi-lingual report, add the Romanian resource bundle. The Romanian resource bundle is part of the sample data installed with the server.

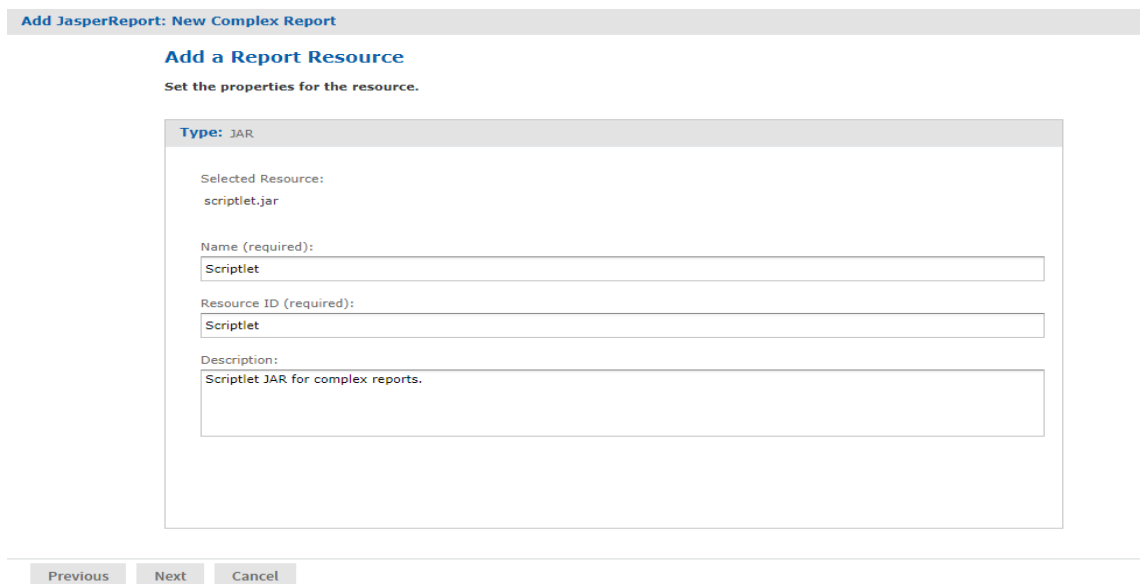
On the Controls & Resources page, upload the undetected resources to the server using the same name Jaspersoft Studio uses for the resource ID.

To upload the undetected file resources for the complex report example

Procedure

1. Add and upload the scriptlet JAR file:
 - a. On the Controls & Resources page, click Add Resource.
 - b. On the Locate File Resource page, select Upload a Local File, and Browse to the <js-install>/samples/jars/scriptlet.jar file. Select scriptlet.jar. The path to the file appears in the Upload a Local file field.
 - c. Click Next.
The Add a Report Resource page appears. [Figure 133](#) shows the file name scriptlet.jar, indicating that the server successfully loaded and automatically detected the JAR.
 - d. Enter the following information:
 - Name – Scriptlet
 - Resource ID – Scriptlet. The Resource ID is referenced in the main JRXML file, so do not change it.
 - Description – Scriptlet JAR for complex report

The following [Figure 133](#) shows these values entered on the Add a Report Resource page.



The screenshot shows a web interface for adding a report resource. At the top, there is a breadcrumb trail: "Add JasperReport: New Complex Report". Below this is the main heading "Add a Report Resource" and a sub-heading "Set the properties for the resource." The main content area is a form with a title bar "Type: JAR". Inside the form, there are four sections: "Selected Resource:" with the value "scriptlet.jar"; "Name (required):" with a text input field containing "Scriptlet"; "Resource ID (required):" with a text input field containing "Scriptlet"; and "Description:" with a text area containing "Scriptlet JAR for complex reports." At the bottom of the form, there are three buttons: "Previous", "Next", and "Cancel".

Figure 133: Scriptlet JAR Resource Properties

2. Click Next.

3. Add and upload the English resource bundle:
 - a. On the Controls & Resources page, click Add Resource. The Locate File Resource page appears.
 - b. Select Upload a Local File, Browse to <js-install>/samples/resource_bundles/sales.properties, and select it. The path to the resource bundle appears in the Upload a Local file field.
 - c. In Locate File Resource, click Next. The Add a Report Resource page indicates that the file was successfully loaded and automatically detected as a resource bundle.
 - d. Enter the following information:
 - Name – sales.properties
 - Resource ID – sales.properties
 - Description – Default English resource bundle
4. Click Next.
5. Add and upload the Romanian Resource bundle:
 - a. On the Controls & Resources page, click Add Resource.
 - b. Select Upload a Local File, Browse to the file <js-install>/samples/resource_bundles/sales_ro.properties, and select it.
 - c. In Locate File Resource, click Next. The Add a Report Resource page shows that uploading the file was successful. The server recognized the type (resource bundle) and name (sales_ro.properties) of the selected resource.
 - d. Enter the following information:
 - Name – sales_ro.properties
 - Resource ID – sales_ro.properties
 - Description – Romanian resource bundle
 - e. Click Next. Controls & Resources lists all the files.

Add JasperReport: New Complex Report

Controls & Resources

Locate the controls and resources used by your report.

Set Up

Controls & Resources

Data Source

Query

Customization

Resources		
Scriptlet	JAR	Remove
sales.properties	Resource Bundle	Remove
sales_ro.properties	Resource Bundle	Remove
SalesByMonthDetail	Added	
Logo	Added	
Add Resource...		

