



JASPERSOFT OLAP COMMUNITY PROJECT USER GUIDE

RELEASE 4.0

<http://www.jaspersoft.com>

Copyright © 2011 Jaspersoft Corporation. All rights reserved. Printed in the U.S.A. Jaspersoft, the Jaspersoft logo, JasperAnalysis, JasperServer, JasperETL, JasperReports, JasperReports Server, and iReport, are trademarks and/or registered trademarks of Jaspersoft Corporation in the United States and in jurisdictions throughout the world. All other company and product names are or may be trade names or trademarks of their respective owners.

This is version 0111-JSP40-11 of the *Jaspersoft OLAP Community Project User Guide*.

TABLE OF CONTENTS

Chapter 1	Introduction to Jaspersoft OLAP	5
1.1	Login	5
1.2	External Sources of Information	7
1.3	Jaspersoft ODBO Connect	8
Chapter 2	Working with OLAP Views	9
2.1	Opening an OLAP View	9
2.2	Analysis Tool Bar	11
2.2.1	Drill into a Dimension Member	11
2.2.2	Sort Across Hierarchy	11
2.2.3	Show Empty Rows & Columns	11
2.2.4	Swap Axes	12
2.2.5	Edit Display Option	12
2.2.6	Show Chart	14
2.2.7	Edit Chart Options	14
2.2.8	Change Data Cube	15
2.2.9	Show MDX Query	15
2.2.10	Export to Excel	16
2.2.11	Export to PDF	16
2.2.12	Edit Output Operations	16
2.2.13	Save Buttons	17
2.3	Navigation Table	17
2.3.1	Expand/Collapse Position	17
2.3.2	Expand/Collapse Member	17
2.3.3	Zoom In/Out	18
2.3.4	Show Source Data (Drill-through)	18
2.3.5	Expand All/Collapse All	18
2.3.6	Zoom Out All	18
2.4	Drill-through Table	19
2.4.1	Edit Properties	19

2.4.2	Output as CSV	19
2.4.3	Page Controls	19
2.5	Saving an OLAP View	19
Chapter 3	Jaspersoft OLAP Administration	21
3.1	Overview	21
3.2	Administering OLAP Views	22
3.2.1	Overview of an OLAP View	22
3.2.2	Creating an OLAP View with a Mondrian Connection	23
3.2.3	Creating an OLAP View with an XML/A Connection	29
3.2.4	Editing an OLAP View	32
3.3	Working with OLAP Settings	34
3.3.1	Changing OLAP Settings	34
3.3.2	Flushing the OLAP Cache	40
3.4	Editing a Mondrian Connection	40
3.5	Editing an XML/A Connection	44
3.6	Creating an OLAP Schema	45
3.7	Editing an OLAP Schema	46
3.8	Editing a Data Source	46
3.9	XML/A Configuration	48
3.9.1	Creating an XML/A Source	48
3.9.2	Editing an XML/A Source	49
3.10	Logging	50
3.11	Technical Considerations	50
3.11.1	XML/A Security	50
3.11.2	Performance Tuning	51
Glossary		53
Index		61

CHAPTER 1 INTRODUCTION TO JASPERSOFT OLAP

The JasperReports Server Community Project builds on JasperReports as a comprehensive family of Business Intelligence (BI) products, providing robust static and interactive reporting, report server, and data analysis capabilities. These capabilities utilize 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.

In a nutshell, JasperReports Server provides the ability to:

- Efficiently and securely manage many reports.
- Interact with reports, including entering parameters and drilling on data.
- Schedule reports for distribution via email and storage in the repository.

For business intelligence users, we offer Jaspersoft OLAP, which runs on the server. It is described in this user guide.

Jaspersoft provides several other sources of information to help extend your knowledge of JasperReports Server:

- Our Ultimate Guides document advanced features and configuration. They also include best practice recommendations and numerous examples. The guides are available as downloadable PDFs. Community project users can purchase individual guides or bundled documentation packs from the Jaspersoft [online store](#). Commercial customers can download them freely from the [support portal](#).
- Our free [samples](#), which are installed with JasperReports, iReport, and JasperReports Server, are documented [online](#).
- JasperForge, our [community website](#), hosts open source projects, associated source code, tools for bug tracking, version control, and forums for community discussion. You'll find development and implementation advice, a secure development environment for community-driven projects, and community feedback.

1.1 Login

To login to JasperReports Server to access Jaspersoft OLAP:

1. Enter `http://hostname:8080/jasperserver` in your browser (where `hostname` is the name of the computer where JasperReports Server is installed).

The Jaspersoft Login page appears.

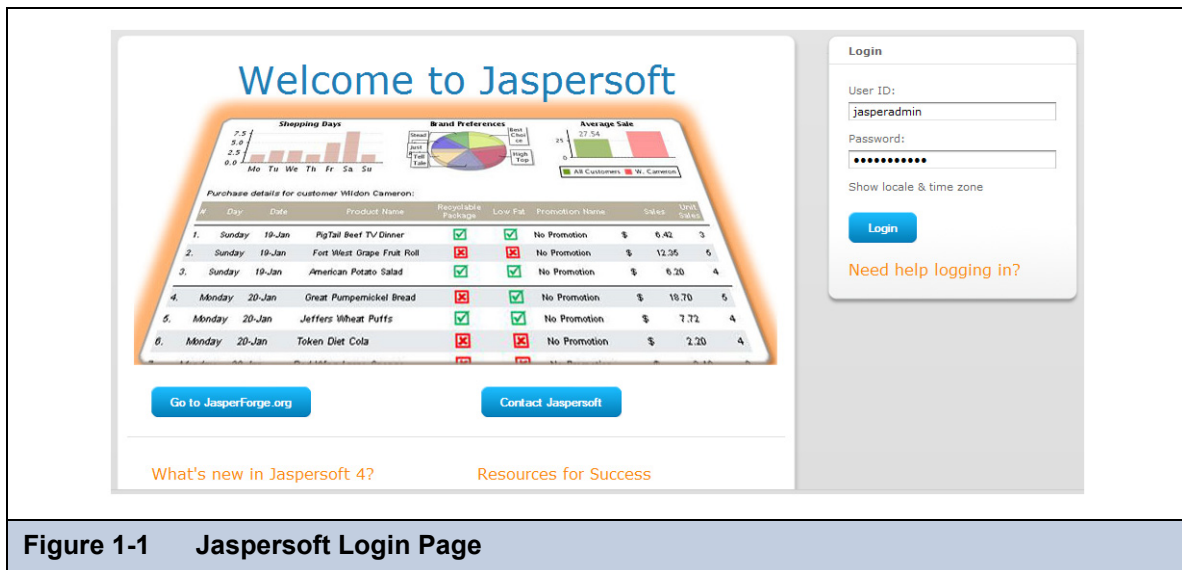


Figure 1-1 Jaspersoft Login Page



Before logging in, you might review the links that appear on the login page.

2. To log in, enter your user name and password.

If you installed the sample data, you can use any of the user names and passwords shown, as well as your own. The default administrator user is jasperadmin; its password is set to jasperadmin during installation.

3. Under the Login panel, click **Show locale & timezone**.

The **Locale** and **Time Zone** fields appear.

4. Select your locale and time zone from the drop-down menus.
5. Click **Login**.



If the **Change password** link appears, you can change your password by clicking it.

The repository page appears.

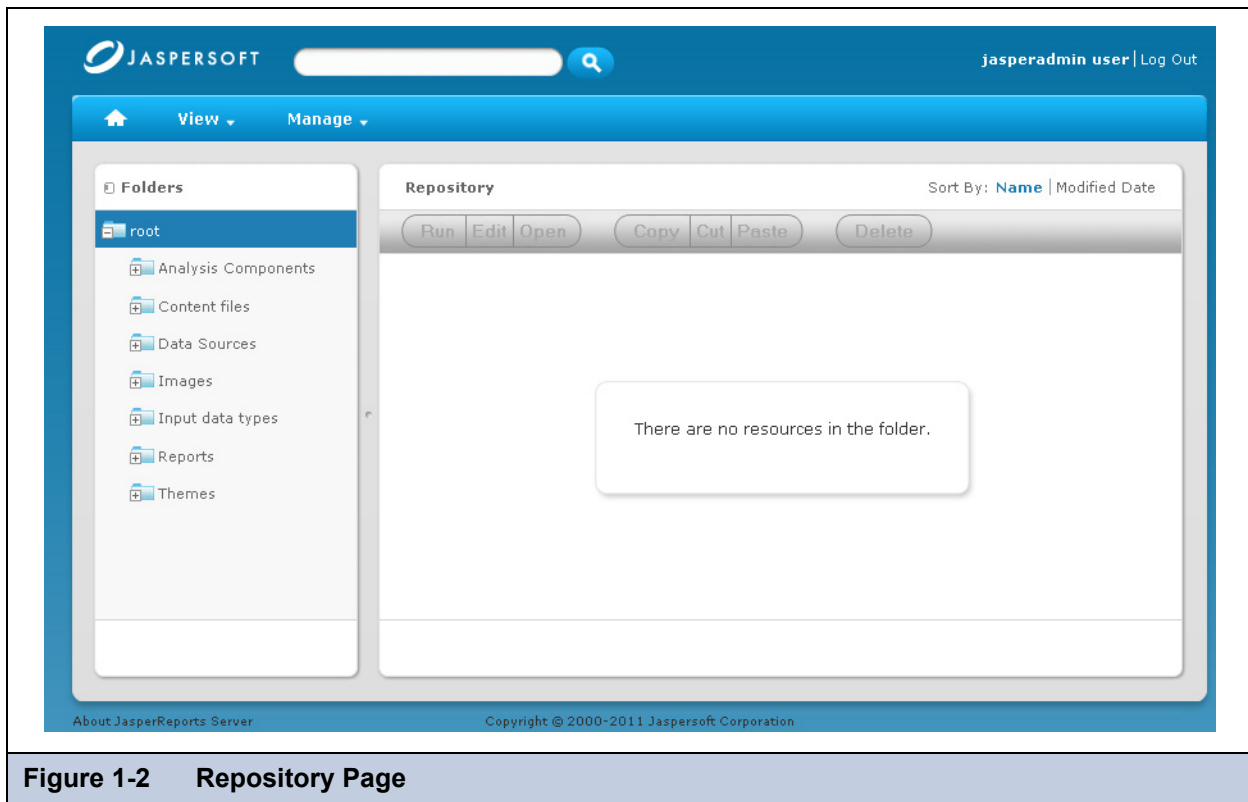


Figure 1-2 Repository Page

You can browse the repository using the left-hand panel, search the repository by entering text in the field at the top of the page, and select further options from the **View** and **Manage** menus.

1.2 External Sources of Information

As analytic practices permeate the business sector, reference books about OLAP and MDX proliferate. While many focus on Microsoft SQL Server, the language concepts and syntax apply more broadly. The following resources can help you understand analysis:

- Mondrian Technical Guide: <http://www.jasperforge.org>
- Jaspersoft OLAP Workbench: <http://sourceforge.net>
- Historical overview of analysis: <http://en.wikipedia.org/wiki/analysis>
- JPivot SourceForge project: <http://jpivot.sourceforge.net/>
- William Pearson. *MDX at First Glance: Introduction to SQL Server MDX Essentials*. <http://www.databasejournal.com/features/mssql/article.php/1495511>
- Microsoft MDX reference: <http://msdn2.microsoft.com/en-us/library/ms145506.aspx>
- Wikipedia MDX overview and links: http://wikipedia.org/wiki/Multidimensional_Expressions
- A collection of other MDX article links: <http://msdn2.microsoft.com/en-us/library/ms145506.aspx>
- A collection of other MDX article links: <http://sqlblog.com/blogs/mosha/archive/2005/10/11/mdx-functions-in-analysis-services-2005.aspx>
- Official XML/A home: <http://www.xmla.org/>

1.3 Jaspersoft ODBO Connect

Jaspersoft ODBO Connect enables Microsoft Excel Pivot Tables to access Jaspersoft OLAP and other OLAP servers that support the XML for Analysis (XML/A) Simple Object Access Protocol (SOAP) protocol. It lets users familiar with Excel leverage those skills to explore their OLAP cubes and create pivot tables based on them.

Jaspersoft ODBO Connect is described in its own user guide, which is installed with the product.

CHAPTER 2 WORKING WITH OLAP VIEWS

Jaspersoft OLAP is an On Line Analytical Processing (OLAP) application. OLAP applications help users analyze and understand complex data. Jaspersoft OLAP Community Project uses JPivot for analytical processing with an improved user interface.



The procedures in this document assume that you installed JasperReports Server with its sample data. The schemas and views it describes are available only if the samples are installed.

2.1 Opening an OLAP View

An OLAP view consists of a client connection and an MDX query. A client connection is either a Mondrian connection or an XML/A connection; it provides the data that appears in the view. Jaspersoft OLAP contains a number of sample OLAP views. For simplicity, this guide assumes you installed the sample data and are logged in as a user with an administrator role (that is, that you have access to the view and its data).

To open an OLAP view:

1. Click **View > Repository**.
The repository appears.
2. Scroll through the repository to select an OLAP view or, type the name (or partial name) of the view you want to see in the search field at the top of the page.
For example, type in `Foodmart` or `Food`.
The repository reappears, displaying the objects that match your text.