Input Controls

[Add Input Control...](#)

Input Control Options

Display Mode:

Always prompt

Optional JSP Location:

(within /WEB-INF/jsp)

Submit
Cancel

Figure 134: List of Detected and Undetected File Resources

If you want to upload a different file for a named resource, click its resource ID in the Resources list and locate the new file or repository object. You can change the name and description of the resource, but not its resource ID. If there is a mistake in a resource ID:

- Locate the ID in the list of resources on the Controls & Resources page, and click Remove.
- Re-add the resource, entering the correct resource ID.

Adding Input Controls

Input controls are graphical widgets that the server displays with the report. Input controls perform the following functions:

- Prompt the user for input.
- Validate the format of the input.
- Pass the input to the report.

Based on the input, the server modifies the WHERE filter clauses in SQL parametrized queries.

Input controls correspond to the parameters defined in JRXML reports, such as `$P{name}`. The server maps the value that the user enters for the input control to the parameter of the same name. If you define an input control in the JasperReport and the server cannot find a parameter by the same name in the JRXML, then the input control does not function when the report runs.



The JRXML can define a default value for the input control. To prevent users from changing the default, you can make the input control read-only or invisible.

When you create an input control, you provide a datatype. Datatypes define the expected input (numbers, text, date, or date/time) and can include range restrictions that the server enforces. The server uses the datatype to classify and validate the data.

To define a datatype, set properties on the Set the Datatype Kind and Properties page. Properties differ for other datatypes that appear on the page.

Type	The classification of the data, which can be Text, Number, Date, or Date-Time.
Name	The name of the datatype.
Resource ID	The unique ID of the datatype that you cannot edit.
Description	Any additional information that you provide about the datatype.
Pattern	A regular expression that restricts the possible values of the field for the Text data type.
Minimum value	The lowest permitted value for the field.
Maximum value	The highest permitted value for the field.
Minimum Is Strict	If checked, the maximum value itself is not permitted. Only values less than the maximum value are permitted.
Maximum Is Strict	If checked, the minimum value itself is not permitted. Only values greater than the minimum value are permitted.

After determining the list of values to be presented to the user, choose one of these widget types for the input control:

- Boolean - A checkbox widget for entering a yes/no value.
- Single value - A text, number, date, or date/time widget. Input can be constrained to a minimum value, maximum value, or both. Text input can also be constrained by a matching pattern. A text box widget for entering a value, or a calendar for selecting the date and date/time.
- Multiple values - To present a static or a dynamic list of values to the user, choose one of these:
 - Dropdown list to select a single value.
 - Radio buttons to select a single value.
 - Multi-select list to select multiple values.
 - Checkboxes to select multiple values.

The query in the SalesByMonth.jrxml file has several input control parameters, one for each type of input control. These procedures show you how to add each type to the report unit.

Adding a Text Input Control

The simplest input control is a text box. In this example, the datatype for the input value is a number. The server verifies that the user enters a number into the text box.

To add a text input control to the complex report example

Procedure

1. After completing the steps in [Uploading Undetected File Resources](#), click Controls & Resources in the JasperReport wizard.
2. On the Controls & Resources page, click Add Input Control. The Locate Input Control page appears.
3. Select Define an Input Control in the next step.
4. Click Next.
5. On the Create Input Control page, accept the default (Single Value) from the Type dropdown.
6. Enter the other properties for the input control:
The name is referenced in the main JRXML file, so enter it exactly as shown.

- Prompt Text - The label the user sees next to the widget for this input: Text Input Control
- Parameter Name - The name of the report parameter that receives the user value: TextInput
- Description - An optional description that appears only within the report wizard: leave blank in this example.
- Mandatory, Read-only, Visible - A setting that determines how the input control appears: check only Visible.

Add Input Control

Create Input Control

First, select the kind of input control you wish to add, then enter the required property values.

Type:

Prompt Text (required):

The label is displayed to users next to the input control.

Parameter Name (required):

This value must match the name of the parameter in your report.

Description:

Mandatory
 Read-only
 Visible

Figure 135: Properties of the Text Input Control



To reuse an input control, add it to the repository independent of any report using Add Resource > Input Control. Before using the input control in a report, check that the parameter name in the JRXML matches the name in the Create Input Control page. If it does not, then the server cannot run the report.

7. Click Next.
8. In Locate Datatypes, select Define a DataType in the next step and click Next:



Instead of defining a datatype, you can use one in the repository if its type and range are compatible with your input control.

9. In Set the Datatype Kind and Properties, enter the properties for the datatype:

- a. In Type, select Number from the dropdown as the type of data the user can enter.



The number format allows users to enter integers and decimals.

- b. Enter a name - Integer Type.
- c. Enter a resource ID - Integer_Type.
The name and resource ID are required, but are visible only when defining the input control.

Add Datatype

Set the Datatype Kind and Properties

First, select the kind of datatype you wish to add, then enter the required property values.

Type: Number ▼

Name (required):
Integer Type

Resource ID (required):
Integer_Type

Description:

Minimum value:

Maximum value:

Minimum is Strict
 Maximum is Strict

Save Cancel

Figure 136: Integer Datatype Properties

- d. Leave these properties blank in this example:
 - Description - An optional description that appears only within the report wizard.
 - Minimum value - The lower bound of the value the user may enter.
 - Maximum value - The upper bound of the value the user may enter.

- Minimum is strict - Means the minimum value itself is not allowed.
- Maximum is strict - Means the maximum value itself is not allowed.

10. Click Save.

The Controls & Resources page now lists the Text Input Control.

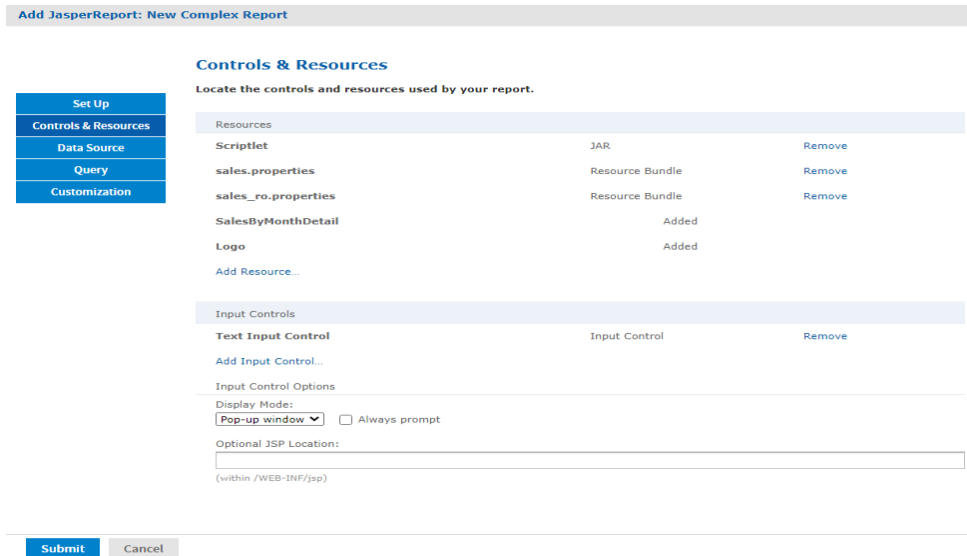


Figure 137: Text Input Control in Input Controls List

Adding a Simple Checkbox Input Control

A checkbox input control accepts true/false (boolean) input from the user.

To add a simple checkbox input control to the complex report example

Procedure

1. Continuing with the previous example, on the Controls & Resources page, click Add Input Control.
2. On the Locate Input Control page, click Define an Input Control in the next step.
3. Click Next.
4. On the Create Input Control page, select Boolean from the Type dropdown.
5. Enter the other properties:

- Prompt Text - Checkbox Input Control.
 - Parameter Name - Checkbox Input. Enter the parameter name exactly as shown because the main JRXML file references this name.
 - Description - Leave blank in this example.
 - Mandatory, Read-only, Visible – Check only visible.
6. Click Submit. The Controls & Resources page appears with the new checkbox input control.

Adding a Dropdown Input Control

The dropdown input control also called a list, gives the user a pre-determined list of choices. As a report designer, you can choose a dropdown input control based on:

- To present a single-select or multi-select list to the user.
- To present a single choice as a dropdown list or a set of radio buttons.
- To present a multi-select control as a multi-select list or a set of checkboxes.

Radio buttons and checkboxes usually work well for five or fewer choices. This example shows how to create an input control that presents three choices in a dropdown list. You can create a new list of values for this input control or use a list of values in the repository.

To add a dropdown input control to the complex report example

Procedure

1. Continuing with the previous example, on the Controls & Resources page, click Add Input Control.
2. On the Locate Input Control page, click Define an Input Control in the next step.
3. Click Next.
4. On the Create Input Control page, select Single-select List of Values from the Type dropdown.
5. Enter the other properties:
 - Prompt Text - List Input Control.
 - Parameter Name – ListInput Enter the parameter name exactly as shown

because the main JRXML file references this name.

- Description – Leave blank in this example.
- Mandatory, Read-only, Visible – Check only visible.

6. Click Next.

7. On the Locate List of Values page, select Define a list of values in the next step.



Note:

Instead of defining a list of values, you can use one in the repository if its values are compatible with the parameters defined in the JRXML report.

8. Click Next.

9. On the Add List of Values page, enter a name, resource ID, and optional description for the list of values. These properties are not visible outside of the input control. Enter these values:

- Name – list type
- Resource ID – list_type
- Description – Leave blank in this example.

10. In the Name Value panel, enter names and values to present as choices to the user:

- Enter unique names. The server requires unique names to distinguish which item the user chose.
- Enter values of the type that match the parameter definition in the JRXML report.

After entering a name and value, click Add. If you make a mistake click Remove.

For this example enter:

- Name First Item with value 1.
- Name Second Item with value 2.
- Name Third Item with value 3.

Add List of Values

Add List of Values

Identify the list, then create the name-value pairs.

Name (required):

Resource ID (required):

Description:

Name	Value	
First Item	1	Remove
Second Item	2	Remove
Third Item	3	Remove
<input style="width: 60%;" type="text"/>	<input style="width: 20%;" type="text"/>	Add

Submit
Cancel

Figure 138: Definition of the List of Values

11. Click Submit. The Controls & Resources page appears with the new List Input control.

Adding a Date Input Control

This example uses a datatype from the sample data in the repository.