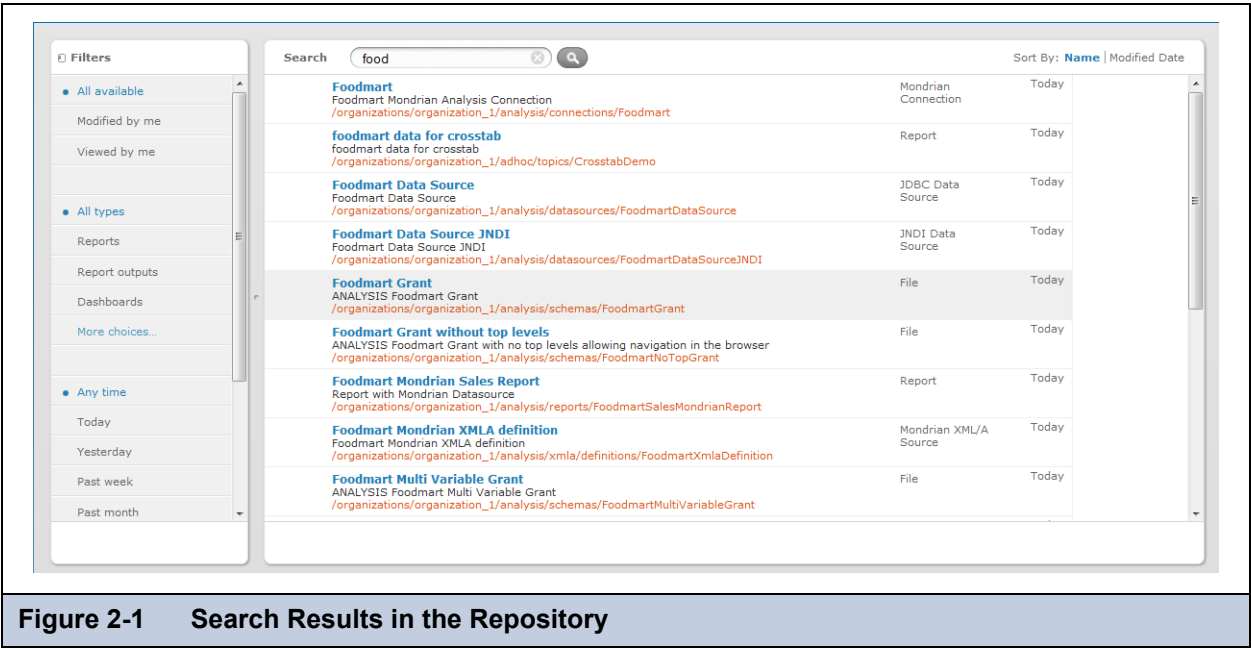


Figure 2-1 Search Results in the Repository

3. To display an OLAP view, right-click it and select **Run**. For example, right-click **Foodmart Sample Analysis View** and click **Run** to display the Foodmart sample view.

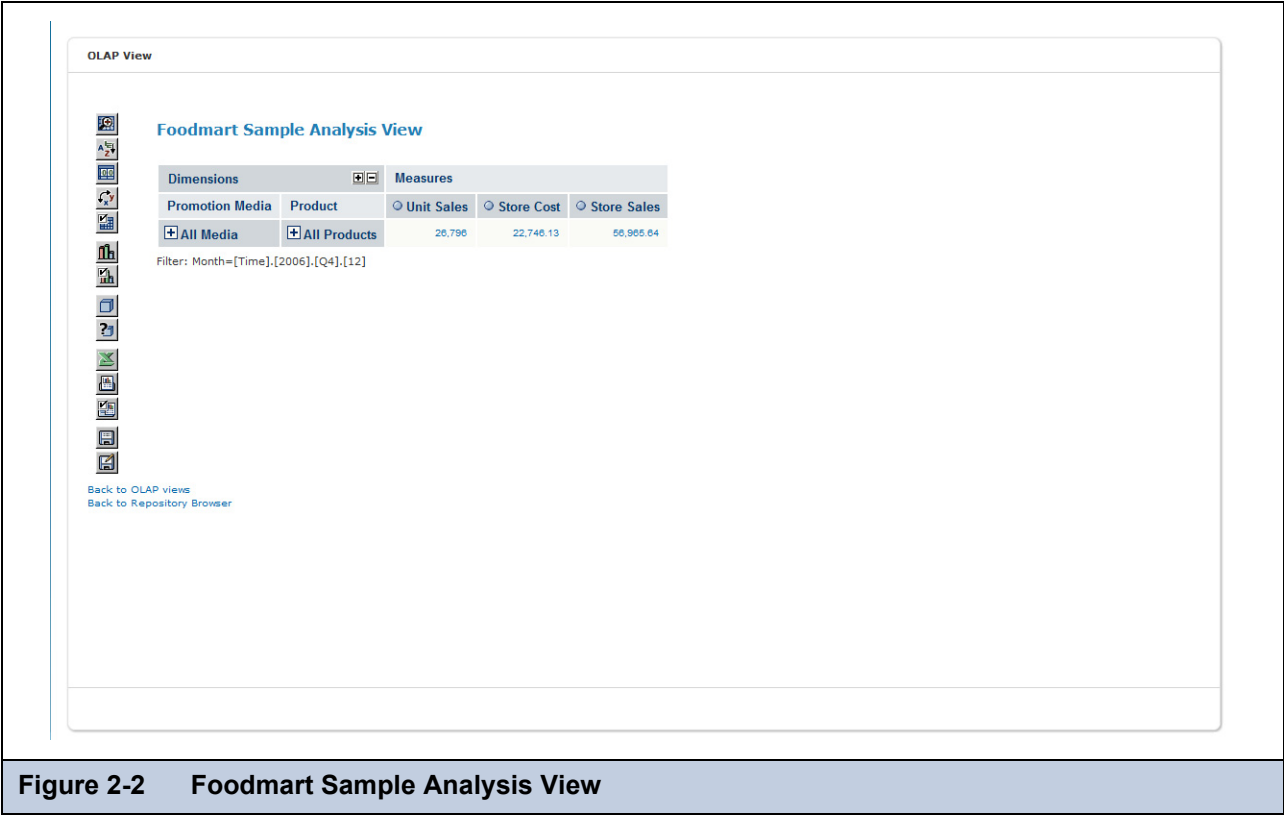



Figure 2-2 Foodmart Sample Analysis View

- Jaspersoft OLAP displays the default view.
4. Click the tool bar buttons and values in the navigation table to explore the data.

2.2 Analysis Tool Bar

The tool bar on left side of the view (**Figure 2-2 on page 10**) provides access to many OLAP operations and features described in the following sections.

2.2.1 Drill into a Dimension Member




Zoom on Drill

Toggles (that is, turns on or off) the zoom in/out hyperlinks for hierarchy members. In the following navigation table, Zoom on Drill is selected; All Media and All Products are hyperlinks; click them to view the members of their hierarchies.

Dimensions		Measures		
Promotion Media	Product	Unit Sales	Store Cost	Store Sales
+ All Media	+ All Products	26,796	22,746.13	56,965.64

Filter: Month=[Time].[2006].[Q4].[12]

2.2.2 Sort Across Hierarchy




Sort Across Hierarchy

Toggles between sort across and sort within hierarchy. In the following example, Sort Across Hierarchy is selected, and the Unit Sales measure is sorted in descending order across the Product hierarchy.

Dimensions			Measures		
Promotion Media	Product	Product Family	Unit Sales	Store Cost	Store Sales
+ All Media	+ All Products		26,796	22,746.13	56,965.64
	All Products	+ Food	19,356	16,562.05	41,484.40
		+ Non-Consumable	5,021	4,258.77	10,679.21
		+ Drink	2,419	1,925.31	4,802.03

Filter: Month=[Time].[2006].[Q4].[12]

2.2.3 Show Empty Rows & Columns




Hide Empty Rows/Columns

Hides or reveals rows or columns that do not have relevant fact data. The following example includes empty rows for Promotion Media (Street Handout; Sunday Paper; and Sunday Paper, Radio, TV).

<input type="checkbox"/> All Media	All Products	<input type="checkbox"/> Drink	2,419	1,925.31	4,802.03
No Media	All Products	<input type="checkbox"/> Drink	1,906	1,497.47	3,723.05
Cash Register Handout	<input type="checkbox"/> All Products		1,600	1,353.09	3,378.48
Daily Paper, Radio, TV	<input type="checkbox"/> All Products		1,490	1,261.18	3,159.52
Product Attachment	<input type="checkbox"/> All Products		1,261	1,054.75	2,688.41
Radio	<input type="checkbox"/> All Products		518	454.06	1,139.10
Daily Paper, Radio	<input type="checkbox"/> All Products		500	388.41	979.77
Daily Paper	<input type="checkbox"/> All Products		444	399.74	991.13
In-Store Coupon	<input type="checkbox"/> All Products		75	59.84	160.30
Sunday Paper, Radio	<input type="checkbox"/> All Products		60	50.60	120.51
Bulk Mail	<input type="checkbox"/> All Products		30	28.60	74.39
Street Handout	<input type="checkbox"/> All Products				
Sunday Paper	<input type="checkbox"/> All Products				
Sunday Paper, Radio, TV	<input type="checkbox"/> All Products				
	All Products	<input type="checkbox"/> Drink			
		<input type="checkbox"/> Food			

2.2.4 Swap Axes



Swap Axes

Changes the orientation of the table by switching the columns and rows. In the following example, axes for measure columns and dimension rows are switched.

<div>Dimensions</div> <div> <div>Promotion Media</div> <div>All Media</div> <div>Product</div> <div>All Products</div> </div>							
Measure							
Store Sales	56,965.64	4,802.03	41,484.40	10,679.21	1,441.48	2,655.45	705.10
Unit Sales	26,796	2,419	19,356	5,021	681	1,299	439
Store Cost	22,746.13	1,925.31	16,562.05	4,258.77	579.52	1,054.70	291.09

filter: Month=[Time].[2006].[Q4].[12]

2.2.5 Edit Display Option

Edit Display Options

Allows users to configure the cube options, drill-through options, and sort options, as described in the following sections.

Dimensions

Promotion Media

All Media

Product

All Products

Product Family

Measures

Unit Sales

Store Cost

Store Sales

All Products	Drink	Food	Non-Consumable	Drink	Alcoholic Beverages	Beverages	Dairy
26,796	4,802.03	41,484.40	10,679.21	1,441.48	2,655.45	705.10	
2,419	19,356	5,021	681	1,299	439		
22,746.13	1,925.31	16,562.05	4,258.77	579.52	1,054.70	291.09	

filter: Month=[Time].[2006].[Q4].[12]

views
story Browser

Display Options

Cube Options:

☒ Show all parent columns

☐ Show individual parent cells

☐ Include member attributes

Drill-through Options:

☐ Show table below cube (on same page)

☐ Hide drill-through links

☒ Include only selected measure

Sort Options:

☐ Sort across cube hierarchy

☐ Start sorting in descending order

☐ Display only the first N rows

Number of rows: 10

OK

Cancel

2.2.5.1 Cube Options

Show all parent columns

Displays the column headings of a given hierarchy. The following navigation table shows Product and Product Family as parent column headings.

Dimensions			Measures		
Promotion Media	Product	Product Family	Unit Sales	Store Cost	Store Sales
All Media	All Products		26,796	22,746.13	56,955.64
	All Products	Drink	2,419	1,925.31	4,802.03
		Food	19,356	16,562.05	41,484.40
		Non-Consumable	5,021	4,258.77	10,679.21

Show individual parent cells	Displays each parent member of a given hierarchy. The following navigation table displays all parent cells for Promotion Media and Product dimensions.																																																																																									
<div><table><tr><th colspan="3">Dimensions</th><th colspan="3">Measures</th></tr><tr><th>Promotion Media</th><th>Media Type</th><th>Product</th><th>Unit Sales</th><th>Store Cost</th><th>Store Sales</th></tr><tr><td>All Media</td><td></td><td>All Products</td><td>26,796</td><td>22,746.13</td><td>56,965.64</td></tr><tr><td rowspan="14">All Media</td><td>Bulk Mail</td><td>All Products</td><td>30</td><td>28.60</td><td>74.39</td></tr><tr><td>Cash Register Handout</td><td>All Products</td><td>1,600</td><td>1,353.09</td><td>3,378.48</td></tr><tr><td>Daily Paper</td><td>All Products</td><td>444</td><td>399.74</td><td>991.13</td></tr><tr><td>Daily Paper, Radio</td><td>All Products</td><td>500</td><td>388.41</td><td>979.77</td></tr><tr><td>Daily Paper, Radio, TV</td><td>All Products</td><td>1,490</td><td>1,261.18</td><td>3,159.52</td></tr><tr><td>In-Store Coupon</td><td>All Products</td><td>75</td><td>59.84</td><td>160.30</td></tr><tr><td>No Media</td><td>All Products</td><td>20,818</td><td>17,695.87</td><td>44,274.03</td></tr><tr><td>Product Attachment</td><td>All Products</td><td>1,261</td><td>1,054.75</td><td>2,688.41</td></tr><tr><td>Radio</td><td>All Products</td><td>518</td><td>454.06</td><td>1,139.10</td></tr><tr><td>Street Handout</td><td>All Products</td><td></td><td></td><td></td></tr><tr><td>Sunday Paper</td><td>All Products</td><td></td><td></td><td></td></tr><tr><td>Sunday Paper, Radio</td><td>All Products</td><td>60</td><td>50.60</td><td>120.51</td></tr><tr><td>Sunday Paper, Radio, TV</td><td>All Products</td><td></td><td></td><td></td></tr><tr><td>TV</td><td>All Products</td><td></td><td></td><td></td></tr></table><p>filter: Month=[Time].[2006].[Q4].[12]</p></div>		Dimensions			Measures			Promotion Media	Media Type	Product	Unit Sales	Store Cost	Store Sales	All Media		All Products	26,796	22,746.13	56,965.64	All Media	Bulk Mail	All Products	30	28.60	74.39	Cash Register Handout	All Products	1,600	1,353.09	3,378.48	Daily Paper	All Products	444	399.74	991.13	Daily Paper, Radio	All Products	500	388.41	979.77	Daily Paper, Radio, TV	All Products	1,490	1,261.18	3,159.52	In-Store Coupon	All Products	75	59.84	160.30	No Media	All Products	20,818	17,695.87	44,274.03	Product Attachment	All Products	1,261	1,054.75	2,688.41	Radio	All Products	518	454.06	1,139.10	Street Handout	All Products				Sunday Paper	All Products				Sunday Paper, Radio	All Products	60	50.60	120.51	Sunday Paper, Radio, TV	All Products				TV	All Products			
Dimensions			Measures																																																																																							
Promotion Media	Media Type	Product	Unit Sales	Store Cost	Store Sales																																																																																					
All Media		All Products	26,796	22,746.13	56,965.64																																																																																					
All Media	Bulk Mail	All Products	30	28.60	74.39																																																																																					
	Cash Register Handout	All Products	1,600	1,353.09	3,378.48																																																																																					
	Daily Paper	All Products	444	399.74	991.13																																																																																					
	Daily Paper, Radio	All Products	500	388.41	979.77																																																																																					
	Daily Paper, Radio, TV	All Products	1,490	1,261.18	3,159.52																																																																																					
	In-Store Coupon	All Products	75	59.84	160.30																																																																																					
	No Media	All Products	20,818	17,695.87	44,274.03																																																																																					
	Product Attachment	All Products	1,261	1,054.75	2,688.41																																																																																					
	Radio	All Products	518	454.06	1,139.10																																																																																					
	Street Handout	All Products																																																																																								
	Sunday Paper	All Products																																																																																								
	Sunday Paper, Radio	All Products	60	50.60	120.51																																																																																					
	Sunday Paper, Radio, TV	All Products																																																																																								
	TV	All Products																																																																																								
Include member attributes	Displays the member properties of the displayed hierarchy members.																																																																																									


2.2.5.2 Drill-through Operations

Show table below cube (on same page)	Displays the drill-through table below the navigation table. By default, the drill-through table appears in a separate browser window.
Hide drill-through links	Removes the hyperlinks from the fact data in measures.
Include only selected measure	Limits the display to only the selected measure in the drill-through table.