To add a date input control to the complex report example

Procedure

1. On the Controls & Resources page, click Add Input Control.
2. On the Locate Input Control page, select Define an Input Control in the next step, then click Next.
3. On the Create Input Control page, select Single-Value from the Type dropdown.
4. Enter the other properties:
 - Prompt Text – Date Input Control.

- Parameter Name – DateInput Enter the parameter name exactly as shown because the main JRXML file references this name.
 - Description – Leave blank in this example.
 - Mandatory, Read-only, Visible – Check only Visible.
5. Click Next.
 6. On the Locate Datatypes page, select Select a Datatype from the Repository.
 7. Click Browse.
 8. In Select Resource from Repository, expand Input Data Types, and select the Date Datatype.
 9. Click Select. The Locate DataTypes page shows the location of this datatype in the repository, /datatypes/DateDatatype.
 10. Click Next. The Controls & Resources page appears with the new Date Input Control.

Adding a Query-Based Input Control

A query-based input control presents a dynamically created list of choices to the user. The server performs a query whose results are used to create the list of choices. You must perform the following tasks:

- Configure the query.
- Designate how to display the results in the input control.
- Specify the value to pass as the corresponding parameter.

To add a query-based input control to the complex report example

Procedure

1. On the Controls & Resources page, click Add Input Control.
2. On the Locate Input Control page, select Define an Input Control in the next step.
3. Click Next.
4. On the Create Input Control page, select Single-select Query from the Type dropdown.

5. Enter the naming properties for the input control:
 - Prompt Text – Query Input Control
 - Parameter Name – QueryInput Enter the parameter name exactly as shown because the main JRXML file references this name.
 - Description – Leave blank in this example.
 - Mandatory, Read-only, Visible – Use the default settings in this example.
6. Click Next. The Locate Query page appears. Options are:
 - To locate a reusable query in the repository
 - To define a new query dedicated to this input control
7. For this example, select Define a Query in the next step.
8. Click Next.
9. On the Name the Query page, enter the naming properties for the new query. For this example, enter testQuery in both the Name and Resource ID fields.

Add Query:

Name the Query

Enter the required property values.

- Name the Query

Name (required):
- Link a Data Source
- Define the Query

Resource ID (required):

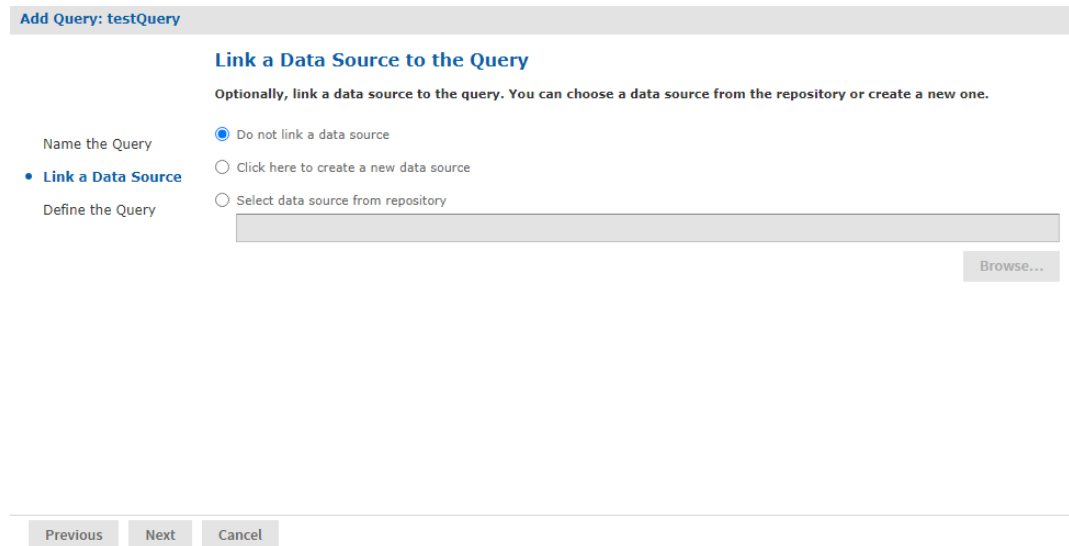
Description:

Previous
Next
Cancel

Figure 139: Entering a Query Name

10. Click Next. The Link a Data Source to the Report page appears. Options are:
 - To use the same data source for the input control as you use for the report.

- To define a new data source, dedicated to this input control.
 - To select a reusable data source from the repository.
11. For this example, select Do not link a data source to use the same data source for the input control as you use for the report. You will select the data source for the report in [Selecting a Data Source for Running the Complex Report](#).



The screenshot shows a dialog box titled "Add Query: testQuery" with a sub-header "Link a Data Source to the Query". Below the sub-header is the instruction: "Optionally, link a data source to the query. You can choose a data source from the repository or create a new one." There are three radio button options: "Do not link a data source" (which is selected), "Click here to create a new data source", and "Select data source from repository". To the left of these options is a vertical list of steps: "Name the Query", "Link a Data Source" (which is highlighted with a blue dot), and "Define the Query". Below the radio buttons is a text input field and a "Browse..." button. At the bottom of the dialog are three buttons: "Previous", "Next", and "Cancel".

Figure 140: Data Source Link for the Query Input Control

12. Click Next.
13. On the Define the Query page, select SQL from the Query Language dropdown.
14. Enter this Query String to retrieve the labels and values to be displayed for this input control:

```
SELECT user_name, first_name, last_name FROM users
```

Add Query: testQuery

Define the Query
Select a language and enter the query

Name the Query

Link a Data Source

- **Define the Query**

Query Language:

Query String:
SELECT user_name, first_name, last_name FROM users

Previous **Save** Cancel

Figure 141: Define the Query

15. Click Save.
16. For each row in the results of the query, the server presents a single value, such as Sarah Smith, in the input type widget (dropdown, radio buttons, multi-choice, checkboxes). On the Query Information page, name the database columns to comprise the input value presented to the user. The column names must exactly match those in the SELECT clause of the query string:
 - a. In the Value Column, enter the user_name.
 - b. In the Visible Column, enter first_name.
 - c. Click Add.
 - d. In the Visible Column, enter last_name.
 - e. Click Add.
For each column you want to display as a choice, enter the name then click Add. If you make a mistake, click Remove.
17. Click Submit. The Controls & Resources page displays all the resources, including the new input controls. [Input Controls and Resources](#) shows these resources.

Setting the Input Control Options

In this procedure, you set the display mode in Input Control Options at the bottom of the Controls & Resources page. [Input Controls and Resources](#) shows these options.

To configure the appearance of the input controls for the complex report example

Procedure

1. Select a Pop-up window.

i Note:

You can also select Separate page to display the input controls in a separate browser window, Top of page to display them above the report, or In page to display them on the side of the report.

2. Check Always prompt when you want the server to display the Input Controls dialog to prompt the user when the report runs.

i Note:

The definition of input controls in this example specified Visible and not Mandatory. When input controls are not mandatory and the Always prompt is not checked on the Controls & Resources page, the user must click the Options button in the Report Viewer to change input controls. Otherwise the report runs with default input controls.

3. Leave Optional JSP Location blank for this example.
You can use the Optional JSP Location option to specify the path to a JSP file that affects the appearance of the input controls.

Add JasperReport: New Complex Report

Set Up

Controls & Resources

Data Source

Query

Customization

Controls & Resources

Locate the controls and resources used by your report.

Resources

Scriptlet	JAR	Remove
sales.properties	Resource Bundle	Remove
sales_ro.properties	Resource Bundle	Remove
SalesByMonthDetail	Added	
Logo	Added	

[Add Resource...](#)

Input Controls

Text Input Control	Input Control	Remove
Check Box Input Control	Input Control	Remove
List Input Control	Input Control	Remove
Date Input Control	Input Control	Remove
Query Input Control	Input Control	Remove

[Add Input Control...](#)

Input Control Options

Display Mode:
 Always prompt

Optional JSP Location:

(within /WEB-INF/jsp)

[Submit](#)

[Cancel](#)

Figure 142: Input Controls and Resources


Select the data source to finish the complex report example.

Selecting a Data Source for Running the Complex Report

You need to select a data source to retrieve data for the report and the query input control, otherwise the report, and the list of users in the query input control remain blank.

To select a data source and run the complex report

1. On the Controls & Resources page of the JasperReport wizard, select Data Source.

2. On the Locate Data Source page, choose Select data source from repository.
3. Click Browse, choose Organization > Data Sources > JServerJNDI Data Source, and click Select.
4. On Link a Data Source to the Report, click Submit.
5. On the Locate Query Page, click Submit again to save the complex report. Skip the Query and Customization pages of the JasperReport wizard to use the default settings on those pages. The server validates the report and a message appears indicating that the report was added to the repository.
6. In the Repository, click the name New Complex Report to run and view the report. Input controls appear.
7. Enter these input values, as shown in [Input Controls Dialog for the New Complex Report](#):
 - Text Input Control: myText
 - Checkbox Input Control: Check the checkbox.
 - List Input Control: Select the Third Item.
 - Date Input Control: Click  and select December 31, 2010.
 - Query Input Control: Select Sarah Smith from the dropdown.

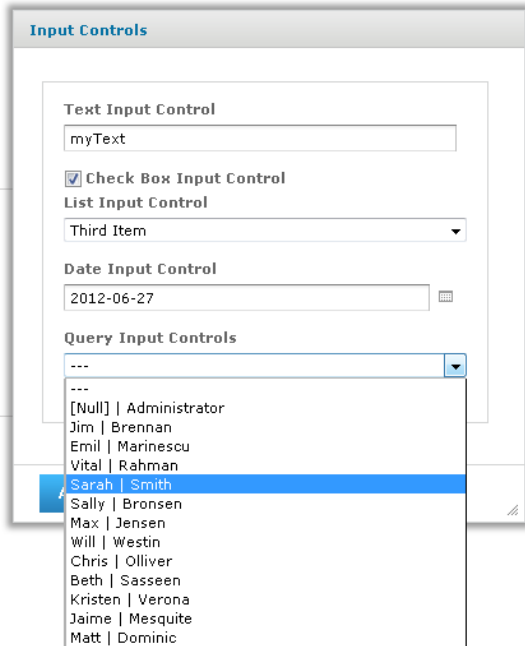


Figure 143: Input Controls Dialog for the New Complex Report

8. Click OK or Apply to run the report with the selected input, including the incorrect non-numerical input for the Text Input Control. The server enforces the proper format defined for each input control. You defined the Text Input Control as a numeric type, so it accepts only valid numbers, as indicated by the message to specify a valid float number, as shown in [Invalid Input Message](#).