2.2.5.3 Sort Option

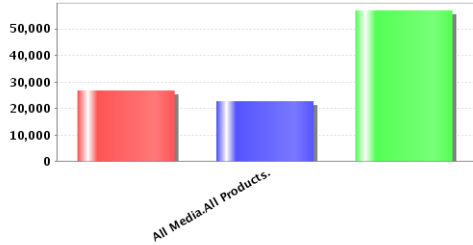
Sort across cube hierarchy	Changes the behavior of sorting across or within dimension hierarchies. See 2.2.2, “Sort Across Hierarchy,” on page 11 .
Start sorting in descending order	Toggles the sort behavior between ascending and descending.
Display only the first N rows	Limits the number of rows displayed after sorting.

2.2.6 Show Chart



Show Chart

Displays a chart of the navigation table data. The following example shows a bar chart that represents the columns in these measures: Unit Sales, Store Cost, and Store Sales.




Filter: Month=[Time].[2006].[Q4].[12]

Unit Sales, Store Cost, Store Sales

Dimensions	Measures
Promotion Media	Product
Unit Sales	Store Cost
Store Sales	

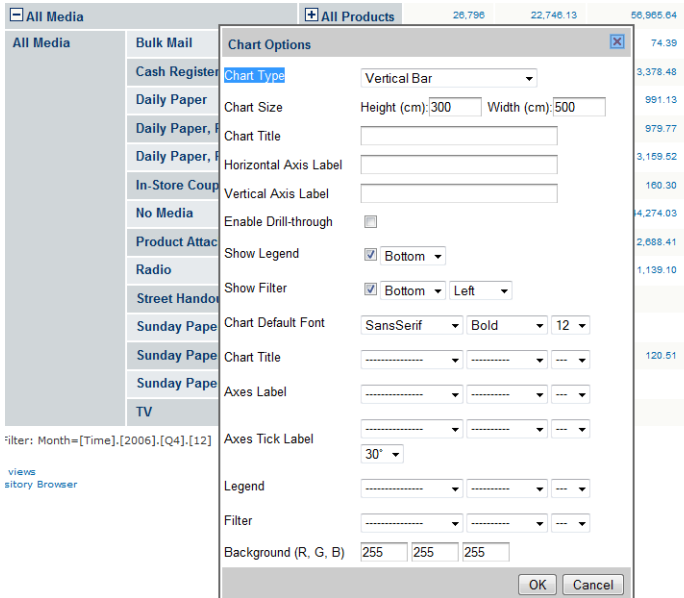
Filter: Month=[Time].[2006].[Q4].[12]

2.2.7 Edit Chart Options






Edit Chart Operations


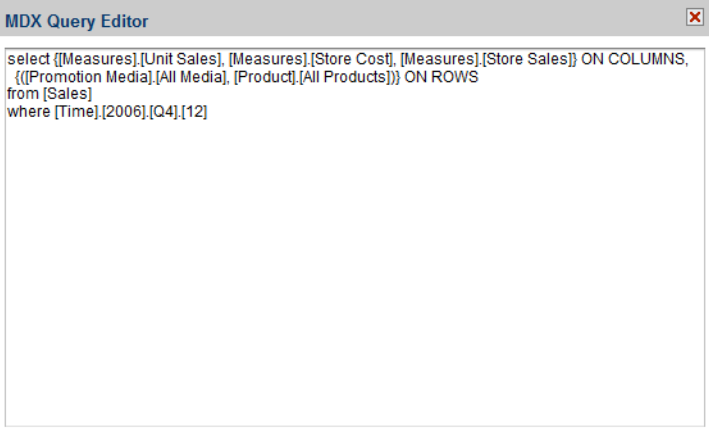
Defines various charting options.




2.2.8 Change Data Cube

	Change Data Cube	Changes an OLAP view and defines dimension filters. Click Change Data Cube to display the options in the following figure.
<div><div><div>Columns </div><div>Measures</div><div>Rows</div><div><div><div><div>▼</div><div>▼</div></div>Promotion Media</div><div><div><div>▼</div><div>▲</div></div>Product</div></div><div>Filter</div><div><div><div><div>■</div><div>■</div></div>Customers</div><div><div><div>■</div><div>■</div></div>Education Level</div><div><div><div>■</div><div>■</div></div>Gender</div><div><div><div>■</div><div>■</div></div>Marital Status</div><div><div><div>■</div><div>■</div></div>Promotions</div><div><div><div>■</div><div>■</div></div>Store</div><div><div><div>■</div><div>■</div></div>Store Size in SQFT</div><div><div><div>■</div><div>■</div></div>Store Type</div><div><div><div>■</div><div>■</div></div>Time (Month=12)</div><div><div><div>■</div><div>■</div></div>Yearly Income</div></div><div><div>OK</div><div>Cancel</div></div></div><div><div><div>Dimensions</div><div></div></div><div><div>Promotion Media</div><div>Product</div></div><div><div><div>+</div>All Media</div><div><div>+</div>All Products</div></div><div><div>Measures</div><div><div><div>○</div>Unit Sales</div><div><div>○</div>Store Cost</div><div><div>○</div>Store Sales</div></div><div><div>26,796</div><div>22,746.13</div><div>56,965.64</div></div></div></div></div>		
	Columns	Selects specific measures to display.
	Rows	Selects specific dimension members to display.
	Filter	Selects specific dimension members that don't appear in the navigation table. This selection determines the data displayed in the navigation table.

2.2.9 Show MDX Query


	Show MDX Query	Changes the navigation table by editing the MDX query that generates the view. This feature is intended for advanced users familiar with MDX and the data structures underlying the view.
		 <pre> select {[Measures].[Unit Sales], [Measures].[Store Cost], [Measures].[Store Sales]} ON COLUMNS, {[Promotion Media].[All Media], [Product].[All Products]] ON ROWS from [Sales] where [Time].[2006].[Q4].[12] </pre>

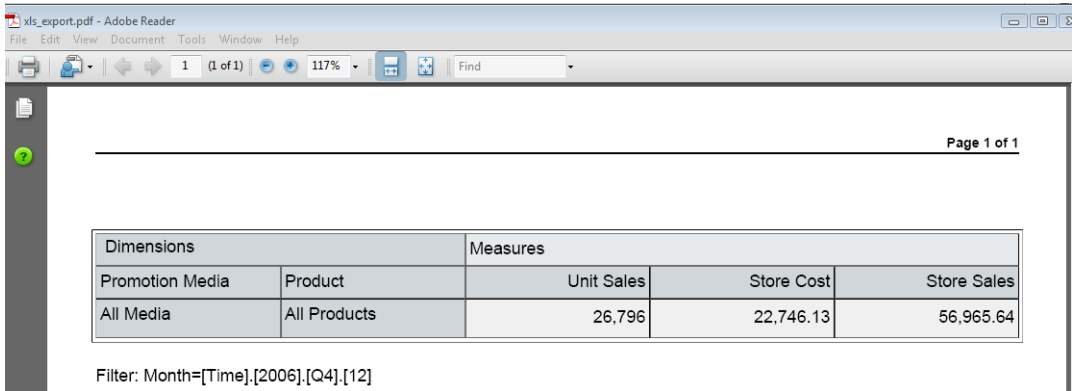
2.2.10 Export to Excel

	Export to Excel	Prompts you to view or save the current navigation table in Microsoft Excel format.
---	-----------------	---

	A	B	C	D	E
1	Dimensions		Measures		
2	Promotion Media	Product	Unit Sales	Store Cost	Store Sales
3	All Media	All Products	26,796	22,746.13	56,965.64
4	Filter: Month=[Time].[2006].[Q4].[12]				
5					

2.2.11 Export to PDF

	Export to PDF	Prompts you to view or save the current navigation table in Adobe Acrobat PDF format.
---	---------------	---




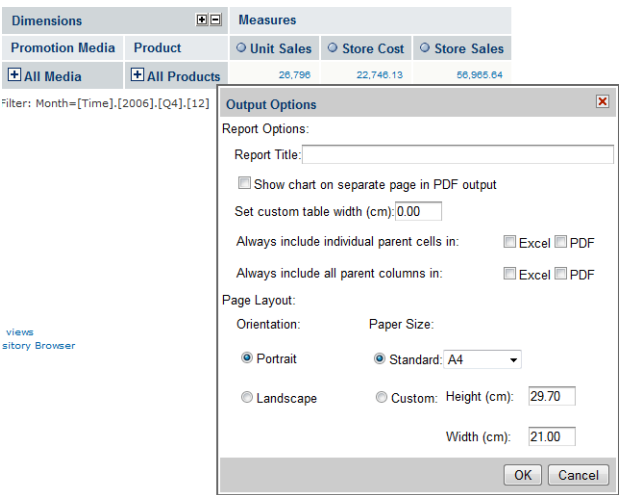
The screenshot shows a PDF document titled 'xls_export.pdf' in Adobe Reader. The document contains a table with the following data:

Dimensions		Measures		
Promotion Media	Product	Unit Sales	Store Cost	Store Sales
All Media	All Products	26,796	22,746.13	56,965.64

Filter: Month=[Time].[2006].[Q4].[12]

2.2.12 Edit Output Operations

	Edit Output Options	Defines various output options.
---	---------------------	---------------------------------





The screenshot shows the Jaspersoft OLAP interface with the 'Output Options' dialog box open. The dialog box has the following sections:

- Report Options:**
 - Report Title:
 - ☐ Show chart on separate page in PDF output
 - Set custom table width (cm):
 - Always include individual parent cells in: ☐ Excel ☐ PDF
 - Always include all parent columns in: ☐ Excel ☐ PDF
- Page Layout:**
 - Orientation: ☒ Portrait ☐ Landscape
 - Paper Size: ☒ Standard: A4 ☐ Custom: Height (cm): Width (cm):

Buttons: OK, Cancel

2.2.13 Save Buttons



	Save View	Saves this OLAP view. Changes you've made since you opened the view are saved to the repository. If you don't have permission to save the view in its current location, the Save View As dialog prompts you to select a new location.
	Save View As	Saves this OLAP view under a new name and location. Changes you've made since opening the view are saved to the repository in the location you select. Note that you cannot use the Save View As button to overwrite an existing view (even if you have sufficient permissions).






For more information, refer to [2.5, “Saving an OLAP View,”](#) on page 19.

2.3 Navigation Table

The navigation table appears at the top of the OLAP view ([Figure 2-2 on page 10](#)). It shows the data that is retrieved by the current MDX query, which appears in both the main view and in drill-through tables.

2.3.1 Expand/Collapse Position














	Expand Position	Expands or collapses rows at a specific hierarchy member. In the following navigation table, the All Media member is collapsed: it can be expanded; the All Products member is expanded and can be collapsed.
	Collapse Position	

Dimensions			Measures		
Promotion Media	Product	Product Family	Unit Sales	Store Cost	Store Sales
 All Media	 All Products		26,796	22,746.13	56,965.64
	All Products	 Drink	2,419	1,925.31	4,802.03
		 Food	19,356	16,562.05	41,484.40
		 Non-Consumable	5,021	4,258.77	10,679.21

Filter: Month=[Time].[2006].[Q4].[12]

2.3.2 Expand/Collapse Member

Expand/Collapse Member	Synchronizes the expansion or contraction of rows across all hierarchy members when they are clicked. The following navigation table shows the Product member expanded for the Promotion Media hierarchy member.				
------------------------	--	--	--	--	--

Dimensions				Measures		
Promotion Media	Media Type	Product	Product Family	Unit Sales	Store Cost	Store Sales
 All Media		 All Products		26,796	22,746.13	56,965.64
		All Products	 Drink	2,419	1,925.31	4,802.03
			 Food	19,356	16,562.05	41,484.40
			 Non-Consumable	5,021	4,258.77	10,679.21
All Media	Bulk Mail	 All Products		30	28.60	74.39
		All Products	 Drink	6	4.87	13.57
			 Food	22	22.34	57.50
			 Non-Consumable	2	1.39	3.32
	Cash Register Handout	 All Products		1,600	1,353.09	3,379.48
		All Products	 Drink	162	144.85	361.74
			 Food	1,154	972.60	2,430.11
			 Non-Consumable	284	235.64	586.03

2.3.3 Zoom In/Out

Zoom In/Out

Click hyperlinked hierarchy members to replace the current table with a sub-table that depicts the selected member. The following navigation table shows the table displayed when you zoom in on the Drink product of All Products.

Dimensions				Measures		
Promotion Media	Product	Product Family	Product Department	Unit Sales	Store Cost	Store Sales
+ All Media	- All Products			26,796	22,746.13	56,965.64
	All Products	- Drink		2,419	1,925.31	4,802.03
		Drink	+ Alcoholic Beverages	681	579.52	1,441.48
			+ Beverages	1,299	1,054.70	2,655.45
			+ Dairy	439	291.09	705.10

2.3.4 Show Source Data (Drill-through)

Show Source Data

Click hyperlinked fact data to display additional columns from that specific fact data. The following drill-through table shows the drill-through of Total Unit Sale for Alcoholic Beverages. For more information about the drill-through table's options, refer to 2.4, “Drill-through Table,” on page 19.

Drill Through Table for [Unit_Sales = 681]

Store_Country	Store_State	Store_City	Store_Name	Store_Sqft	Store_Type	Year	Quarter	Month	Week	Day	Product_Family	Product_Department	Product_Category
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	16	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	16	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	16	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	16	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	16	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	20	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	1	20	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	3	29	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	3	29	Drink	Alcoholic Beverages	Beer and Wine
USA	CA	Beverly Hills	Store 6	23688	Gourmet Supermarket	2006	Q4	12	3	29	Drink	Alcoholic Beverages	Beer and Wine

Page 1/23



Goto Page

1


Rows/page

10

2.3.5 Expand All/Collapse All

	Expand All	Expands all of the currently displayed members (all those that display the plus sign (+)) to the next level of detail in the hierarchies. This can be selected repeatedly to expand all levels of detail. This option is only available when Zoom on Drill is not active. This operation is limited by the memory available to the application server that hosts JasperReports Server. It stops expanding members when this limit is reached.
	Collapse All	Collapses the navigation table to its initial view.


2.3.6 Zoom Out All

	Zoom Out All	Restores the navigation table to its initial view after having zoomed. This option is only available when you're in Zoom on Drill mode.
---	--------------	---


2.4 Drill-through Table

The drill-through table displays supporting details for the selected roll-up value in the navigation table (described in [“Navigation Table” on page 17](#)). The following sections describe the available functionality.



2.4.1 Edit Properties


	Edit Properties	Displays at the top-left corner of the drill-through table. Selects the columns to display or hide in the drill-through table. The up and down arrows move the columns and specify the number of rows to display per page.
---	-----------------	--

2.4.2 Output as CSV

	Output as CSV	Displayed at the top-left corner of the drill-through table. Prompts you to view or save the current drill-through table in comma-separated values format.
---	---------------	--

2.4.3 Page Controls

Page 1/14 ►►	First, Previous, Next, Last	Click the arrows to navigate the pages of data.
Goto Page <input type="text" value="1"/> 	Goto Page	Enter the number of the page you want to view and press return to display the page.
Rows/page <input type="text" value="10"/> 	Rows/page	Set the number of rows to display.

By default, the drill-through table opens in its own window. Edit the display options (by clicking ) to display the drill-through table on the same page as the navigation table. When the drill-through table is on the same page as the navigation table, click the small red X in the drill-through table's upper-right corner to close it.

2.5 Saving an OLAP View

After making changes to the navigation table, save the OLAP view as described in [2.2.13, “Save Buttons,” on page 17](#). With sufficient permissions, you can either overwrite the existing view or save the view with a new name. When you save, you are prompted for a name, location, and an optional description. If a view with the same name exists in this location, you are prompted to overwrite the existing file. When you save a view with a new name, JasperReports Server displays the new view, rather than the view you initially edited.



Jaspersoft OLAP only saves the drill-through table if it is displayed on the same page as the navigation table. For more information, refer to [2.2.5.2, “Drill-through Operations,” on page 13](#).

CHAPTER 3 JASPERSOFT OLAP ADMINISTRATION

Jaspersoft OLAP administration involves repository management and performance tuning. For information about more general administrative tasks, such as access control, see the *JasperReports Server Ultimate Guide*.



The **Manage** menu, discussed in some of the following sections, only appears if you have an administrative role, such as `ROLE_ADMINISTRATOR`.

This chapter includes:

- **Overview**
- **Administering OLAP Views**
- **Working with OLAP Settings**
- **Editing a Mondrian Connection**
- **Editing an XML/A Connection**
- **Editing a Mondrian Connection**
- **Editing an OLAP Schema**
- **Editing a Data Source**
- **XML/A Configuration**
- **Logging**
- **Technical Considerations**

3.1 Overview

Jaspersoft OLAP lets you analyze data organized into a hierarchical dimensional model, which has cubes and dimensions as its primary entities. In a relational database implementation of online analytical processing (OLAP), the entities reside in relational tables. This is sometimes referred to as Relational OLAP (ROLAP).

Jaspersoft OLAP is based on an open source ROLAP server called Mondrian. JPivot, an open source web-based OLAP user interface, enables users to display and navigate Mondrian's results. Jaspersoft OLAP includes an improved JPivot user interface (as compared to JPivot).

The de facto standard for OLAP query languages is MDX; many analysis applications use it. In a distributed computing environment, XML for Analysis (XML/A) is the standard for accessing OLAP data sources remotely. XML/A uses a web services architecture, and transmits MDX queries using the SOAP protocol.

To implement and maintain Jaspersoft OLAP:

1. Store cube data in a relational database and use an OLAP schema file to define the cubes. Note that using existing transactional databases may be inefficient with large amounts of data. To improve performance, use an extract, transform, and load (ETL) process: extract information from one or more data sources, integrate and transform the data, and load the result into the separate cube database.
2. Identify facts or measures (the values to summarize) and dimensions (divisions of the measures – for example, dividing time into weeks, months, and years) in the cube database.
3. Define an OLAP schema, mapping logical facts and dimensions onto the physical database. The Jaspersoft OLAP engine uses the schema to interpret the database and perform OLAP queries. The Jaspersoft OLAP Schema Workbench enables you to develop, validate, and test schemas against the database. The *Mondrian Technical Guide* gives details of schemas and their options.
4. Create an analysis client connection that includes your schema and a database connection. The repository stores the information you provide to define an analysis client connection.
5. Define entry points for analysis of the cube data, known as OLAP views. OLAP views enable end users to interact with cubes without having to know query languages, database connections, and other technical details. An OLAP view is an MDX query that is run against the cube as a starting point for interactive analysis. OLAP views appear as objects that users can select through the web interface. You can use the Jaspersoft OLAP Schema Workbench to develop and test MDX queries.
6. Plan for updates to data in the cube, usually on a regular basis (for example, nightly or weekly). After an update, flush (empty) the Jaspersoft OLAP data cache, which the server maintains to improve performance, so that subsequent queries get the results of new data. For more information, see [3.11, “Technical Considerations,” on page 50](#).
7. Tune for performance. As a database administrator, analyze the SQL queries that Jaspersoft OLAP issues against the cube database. Jaspersoft OLAP has built-in tools that enable you to track queries (for information, refer to [3.11, “Technical Considerations,” on page 50](#)). Tune the cube database accordingly with tools specific to the database type (for example, indexes and data striping). With large data volumes, you can create pre-calculated tables during the data load (ETL) process to aggregate measure values. Jaspersoft OLAP can use the aggregate tables to replace calculations and thus improve query performance.
8. Design your environment for scalability and availability. Jaspersoft OLAP can run on a single machine. However, for large numbers of users, large data volumes, and high availability, you can use a multi-host environment with load balancers and some machines dedicated to either OLAP user interface or OLAP server duties. You can use XML/A to distribute processing. For more information, refer to [“XML/A Configuration” on page 48](#).

The detailed procedures, beginning in section [3.2.2, “Creating an OLAP View with a Mondrian Connection,” on page 23](#), step you through the process of setting up all components of an OLAP view.

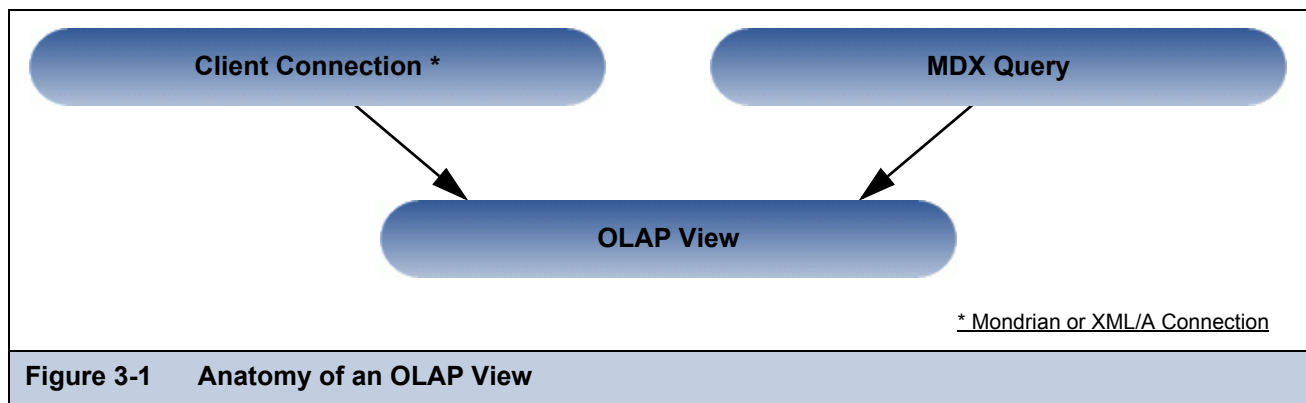
3.2 Administering OLAP Views

This section describes basic administration of OLAP views, including:

- [Overview of an OLAP View](#)
- [Creating an OLAP View with a Mondrian Connection](#)
- [Creating an OLAP View with an XML/A Connection](#)
- [Editing an OLAP View](#)

3.2.1 Overview of an OLAP View

An OLAP view is a collection of multidimensional data that is based on an analysis client connection and an MDX query. It is the entry point to analysis operations, such as slice and dice, navigate, and drill-through. Creating a view entails identifying the elements that allow Jaspersoft OLAP to retrieve and secure the data.



3.2.2 Creating an OLAP View with a Mondrian Connection

An OLAP view can retrieve data from a Mondrian connection. For more information on Mondrian connections, refer to [“Editing a Mondrian Connection” on page 40](#).

To create an OLAP view with a local Mondrian connection and an MDX query:

1. Click **View > Repository**.
The repository page appears.
2. In the **Folders** panel, navigate to **Analysis Components > Analysis Views**.
3. Right-click the folder and select **Add Resource > OLAP View**.
The Name the View page appears and prompts you to provide a name for the new view.

Add OLAP View

Name the View

Provide a name for the OLAP View.

Name (required):

Resource ID (required):

Description:

Figure 3-2 Name the View Page

4. Enter a name and description for the new view.



The **Resource ID** field is auto-generated from the **Name** field. After it is saved, it can't be changed.

5. Click **Next**.
The Locate Mondrian Client Connection Source page appears and prompts you to select or create a local Mondrian connection.

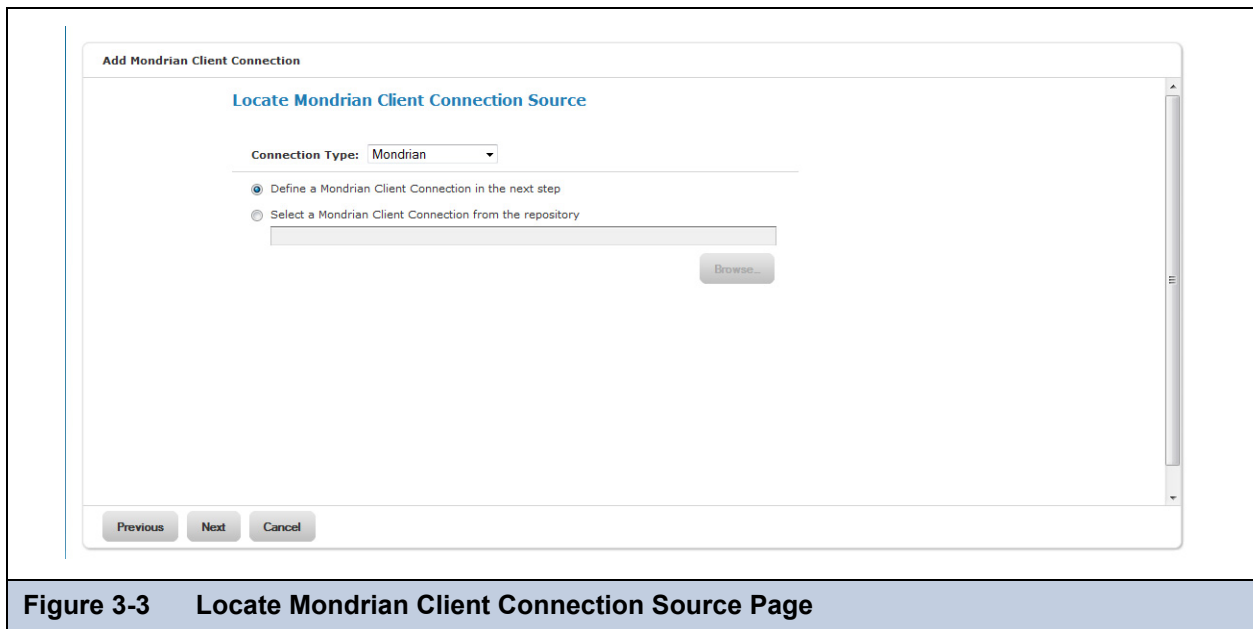


Figure 3-3 Locate Mondrian Client Connection Source Page

6. Click either:
 - ♦ **Define a Mondrian Client Connection in the next step.**
 - ♦ **Select a Mondrian Client Connection from the repository.**
Click **Browse**, navigate to the connection you want, and click **Select**.
Then click **Next** and skip to **step 22**.
7. Click **Next**.
If you choose to define a new Mondrian connection, the Set Connection Type and Properties page appears and prompts you to define a connection.