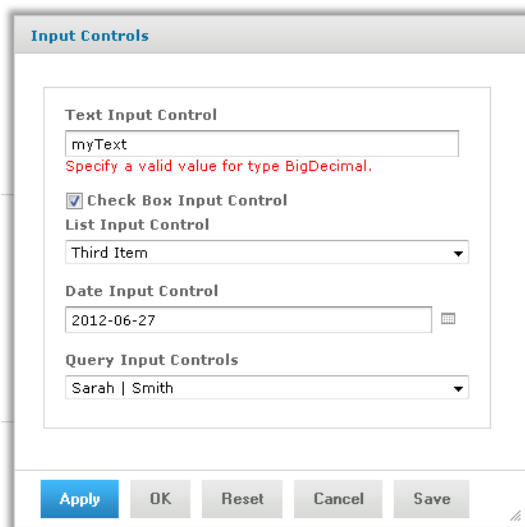
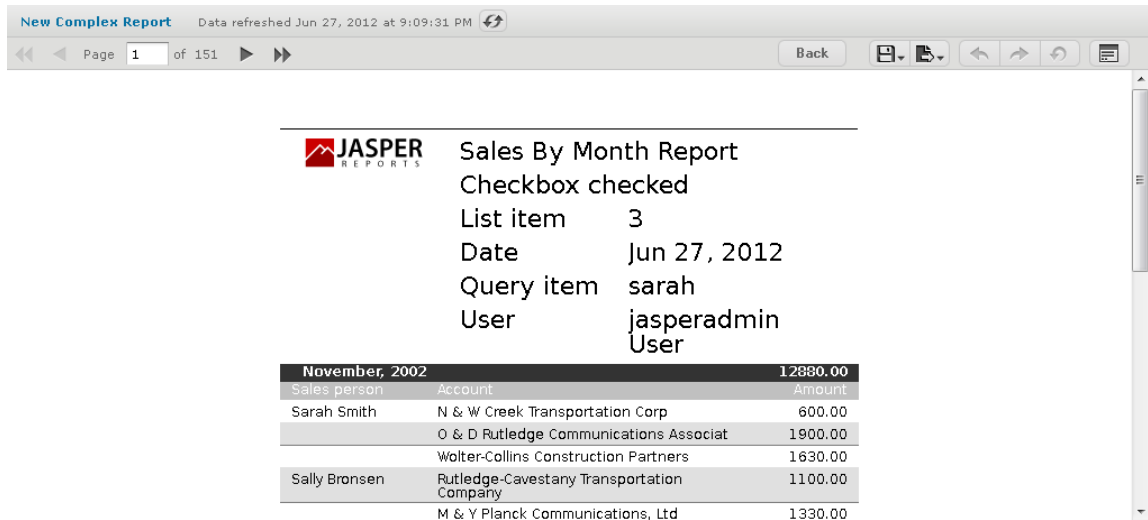


Figure 144: Invalid Input Message

9. In Text Input Control, enter 3 and click OK or Apply.
The sample report includes a header that displays the value of each parameter received from the input controls. Values and labels appear in the language specified by the active resource bundle, in this case English.



November, 2002		12880.00
Sales person	Account	Amount
Sarah Smith	N & W Creek Transportation Corp	600.00
	O & D Rutledge Communications Associat	1900.00
	Wolter-Collins Construction Partners	1630.00
Sally Bronsen	Rutledge-Cavestary Transportation Company	1100.00
	M & Y Planck Communications, Ltd	1330.00

Figure 145: Output Controlled by Input

In the Report Viewer, you can open the Input Controls dialog at any time by clicking the Options button. Click OK to run the report using the chosen values and close the Input Controls dialog. Click Apply to run the report using the chosen values, but keep the Input Controls open for choosing other values and rerunning the report.



If you get an error when you run the report, open it for editing as described in [Editing JRXML Report Units](#). Review your settings. If you cannot find the problem, edit the SalesByMonth sample report (in the repository at /reports/samples) and compare its settings to your report.

To see the message written by the scriptlet JAR on the last page of the report, click



in the Report Viewer.

Adding Cascading Input Controls to a Report

JRXML-based reports can include input controls that have dynamic values. The values depend on a user's selection in other input controls. For example, a report has input controls for country, state, and city. The options in the State input control depend on the value selected in the Country input control. When the user selects a state, the list of City

values includes only those in the selected state. These cascading input controls use queries to determine the values to display in each input control field.

To use input controls as parameters for a query that populates another input control, you use a special syntax to reference a parameter name in the input control's query. The syntax is identical to the `$P{parameter_name}` and `$X{...}` syntax used in queries for .

For example, a report returns data identified by country and city. It includes input controls called `COUNTRY` and `CITY`. `COUNTRY` is a query-based input control that returns the list of countries in the data source. `CITY` is also a query-based input control, but its query uses `COUNTRY` as input:

```
select address_city from accounts where $X{EQUALS, address_country, COUNTRY}
```

When the user selects a country from the `COUNTRY` input control, the value selected is used by the query of the `CITY` input control. The `CITY` input control is refreshed to show the list of cities for the chosen country. Making two selections from smaller lists is much clearer and quicker for report users. For an example of viewing a report that has cascading input controls, see [Cascading Input Controls](#).

Note that there are other ways to use a parameter in a query. For details about the `$P` and `$X` syntax and an example of creating a cascading input control, see the JasperReports Server Administrator Guide.