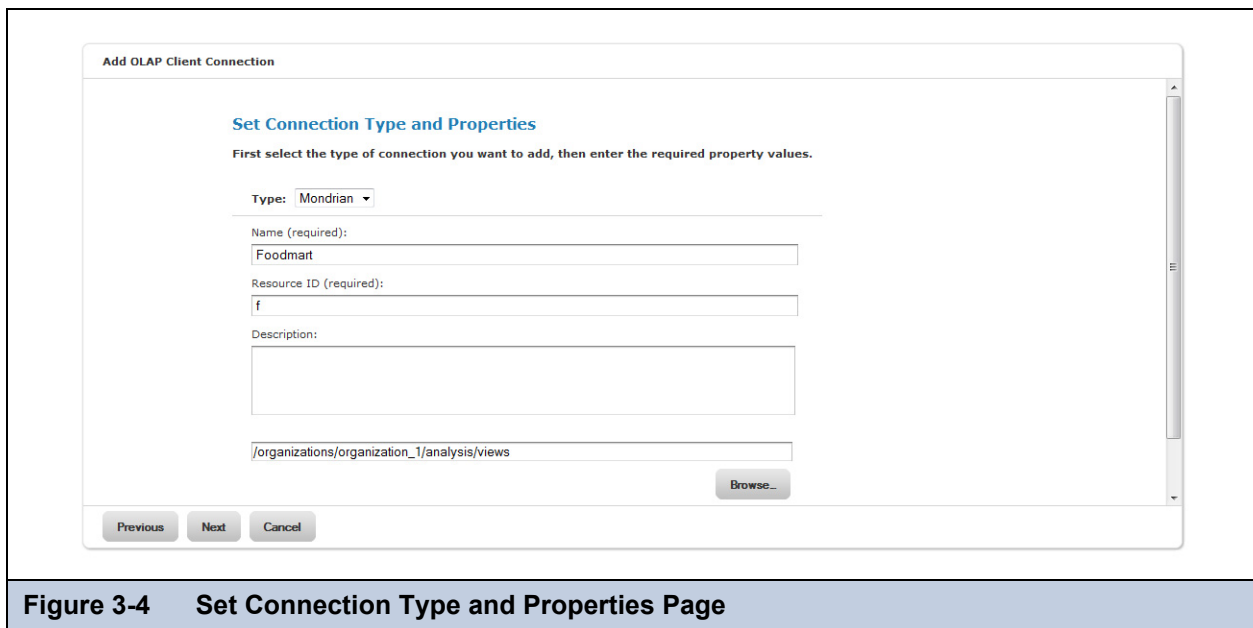
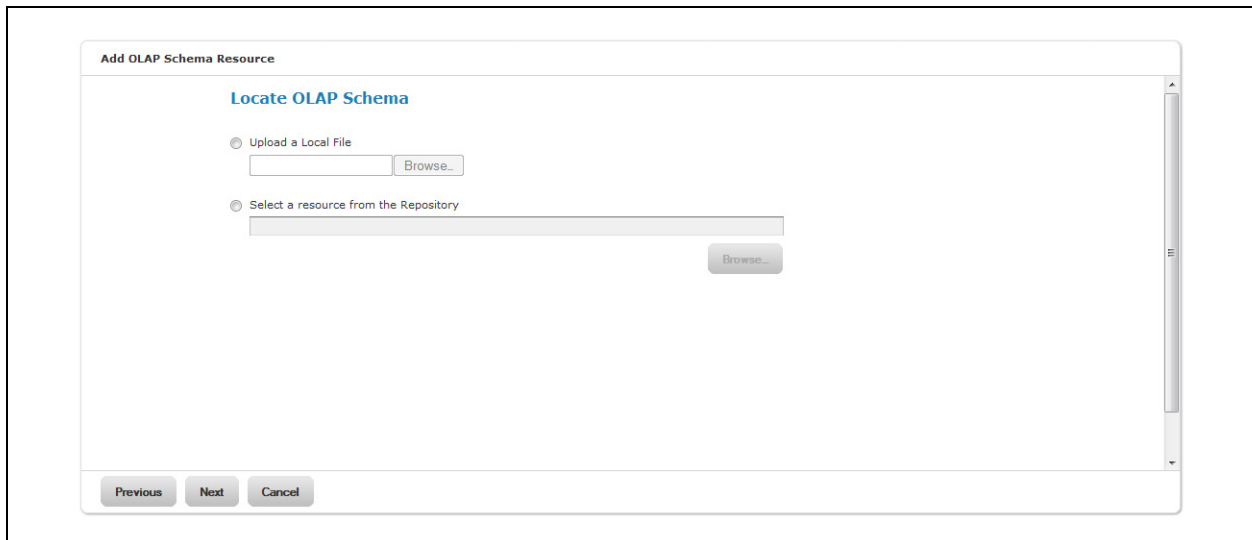


Figure 3-4 Set Connection Type and Properties Page

8. To change the type of the connection, select a connection type from the **Type** drop-down and complete the fields. Otherwise, simply change any values as necessary.
To save the connection, click **Browse**, navigate to select a folder, and then click **Select**.

9. Click **Next**.

The Locate OLAP Schema page appears and prompts you to upload an OLAP schema or select one from the repository.



The screenshot shows a window titled "Add OLAP Schema Resource". Inside, the "Locate OLAP Schema" tab is active. There are two radio buttons: "Upload a Local File" (selected) and "Select a resource from the Repository". Under "Upload a Local File", there is a text box and a "Browse..." button. Under "Select a resource from the Repository", there is a list box and a "Browse..." button. At the bottom of the window are three buttons: "Previous", "Next", and "Cancel".

Figure 3-5 Locate OLAP Schema Page

10. Click either:

- ♦ **Upload a Local File** to select a file from your local computer.
Then click **Browse**, navigate to select the file you want, and click **Select**.
- ♦ **Select a resource from the Repository** to select an existing schema.
then click **Browse**, navigate to select the schema, and click **Select**.

11. Click **Next**.

The OLAP Schema Resource page appears and prompts you to set the properties of schema. If you choose to upload a new file, the fields are editable. Otherwise, skip to [step 14](#).

OLAP Schema Details

OLAP Schema Resource

Set the properties for the resource.

Type: OLAP Schema

Selected Resource: viewsource.css

Name (required): Foodmart

Resource ID (required): food

Description:

Save Location: /organizations/organization_1/analysis/views

Browse...

Previous Next Cancel

Figure 3-6 OLAP Schema Resource Page

12. Provide a name and a description of the schema you are uploading.
13. Next to the **Save Location** field, click **Browse**, navigate to the location where you want to add the file, and then click **Select**.



If you selected an existing schema in [step 10](#), the fields on this page aren't editable.

14. Click **Next**.

The Locate Data Source page appears and prompts you to create or select a data source.



Figure 3-7 Locate Data Source Page

15. Click either:

- ♦ **Define a Data Source in the next step** to add a data source.
- ♦ **Data Source from the Repository** to select a data source from the repository.
Click **Browse**, navigate to the location where you want to add the file, and click **Select**.
Click **Next** and skip to [step 22](#).

16. Click **Next**.

If you choose to add a new data source, the Set Data Source Type and Properties page appears and prompts you to select a datatype and enter the property values.

Add Data Source

Set Data Source Type and Properties

First, select the type of data source you wish to add, then enter the required property values.

Type: **JDBC Data Source**

Name (required):

Resource ID (required):

Description:

Driver (required):

Hint: com.mysql.jdbc.Driver

URL (required):

Hint: jdbc:mysql://localhost:3306/mydb

User Name (required):

Password:

Time Zone: **Use database setting**

Hint: Do not change the time zone setting unless you know the database timestamp data is incorrect.

Save Location:

Test Connection

Submit **Cancel** **Browse...**

Figure 3-8 Set Data Source Type and Properties Page

17. In the **Type** field, select the data source type. For example, JDBC Data Source.
The fields change according to the data source you select to enable you to enter the correct values for this type of data source. For more information on creating data source, refer to the *JasperReports Server Ultimate Guide*.
18. Enter a value in each field as necessary.
19. Click **Test Connection** to ensure the connection is valid.
A yellow banner at the top of the page displays a message: **Connection successful** or **Connection failed**.
20. If the connection test fails, check the values you entered, or check that the data is available from the service you specify, and test the connection again.
21. When the test succeeds, click **Submit**.
The Define the Query page appears and prompts you for an MDX query string.

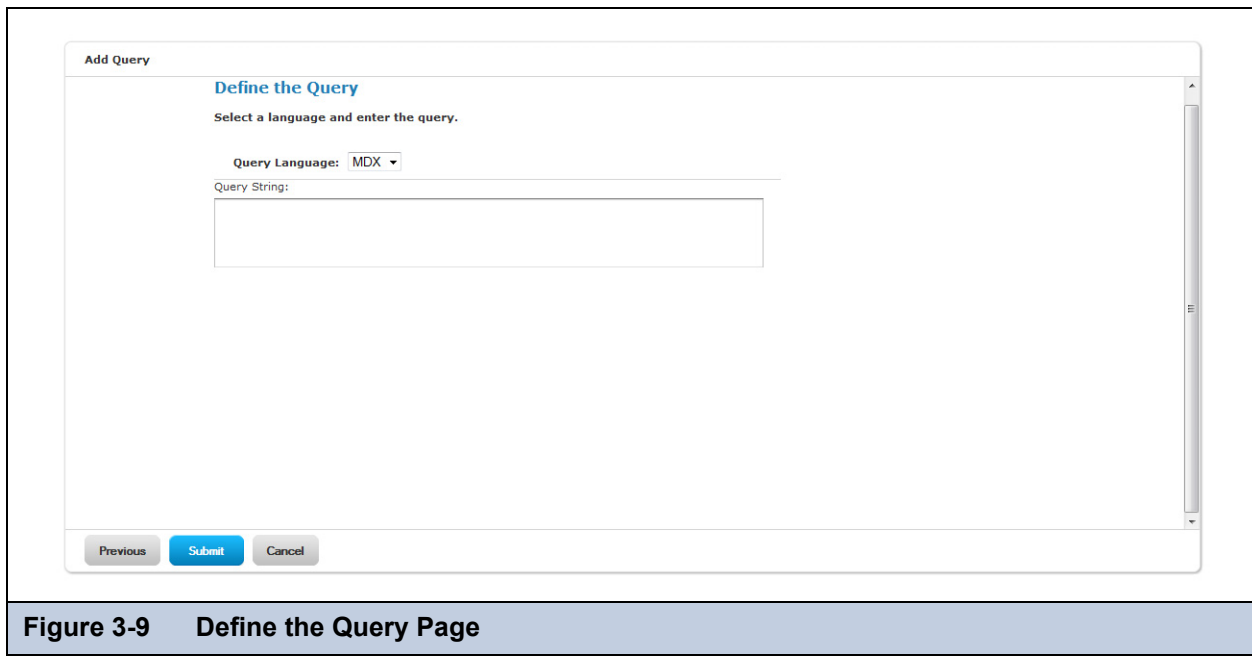


Figure 3-9 Define the Query Page

22. Enter an MDX query. For example:

```
select {[Measures].[Unit Sales], [Measures].[Store Cost], [Measures].[Store Sales]} on
columns, {[([Promotion Media].[All Media], [Product].[All Products])}] ON rows from Sales
where ([Time].[2006].[Q4].[12])
```

23. Click **Submit**.

If the view passes validation, it is added to the repository. If you receive an error, it is likely that the problem is a typo in your query. Carefully review the query to ensure that it is valid.

24. When you have corrected the query, click **Submit**.

If the view passes validation, it is added to the repository.

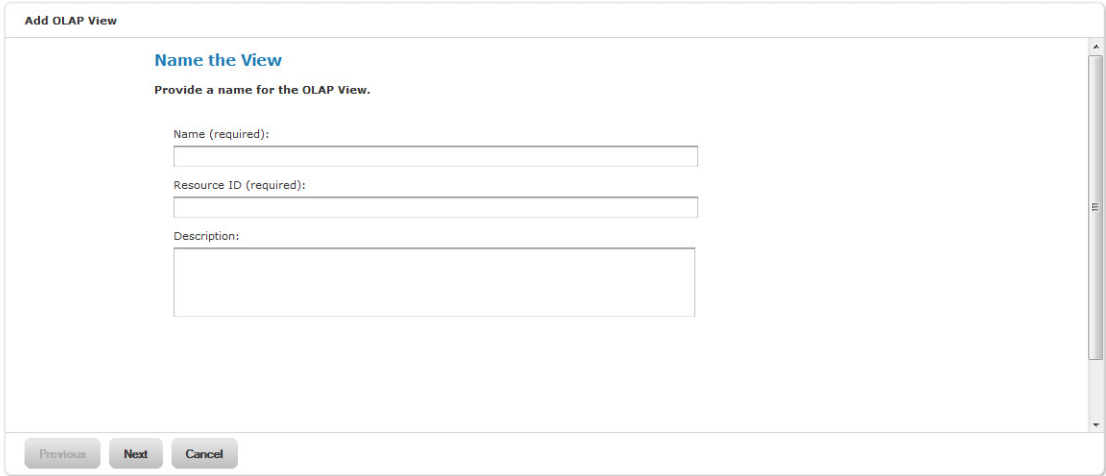
3.2.3 Creating an OLAP View with an XML/A Connection

An OLAP view can retrieve data from an XML/A connection. An XML/A connection is a connection to a remote Mondrian client connection. For more information on XML/A connections, refer to:

- [3.5, “Editing an XML/A Connection,” on page 44](#)
- [3.9, “XML/A Configuration,” on page 48](#)
- [3.11.2, “Performance Tuning,” on page 51.](#)

To create an OLAP view with an XML/A connection:

1. Click **View > Repository**.
The repository appears.
2. In the Folder panel, navigate to **Analysis Components > Analysis Views**.
3. Right-click the **Analysis Views** folder and select **Add Resource > OLAP View** from the context menu.
The Name the View page appears and prompts you to enter the basic details about the new view.



Add OLAP View

Name the View

Provide a name for the OLAP View.

Name (required):

Resource ID (required):

Description:

Previous Next Cancel

Figure 3-10 Name the View Page

4. Enter a name and a description of the view and click **Next**.

The Locate Mondrian Connection page appears.

5. In the **Connection Type** drop-down, select XML/A Connection.

6. Click either:

- ♦ **Define a XML/A Client Connection in the next step** to add a new connection.
- ♦ **Select a XML/A Client Connection from the Repository** to select a data source from the repository.

Click **Browse**, navigate to the location where you want to add the file, and click **Select**.

Click **Next** and skip to [step 9](#).

If you choose to create a new client connection, the Set Connection Type and Properties page appears and prompts you to enter details about the connection.

The screenshot shows a web-based configuration window titled "Add OLAP Client Connection". Inside, there's a section "Set Connection Type and Properties" with the instruction: "First select the type of connection you want to add, then enter the required property values." The "Type" dropdown is set to "XML/A". Below this are several input fields: "Name (required)", "Resource ID (required)", "Description", "Catalog (required)", "Data Source (required)", "URI (required)", "User Name", and "Password". There are also hint labels for "Catalog" (Foodmart), "Data Source" (Provider=Mondrian;DataSource=Foodmart), and "URI" (http://localhost:8080/jasperserver-pro/xmla). A "Browse..." button is next to the URI field. At the bottom are "Previous", "Next", and "Cancel" buttons.

Figure 3-11 Set Connection Type and Properties - XML/A Page

7. Complete the fields:

- General details include the name, label, and description of the connection.
- Data options include the catalog, data source, and URI of the data that this connection should return. These details describe a data store in your remote XML/A provider.
- Credentials are the name and password Jaspersoft OLAP can pass to the remote XML/A provider to log in. If this user's password changes, the connection will fail. You can leave the **User Name** and **Password** fields blank, so the logged in user's credentials are passed to the remote server when the connection is accessed.



Your XML/A provider may be another JasperReports Server instance hosting Mondrian connections. For more information, refer to section [3.9, "XML/A Configuration," on page 48](#).

8. Click **Next**.

The Define the Query page appears and prompts you for a query string.

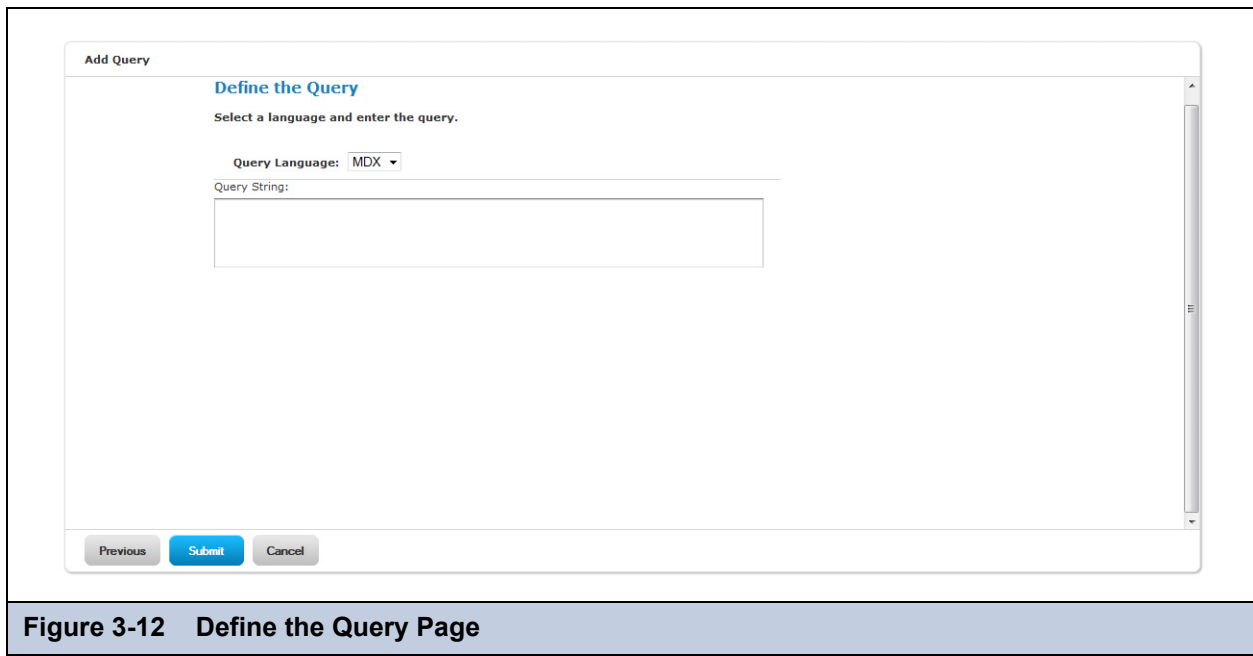


Figure 3-12 Define the Query Page

9. In the **Query String** field, enter the MDX query. For example:

```
select {[Measures].[Unit Sales], [Measures].[Store Cost], [Measures].[Store Sales]} on
columns, {[Promotion Media].[All Media], [Product].[All Products]} ON rows from Sales
where ([Time].[2006].[Q4].[12])
```
10. Click **Submit**.
 If the view passes validation, it is added to the repository. If you receive an error, it is likely that the problem is a typo in your query. Carefully review the query to ensure that it is valid.
11. When you have corrected the query, click **Submit**.
 If the view passes validation, it is added to the repository.

3.2.4 Editing an OLAP View

To change the naming, connection, or MDX query in an OLAP view:

1. In the **Search** field in the repository, enter the name (or partial name) of the OLAP view you want to edit, and click the **Search** icon.
 For example, enter `food`.
 The repository appears, displaying the objects that match the text you enter.
2. Right-click the view you want and click **Edit**.
 The Name the View page appears with the fields populated.

Add OLAP View

Name the View

Provide a name for the OLAP View.

Name (required):
Foodmart

Resource ID (required):
Foodmart

Description:
Foodmart Analysis

Previous Next Cancel

Figure 3-13 Name the View

3. Make your changes to the fields as necessary and then click **Next**.

The page that appears depends on the type of client connection defined in the view. For example, if the view specifies a Mondrian connection the Locate a Mondrian Connection Source page appears.

Add Mondrian Client Connection

Locate Mondrian Client Connection Source

Connection Type: Mondrian

☒ Define a Mondrian Client Connection in the next step
☐ Select a Mondrian Client Connection from the repository

Browse...

Previous Next Cancel

Figure 3-14 Locate Mondrian Client Connection Source

4. Depending on the type of connection specified, enter values as necessary. Click each field you want to change and enter new values.

See [“Creating an OLAP View with a Mondrian Connection” on page 23](#) and [3.2.3, “Creating an OLAP View with an XML/A Connection,” on page 29](#).

5. Click **Next**.

The Define a Query page appears with the query language set to MDX.

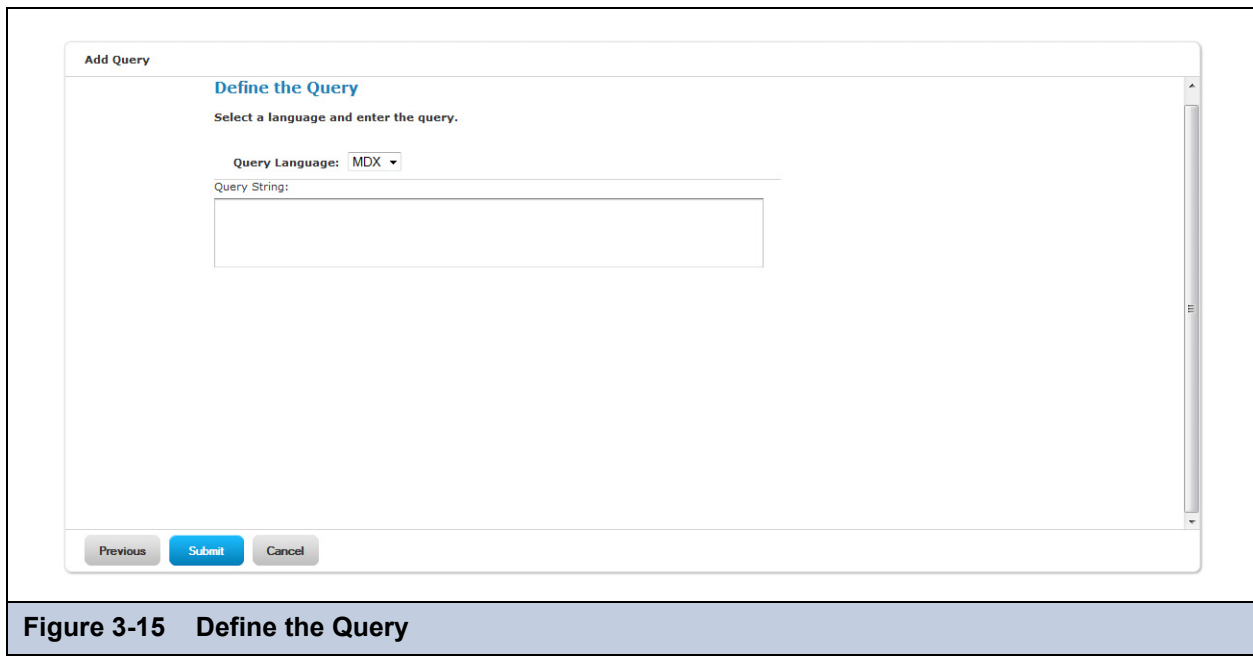


Figure 3-15 Define the Query

6. Change the query or enter a new one, if necessary.



You can also edit a view's MDX query by modifying the navigation table and saving the view.

7. Click **Submit**.

If the view passes validation, it is added to the repository. If you receive an error, it is likely that the problem is a typo in your query. Carefully review the query to ensure that it is valid.

8. When you have corrected the query, click **Submit**.

If the view passes validation, it is added to the repository.

3.3 Working with OLAP Settings

Various configurable properties control the OLAP engine behavior. In most cases, you can use the default values for these properties. However, if you want to adjust the performance, you may need to change them.



You must be logged in as a user with the ROLE_ADMINISTRATOR role to access and change OLAP settings.

3.3.1 Changing OLAP Settings

To change the OLAP settings:

1. Click **Manage > OLAP Settings**.

The OLAP Settings page appears.

OLAP Settings		Flush OLAP Cache
mondrian.query.limit	40	
mondrian.jdbcDrivers	sun.jdbc.odbc.JdbcOdbcDriver,org.hsqldb.jdbcDriver,oracle.jdbc.OracleDriver,com.mysql.jdbc.Driver	
mondrian.result.limit	50000	
mondrian.result.highCardChunkSize	1	
mondrian.test.connectString	Provider=mondrian;Jdbc=jdbc:odbc:MondrianFoodMart;JdbcDrivers=sun.jdbc.odbc.JdbcOdbcDriver;Catalog=/WEB-INF/queries/FoodMart.xml;	
mondrian.foodmart.jdbcURL	jdbc:odbc:MondrianFoodMart	
mondrian.rolap.SparseSegmentValueThreshold	1000	
mondrian.rolap.SparseSegmentDensityThreshold	0.5	
mondrian.test.iterations	1	
mondrian.test.VUsers	1	
mondrian.test.TimeLimit	0	
mondrian.test.Warmup	false	
mondrian.rolap.agg.enableCacheHitCounters	false	
mondrian.test.WarnIfNoPatternForDialect	NONE	
mondrian.rolap.aggregates.Use	true	
mondrian.rolap.aggregates.Read	true	
mondrian.rolap.aggregates.ChooseByVolume	false	
mondrian.rolap.aggregates.rules	/DefaultRules.xml	
mondrian.rolap.aggregates.rule.tag	default	

Figure 3-16 OLAP Settings Page

Note that the name of each property (as it appears in the underlying OLAP engine) is shown. The properties are described in the table below.

- Review the available properties described below to determine if they can be changed to improve performance.
- On the JasperReports Server host, locate the mondrian.properties file. It resides in the WEB-INF directory in your JasperReports Server installation.
- Open the mondrian.properties file and locate the property you want to change.
- Adjust the value to the right of the equals sign to change the property, save the file, and restart JasperServer.

Test your views and adjust properties as your findings dictate.



To log the SQL queries Jaspersoft OLAP sends to the database, set the **Generate Formatted SQL Traces** option. This ensures that Jaspersoft OLAP writes the SQL queries it executes to the log file you specify.

The properties have the following meanings:

Property	Notes
General Behavior	
Performance Profiling Enabled	When enabled, performance profiling data is generated and recorded.
Disable OLAP Memory Caching	Turns off caching completely. Disabling caching can have a very noticeable negative performance impact.
Generate Formatted SQL Traces	When tracing is enabled, Jaspersoft OLAP formats SQL queries in the trace output with line breaks, which makes them easier to read.
Query Limit	The maximum number of concurrent queries allowed.
Result Limit	When set to a number greater than 0, result sets are limited to the specified number of rows.
Maximum number of passes allowable while evaluating a MDX expression	When evaluating an MDX query, the maximum number of passes allowed. Jaspersoft OLAP returns an error when this threshold is exceeded; for example, the error may occur during complex calculations.