Editing JRXML Report Units

After you add a report unit to the repository, you can edit any of its elements, including file resources and input controls. This example modifies the display text of the ambiguous Text Input Control.

To edit the complex report example

Procedure

1. Log into the server as an administrator and select View > Repository

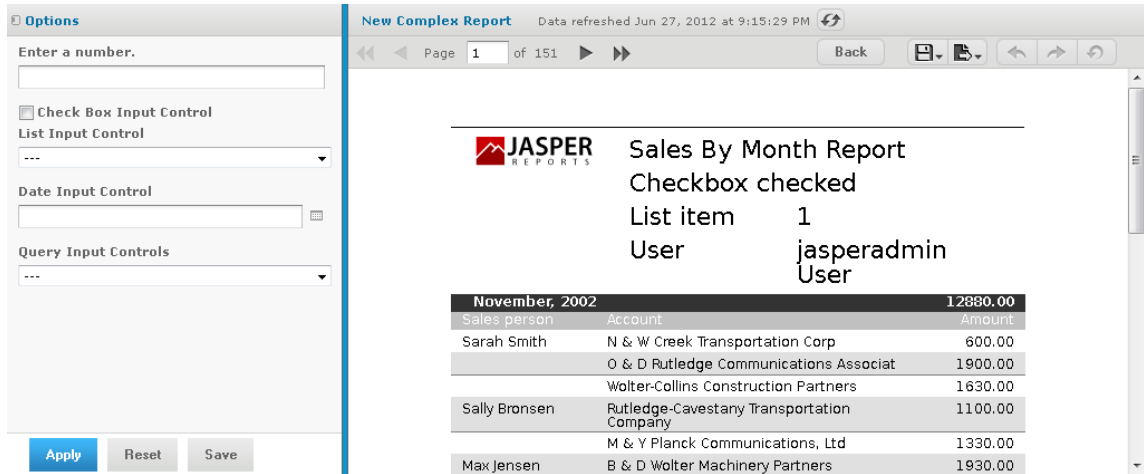
i Note:

If you log in as a user, you can edit a report that you created. This example requires an administrator login because an administrator created the complex report.

2. Search or browse the repository to locate the report. In this example, go to Organization > Reports.
3. Right-click the New Complex Report and select Edit from the context menu. The JasperReport wizard opens the report unit.
4. Navigate to the page of the wizard for making the change; in this example, click Controls & Resources.
5. Make changes to an input control prompt and the display mode of the input controls, for example:
 - a. Click the name of the TextInput control. The Locate Input Control page shows that this input control is locally defined.
 - b. Click Next. The Create Input Control page appears.
 - c. Change the contents of the Prompt Text field to Enter a number. Click Next. The Locate Datatypes page appears. You can select a different datatype from the repository. For this example, accept the existing datatype setting.
 - d. In Locate Datatypes, click Next.
 - e. In Set the Datatype Kind and Properties, click Save to accept the datatype property settings.
6. On the Controls & Resources page:
 - a. Change the Display Mode to In Page.
 - b. Clear the Always prompt check box.
 - c. Click Submit.
7. Run the New Complex Report again.

Instead of appearing in a pop-up before the report, the input controls appear in the Filters panel of the report. In [Output of the Modified Report](#) you can see the new prompt Enter a number for the text input control. Because none of the input controls in this example are required, the report can display with blank input controls. Enter

values and click Apply to modify the report output according to your input.



The screenshot shows a web browser window titled "New Complex Report" with a status bar indicating "Data refreshed Jun 27, 2012 at 9:15:29 PM". The browser address bar shows "Page 1 of 151". The main content area displays the JasperReports logo and the title "Sales By Month Report". Below the title, it indicates "Checkbox checked", "List item 1", and "User jasperadmin". A table follows, showing sales data for November 2002. The table has three columns: "Sales person", "Account", and "Amount". The total amount for November 2002 is 12880.00.

November, 2002		12880.00
Sales person	Account	Amount
Sarah Smith	N & W Creek Transportation Corp	600.00
	O & D Rutledge Communications Associat	1900.00
	Wolter-Collins Construction Partners	1630.00
Sally Bronsen	Rutledge-Cavestary Transportation Company	1100.00
	M & Y Planck Communications, Ltd	1330.00
Max Jensen	B & D Wolter Machinery Partners	1930.00

Figure 146: Output of the Modified Report

Localizing Reports

You can adapt reports to global audiences by localizing input controls and field names:

- Input controls – The server supports multi-lingual prompts and static lists of values in reports.
- Field names – The server supports multi-lingual field names in reports.

A \$R expression that you write in the report design triggers linguistic changes in the report output for different locales. Each \$R expression refers to a name-value pair (your translations) in a resource bundle. A resource bundle file is a text file that has a .properties extension. You create a resource bundle in Jaspersoft Studio or a text editor. You set the base name of the resource bundle in the header of the JRXML file:

```
<jasperReport name="StoreSales" pageWidth="595" pageHeight="842" columnWidth="515"
leftMargin="40" rightMargin="40" topMargin="50" bottomMargin="50"
resourceBundle="simpleTable">
```


For example, simpleTable is the base name of the resource bundle file for this report. If you prefer using a graphical user interface to coding in XML, use Jaspersoft Studio to set the base name of the resource bundle.

Running a Localized Report

In this procedure, you run the Romanian version of the complex report that you added in [Uploading Undetected File Resources](#).