Property, continued	Notes
Class name of ExpCompiler to use	If entered, this must be a Java class name that is an implementation of the <code>mondrian.calc.ExpCompiler</code> interface. Refer to the Mondrian Javadoc for more information.
MDX identifiers are case-sensitive	Specifies whether the MDX parser considers the case of identifiers.
Sibling members are ordered according to their ordinal expression	Specifies whether siblings at the same level of a dimension are compared according to the order key value retrieved from their ordinal expression. By default, ordinal expressions are only used for ORDER BY, and Jaspersoft OLAP ignores the actual values. When this property is enabled, Jaspersoft OLAP can correctly order members when native filtering is used. Note that this setting requires that the RDBMS provides non-null instances of <code>java.lang.Comparable</code> that yield the correct ordering when calling their <code>Comparable.compareTo</code> method.
If > 0, Maximum query time (secs)	When set to a value greater than zero, Jaspersoft OLAP times out if the query takes longer than the specified number of seconds. If a query exceeds the limit, Jaspersoft OLAP returns an error. For more information, refer to the Query Limit and Result Limit entries in this table.
Number of elements read when processing high cardinality dimension elements	This property determines how many members Mondrian reads in one block from the database. Setting large values for this property increases performance but can overload memory. Values should be prime with <code>mondrian.result.limit</code> . For more information, refer to the <i>Mondrian Technical Guide</i> .
Sparse Segment Density Threshold	Performance tuning variable. This property only applies when <code>SparseSegmentCountThreshold</code> is enabled. It determines whether to use a sparse or a dense representation when collections of cell values are stored in memory.
Sparse Segment Count Threshold	Performance tuning variable. this property only applies when <code>SparseSegmentDensityThreshold</code> is set. It determines whether a sparse or a dense representation is used when collections of cell values are stored in memory. When storing collections of cell values, Jaspersoft OLAP can use either a sparse or a dense representation. This is determined by the possible and actual number of values: density is calculated as $\text{actual} / \text{possible}$. Whenever possible, Jaspersoft OLAP uses a sparse representation - $\text{countThreshold} * \text{actual} > \text{densityThreshold}$. For example, for the default values (<code>countThreshold = 1000</code> , <code>SparseSegmentDensityThreshold = 0.5</code>), Jaspersoft OLAP uses a dense representation for: <ul style="list-style-type: none"> ♦1000 possible, 0 actual, or ♦2000 possible, 500 actual, or ♦3000 possible, 1000 actual) If there are fewer actual values or more possible values, Jaspersoft OLAP uses a sparse representation.
During schema load, invalid members are ignored and will be treated as a null	When enabled, Jaspersoft OLAP ignores invalid members during schema load; they are treated as null members if they are referenced in a later query.
During query validation, invalid members are ignored and will be treated as a null	When enabled, Jaspersoft OLAP ignores invalid members during query validation; invalid members are ignored and are treated as null members.

Property, continued	Notes
Defines how a null Member is represented in the result output	Specifies how Jaspersoft OLAP should represent a null member in the result output.
If > 0, the maximum number of iterations allowed when evaluating an aggregate	<p>When set to a number greater than 0, the maximum number of iterations allowed when evaluating an aggregate. When set to 0, iterations are unlimited.</p> <p>If a query exceeds the limit, Jaspersoft OLAP returns an error that specifies this property's value. For more information, refer to the Query Limit and Result Limit entries in this table.</p>
If > 0, crossjoin result limit beyond which the optimizer will be applied	<p>When set to a number greater than 0, a threshold for a crossjoin input list's size; if it exceeds this value, and the axis has the NON EMPTY qualifier, Jaspersoft OLAP uses the non-empty optimizer.</p> <p>When this property is set to 0, Jaspersoft OLAP applies the non-empty optimizer to all crossjoin input lists. To ensure that the optimizer is never applied to crossjoin input lists, set this value to the <code>Integer.MAX_VALUE</code>.</p>
If there are unrelated dimensions to a measure in context during aggregation, the measure is ignored in the evaluation context	<p>When dimensions unrelated to a measure are detected during aggregation, the measure is ignored in the evaluation context. Note that this property can only affect measures whose <code>CubeUsage's IgnoreUnrelatedDimensions</code> is false.</p> <p>For more information, refer to the <i>Mondrian Technical Guide</i>, which is available at http://www.jasperforge.org.</p>
Do elements of a dimension (levels, hierarchies, members) need to be prefixed with dimension name in the MDX query	<p>Determines if elements of dimension (levels, hierarchies, and members) must be prefixed with the dimension name in MDX queries.</p> <p>this property determines whether certain queries succeed or fail based on the way the dimension elements are defined in the MDX query. When this property is enabled, this query fails:</p> <pre>select {[Omaha]} on columns from cust</pre> <p>When this property is disabled, that same query succeeds.</p> <p>With the property enabled, the correct query is:</p> <pre>select {[Nebraska].[Omaha]} on columns from cust</pre> <p>If your schema is very large or complex, Jaspersoft recommends enabling this setting, as processing such schemas can be very resource-intensive.</p> <p>For more information, refer to the <i>Mondrian Technical Guide</i>, which is available at http://www.jasperforge.org.</p>
Division by null or zero produces NULL	By default, when Jaspersoft OLAP attempts to divide by zero or null, it evaluates to Infinity, which is correct for some analysis providers. When this property is enabled, Jaspersoft OLAP instead evaluates such calculations to null, which can be helpful in certain circumstances.
Solve Order evaluation behavior	<p>Specifies how to evaluate the <code>SOLVE_ORDER</code>:</p> <ul style="list-style-type: none"> • Absolute. Any specified scope is ignored and the <code>SOLVE_ORDER</code> value is absolute. For example, Jaspersoft OLAP gives precedence to a query-defined calculated member with a <code>SOLVE_ORDER</code> of 1 over a cube defined value of 2. • Scoped. Jaspersoft OLAP first resolves cube-calculated members, then resolves session-scoped members, and finally resolves query-defined calculations. Jaspersoft OLAP only applies the <code>SOLVE_ORDER</code> value within the scope in which it was defined.

Property, continued	Notes
Aggregate Settings	
Enable Aggregate Tables	When enabled, Jaspersoft OLAP identifies tables in the database that are aggregates, and uses those aggregate values. For more information, refer to the <i>Mondrian Technical Guide</i> , which is available at http://www.jasperforge.org .
Choose Aggregate Table By Volume	Performance tuning variable for aggregates. This property only applies when aggregate tables are used. Consider using this property when optimizing for tables with many large columns. this property determines whether aggregate tables are ordered by volume or row count. When this property is enabled, Jaspersoft OLAP uses the aggregate table with the smallest volume (number of rows multiplied by number of columns); when it is disabled, Jaspersoft OLAP uses the aggregate table with the fewest rows.
Optimize predicates	Determines whether Jaspersoft OLAP optimizes predicates. When this property is enabled, Jaspersoft OLAP optimizes certain predicates. When it is disabled, predicates are only optimized when all of a dimension's members are included. In this case, Jaspersoft OLAP only retrieves the data specified in the query. For more information, refer to the <i>Mondrian Technical Guide</i> , which is available at http://www.jasperforge.org .
Rule file for aggregate table identification	Specifies a file that defines aggregate table recognition rules. This file can either reside in the application server or the file system. Typically, you can accept the default.
AggRule element's tag value	The AggRule element's tag value. Typically, you can accept the default.
Print SQL to log for aggregate table creation to support MDX with aggregates	Determines whether Jaspersoft OLAP prints the SQL code generated for aggregate tables. When this property is enabled, Jaspersoft OLAP processes each aggregate request and prints both the lost and collapsed dimension <code>create</code> and <code>insert</code> SQL statements. When used in conduction with the CmdRunner, it lets you automatically create aggregate table generation SQL.
Factory class for determining the tables and columns of a data source	If entered, this must be a Java class name that is an implementation of the <code>mondrian.rolap.aggmatcher.JdbcSchema.Factory</code> interface. The default implementation is <code>mondrian.rolap.aggmatcher.JdbcSchema.StdFactory</code> . Refer to the Mondrian Javadoc for more information.
Cache and SQL Settings	
Use a cache for the results of frequently evaluated expressions	Determines whether Jaspersoft OLAP caches the results of frequently-evaluated expressions. Enabling this property can reduce the number of unnecessary computations when processing a large amount of data.
Cache RolapCubeMember objects	Determines whether Jaspersoft OLAP caches RolapCubeMember objects, which each associate a member of a shared hierarchy with a cube that uses it. Disable this property if you plan to use the member cache control.

Property, continued	Notes
Maximum number of constraints in a single 'IN' SQL clause	The maximum number of constraints in a single SQL IN clause. This value varies with your RDBMS type and configuration. Jaspersoft recommends these values: <ul style="list-style-type: none"> • MySQL: 10,000 • Oracle: 1,000 • DB2: 2,500 • Other: 10,000
Some NON EMPTY CrossJoin MDX statements will be computed in the database	When enabled, Jaspersoft OLAP pushes down to the database processing related to some NON EMPTY <code>CrossJoin</code> MDX statements.
Some TopCount MDX statements will be computed in the database	When enabled, Jaspersoft OLAP pushes down to the database processing related to some <code>TopCount</code> MDX statements.
Some Filter() MDX statements will be computed in the database	When enabled, Jaspersoft OLAP pushes down to the database processing related to some <code>Filter()</code> MDX statements.
Some NON EMPTY MDX statements will be computed in the database	When enabled, Jaspersoft OLAP pushes down to the database processing related to some NON EMPTY MDX set operations (Such as <code>member.children</code> , <code>level.members</code> and <code>member.descendants</code>).
Expand non native sub-expressions of a native expression into MemberLists	When enabled, Jaspersoft OLAP expands non-native sub-expressions of a native expression into MemberLists.
Alerting action in case native evaluation of a function is enabled but not supported in a particular query	Specifies the error level (OFF, WARN, or ERROR) to use when a function's native evaluation is enabled but isn't supported in the context of a particular query's usage. Errors are only returned in the case of a <code>NonEmptyCrossJoin</code> . Alerts are only raised when there is a possibility that native evaluation would improve matters.
Some rollup queries will be combined using group by grouping sets if the SQL dialect allows it	When enabled, Jaspersoft OLAP combines some rollup queries using <code>group by grouping sets</code> . Note that this property only applies to data stored in Oracle, DB2, or Teradata.
XML/A Settings	
XML/A Maximum Drill Through Rows	Limits the number of rows returned from an XML/A drill-through operation.
First row in the result of an XML/A drill-through request will be filled with the total count of rows	If this property is enabled, the first row returned for an XML/A drill-through request shows the total count of rows in the underlying database.
Memory Monitoring Settings	
Use Java 5 Memory monitoring to avoid out of memory	When enabled, and you use JVM 1.5 or later, Jaspersoft OLAP uses the Java5 memory monitoring capability. In this case, when memory is exhausted, Jaspersoft OLAP returns a <code>MemoryLimitExceededException</code> exception rather than an out of memory error.
Threshold to limit memory used	Specifies the percent of memory usage that should trigger a notification to Jaspersoft OLAP that memory is low.
Class name of factory to manage memory	If entered, this must be a Java class name that is an implementation of the <code>mondrian.util.MemoryMonitor</code> interface. Such a class (<code>mondrian.util.NotificationMemoryMonitor</code>). Refer to the Mondrian Javadoc for more information.

3.3.2 Flushing the OLAP Cache

This option clears the in-memory cache that Mondrian builds; caching is used to improve query performance. Flushing the cache is not usually necessary except when underlying data in the database changes. For example, after running an ETL process, the cache is out of date; it may not match the data in the database.

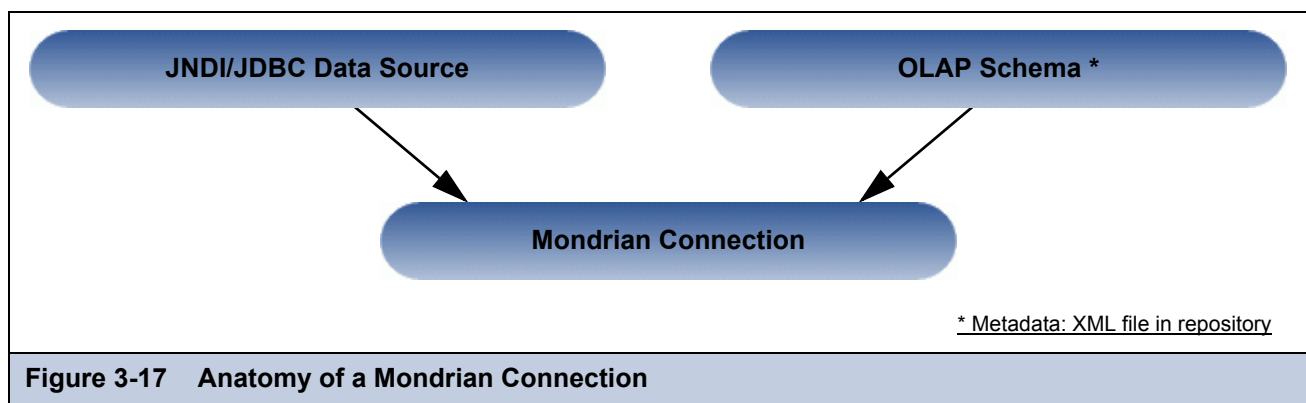
Such data changes are not reflected in OLAP views until the application server is restarted or until the cache is flushed.

To flush the cache, click **Manage > OLAP Settings** and click **Flush OLAP Cache** near the top of the page.

The OLAP cache is also automatically flushed when an existing Mondrian connection or one of its components (such as the schema or data source) is changed in the repository.

3.4 Editing a Mondrian Connection

You can change the connection name, the schema, and data source in a Mondrian connection.