To run the Romanian version of the complex report

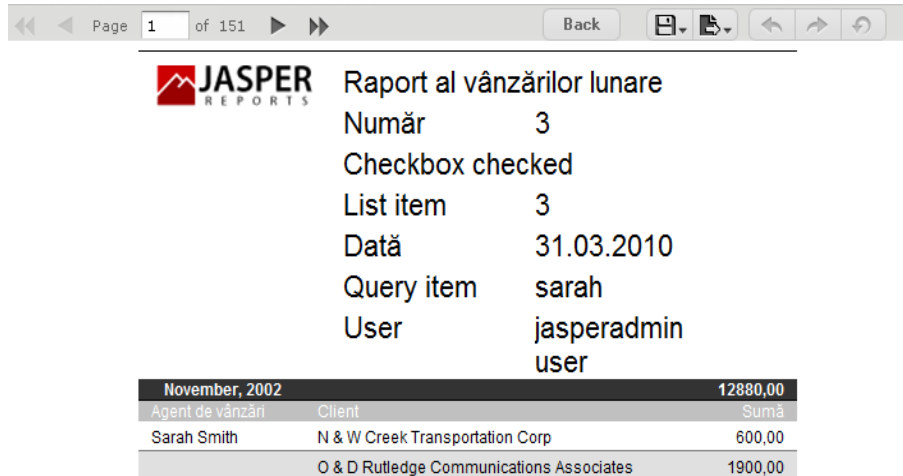
Procedure

1. Choose the Romanian locale on the login page of the server, and login as an administrator.
2. Click View > Repository, and navigate to Organization > Reports.
3. Click the name of the complex report, New Complex Report. The Input Controls dialog appears.
4. Enter input control values:
 - a. Text Input Control: 3
 - b. Check Box Input Control: Check the check box.
 - c. List Input Control: Select Third Item.
 - d. Date Input Control: Click  and select March 31, 2010.
 - e. Query Input Control: Select Sarah Smith from the drop-down.
 - f. Click OK.

The fields in the title band and column names (sales person, sales account, and sales amount), shown in [A Report Localized for the Romanian Locale](#), appear in the language set by the Romanian resource bundle `sales_ro.properties`:

```
title=Raport al v\u00E2nz\u0103rilor lunare
sales.person=Agent de v\u00E2nz\u0103ri
sales.account=Client
sales.amount=Sum\u0103
param.number=Num\u0103r
param.date=Dat\u0103
```

The currency and dates in the report output header map to Romanian locale settings.



November, 2002		12880,00
Agent de vânzări	Cliant	Sumă
Sarah Smith	N & W Creek Transportation Corp	600,00
	O & D Rutledge Communications Associates	1900,00

Figure 147: A Report Localized for the Romanian Locale

By default, the web interface elements appear in US English when you choose an unsupported locale, such as the Romanian locale. If you choose a supported language, the web interface elements appear in that language. Supported languages are Chinese (Simplified), French, German, Japanese, and Spanish. You can customize the server to support additional languages. You can translate the web interface into a different language, server property names, and messages in another language. For some locales, you may also need to change the default locale and time zone. For more information about localizing the server, see the JasperReports Server Administrator Guide.

Reusing Domain Localization Files

The location of a resource bundle determines whether it's reusable and the conditions under which the server uses it. To resolve a \$R expression in a report, the server scans resource bundles at two levels in the order described in this table.

Order	Level	Description
1	Report/ Repository	A report-level bundle declares the resource bundle base name in the header of its JRXML file. The Romanian resource bundle is a report-level bundle. A repository-level bundle is independent of any specific report and can be linked to multiple reports, as described in <i>JasperReports Server Data Management Using Domains</i> .

Order	Level	Description
2	Server	A server-wide bundle typically contains server messages and labels of user interface components, as described in the JasperReports Server Administrator Guide. This bundle typically resides in the WEB-INF/bundles directory of the server.

First, the server searches the report/repository level and stops scanning resource bundles if it finds a resolution to the \$R expression. If the server does not find a resolution, it scans the server level for the resource ID of the field and uses this ID.

Using Default Fonts in JasperReports Server

By default, the server uses three fonts for reports:

- DejaVu Sans
- DejaVu Serif
- DejaVu Sans Mono

Using the DejaVu fonts included, the server ensures availability of fonts in all environments. The PDF is pixel-perfected every time.

The DejaVu fonts replace the Java logical fonts used in previous versions of the server:

- SansSerif
- Serif
- Monospaced



SansSerif, Serif, Monospaced can still be used, but are deprecated because these Java logical fonts map to different TTF files in different environments, and run the risk of text being cut when exported to PDF due to font metric mismatches. Also, these Java logical fonts are not recognized by some browsers, resulting in font substitutions. For example, Firefox in a Windows environment renders the SansSerif logical font as Serif.

When using the DejaVu fonts coming from font extensions, you do not need to set any other font attributes (such as the pdfXXX attributes) in the JRXML or specify font mapping. The font extension file that makes these fonts available sets font attributes and mapping.

For more information about DejaVu, refer to its SourceForge project at:

http://dejavu-fonts.org/wiki/index.php?title=Main_Page.



When you upload a TrueType font to the repository, the file name must include the correct extension (.TTF).

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The documentation for this product is available on the [JasperReports® Server Product Documentation](#) page.

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