To edit a Mondrian connection:

1. In the **Search** field, enter the name (or partial name) of the Mondrian connection you want to edit, and click the Search icon. For example, enter `foodmart`.
The repository appears and displays objects that match the text you entered.
To narrow the search, you can select the type of report, the time and date the report was created, and other attributes in the Filters panel. For example, to view reports that was changed by anyone, click **Changed by anyone** in the Filter panel.
2. Right-click the Mondrian connection you want to edit and click **Edit**.
The Set Connection Type and Properties page appears with the fields populated.

Add OLAP Client Connection

Set Connection Type and Properties

First select the type of connection you want to add, then enter the required property values.

Type: Mondrian

Name (required): Foodmart

Resource ID (required): f

Description:

/organizations/organization_1/analysis/views

Previous Next Cancel Browse...

Figure 3-18 Set Connection Type and Properties

3. Change values as necessary and click **Next**.
The Locate OLAP Schema page appears.

Add OLAP Schema Resource

Locate OLAP Schema

☒ Upload a Local File

Browse...

☐ Select a resource from the Repository

Browse...

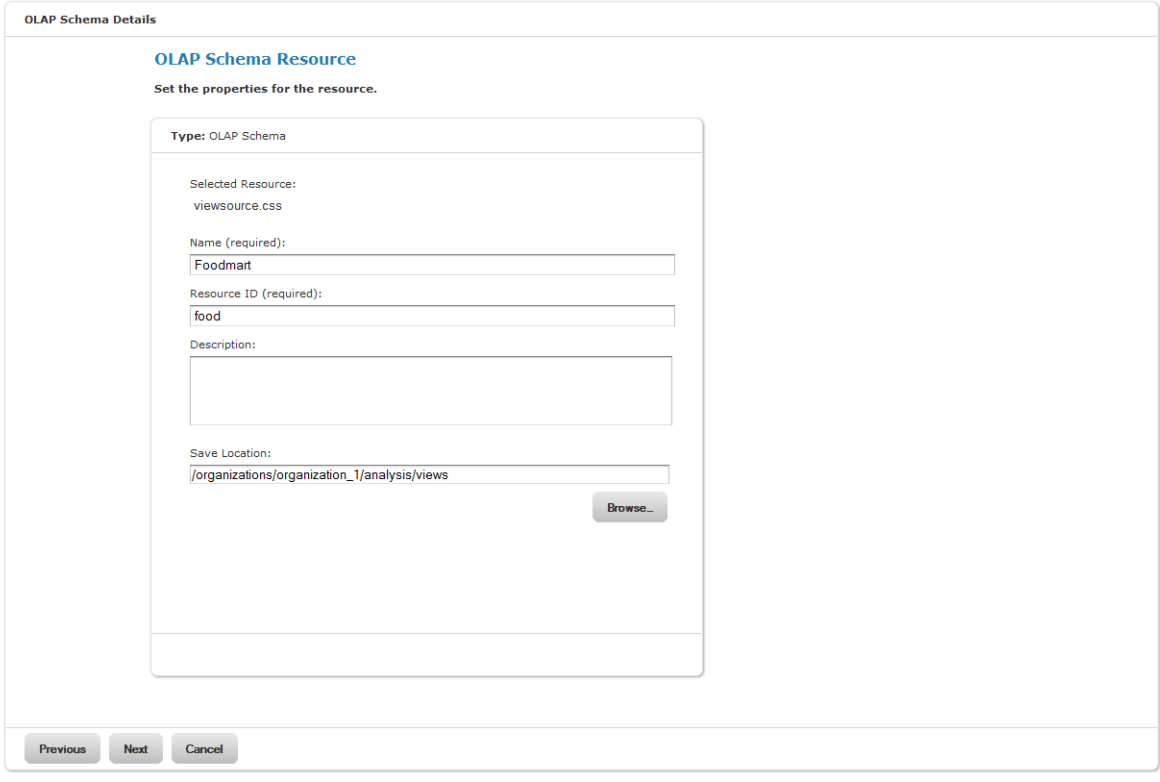
Previous Next Cancel

Figure 3-19 Locate OLAP Schema

You can either accept the existing file or replace it. If you replace the file, you can either upload a new file or select one from the repository.

4. To accept the existing file, click **Next**.
5. To replace the file, either:
 - ♦ Click **Upload a Local File** and click **Browse** to upload a new schema from your local computer.
 - ♦ Click **Select a resource from the Repository**, click **Browse**, and navigate the repository to the schema you want to use. Then click **Select**.
6. Click **Next**.

The OLAP Schema Resource page appears.



The screenshot shows the 'OLAP Schema Details' window with the 'OLAP Schema Resource' tab selected. The instruction 'Set the properties for the resource.' is displayed. The 'Type' is 'OLAP Schema'. The 'Selected Resource' is 'viewsource.css'. The 'Name (required)' field contains 'Foodmart'. The 'Resource ID (required)' field contains 'food'. The 'Description' field is empty. The 'Save Location' field contains '/organizations/organization_1/analysis/views'. A 'Browse...' button is next to the 'Save Location' field. At the bottom are 'Previous', 'Next', and 'Cancel' buttons.

OLAP Schema Details

OLAP Schema Resource

Set the properties for the resource.

Type: OLAP Schema

Selected Resource:
viewsource.css

Name (required):
Foodmart

Resource ID (required):
food

Description:

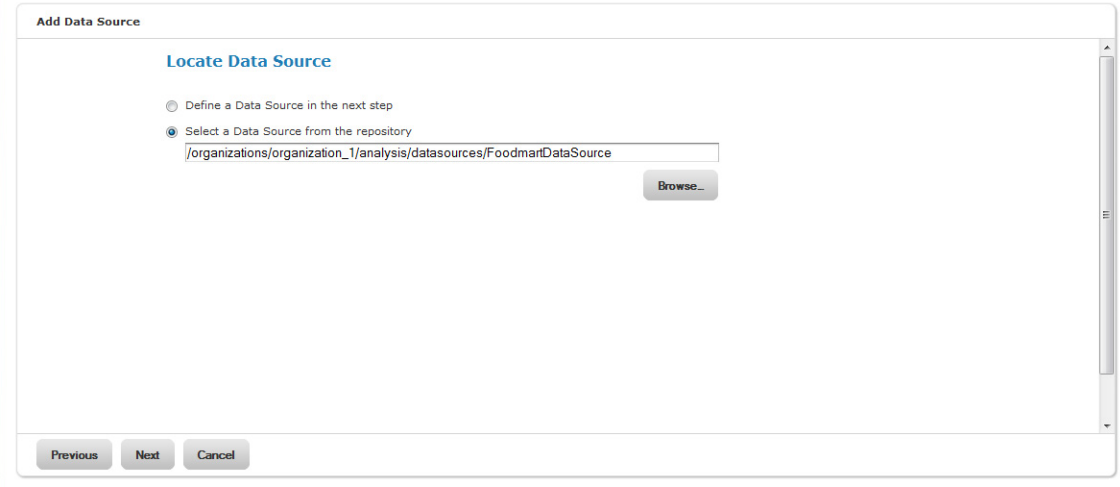
Save Location:
/organizations/organization_1/analysis/views

Browse...

Previous Next Cancel

Figure 3-20 OLAP Schema Resource

7. If you choose to upload a new file, enter a name and description for it.
If you accepted the existing file or selected one from the repository, the fields aren't editable.
8. Click **Next**.
The Locate Data Source page appears.



The screenshot shows the 'Add Data Source' window with the 'Locate Data Source' tab selected. There are two radio buttons: 'Define a Data Source in the next step' (unselected) and 'Select a Data Source from the repository' (selected). Below the selected option is a text field containing '/organizations/organization_1/analysis/datasources/FoodmartDataSource'. A 'Browse...' button is next to the text field. At the bottom are 'Previous', 'Next', and 'Cancel' buttons.

Add Data Source

Locate Data Source

☐ Define a Data Source in the next step

☒ Select a Data Source from the repository

/organizations/organization_1/analysis/datasources/FoodmartDataSource

Browse...

Previous Next Cancel

Figure 3-21 Locate the Data Source

You can either accept the existing data source or replace it. If you replace it, you can either define a new data source or select one from the repository.

9. To accept the existing data source, click **Next**.

10. To replace the data source, either:

- Click **Define a Data Source in the next step**.
- Click **Select a Data Source from the Repository**, click **Browse**, and navigate the repository to locate the data source you want to use. Then click **Select**.

11. Click **Next**.

If you accepted the existing data source, or if you selected a data source from the repository, the connection is saved to the repository.

If you choose to define a new data source, the Set Data Source Type and Properties page appears.

Add Data Source

Set Data Source Type and Properties

First, select the type of data source you wish to add, then enter the required property values.

Type: **JDBC Data Source**

Name (required): **SugarCRM Data Source**

Resource ID (read-only): **SugarCRMDDataSource**

Description: **SugarCRM Data Source**

Driver (required): **com.mysql.jdbc.Driver**
Hint: com.mysql.jdbc.Driver

URL (required): **jdbc:mysql://localhost:3306/sugarcrm?useUnicode=true&characterEncoding=UTF-8&autoReconnect**
Hint: jdbc:mysql://localhost:3306/mydb

User Name (required): **root**

User Name: **password**

Time Zone: **Use database setting**
Hint: Do not change the time zone setting unless you know the database timestamp data is incorrect.

Test Connection

Submit **Cancel**

Figure 3-22 Set Data Source Type and Properties

12. Select a data source to from the **Type** drop-down and specify the details in each field. For more information on defining data sources, refer to [3.8, “Editing a Data Source,” on page 46](#)

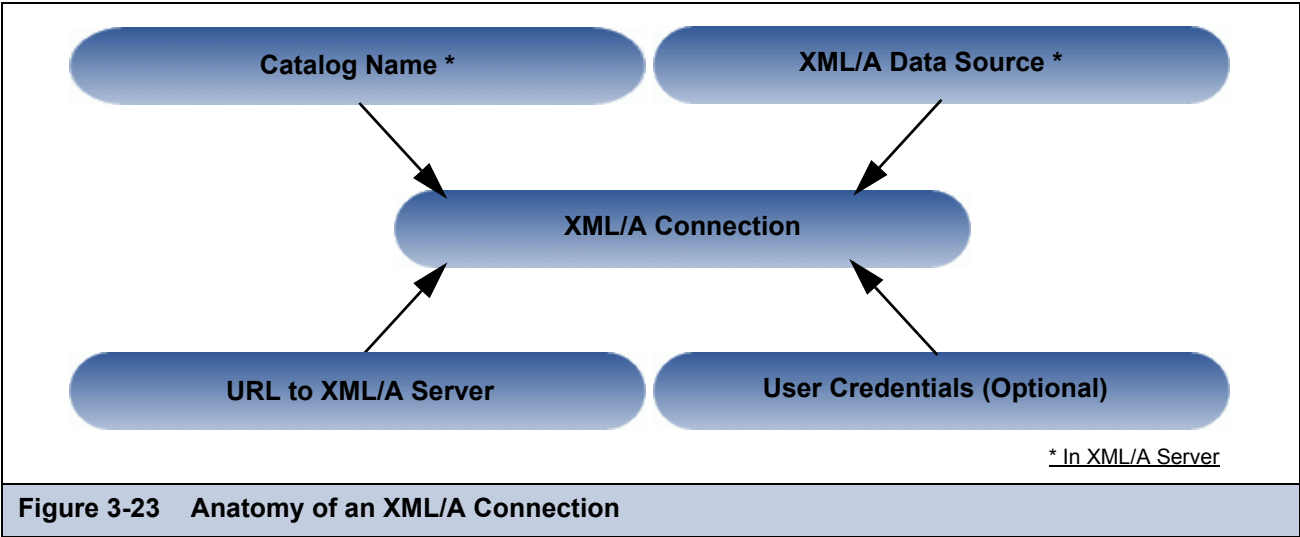


Be sure to test the new connection to ensure it works properly.

13. Click **Submit**.

The updated connection appears in the repository.

3.5 Editing an XML/A Connection



To edit an XML/A connection’s naming and connection properties:

1. In the **Search** field, enter the name (or partial name) of the connection you want to edit, and click the Search icon. For example, enter `sugar`.
The search results appear, displaying objects that match the text you entered.
2. Right-click the XML/A connection you want to change and click **Edit**.
The Set Connection Type and Properties page appears.

The screenshot shows the "Set Connection Type and Properties" dialog box. At the top, it says "First select the type of connection you want to add, then enter the required property values." Below this, there is a "Type:" dropdown menu set to "XML/A". The form contains several input fields with labels and hints:

- Name (required):** "SugarCRM XML/A Connection"
- Resource ID (read-only):** "SugarCRMxmilaConnection"
- Description:** "SugarCRM XML/A Connection"
- Catalog (required):** "SugarCRM"
Hint: Foodmart
- Data Source (required):** "Provider=Mondrian;DataSource=SugarCRM;"
Hint: Provider=Mondrian;DataSource=Foodmart
- URI (required):** "http://localhost:8080/jasperserver/xmla"
Hint: http://localhost:8080/jasperserver-pro/xmla
- User Name:** "jasperadmin"
- Password:** "*****"

At the bottom right, there is a "Browse..." button. At the bottom left, there are "Submit" and "Cancel" buttons.

Figure 3-24 Set Connection Type and Properties

3. Make changes as necessary.

Jaspersoft recommends caution if you change the type of the connection, as you can't edit the name or description of the connection in this view..

4. Click **Submit**.

The edited XML/A Connection appears in the repository.



If you specify an instance of JasperReports Server as your XML/A provider (in the **URI** field), and it hosts more than one organization, specify the organization name in the **User Name** field, separated from the account name with the pipe character (|). For example, to connect as a user named `joesuer` in an organization named `organization_1`, specify `joesuer|organization_1` in the **User Name** field.

3.6 Creating an OLAP Schema

You can upload an OLAP schema to the repository so that it can be accessed by more than one Mondrian connection. Doing this before creating a view simplifies the procedure for defining Mondrian connections and OLAP views.

To create a schema:

1. Click **View > Repository**.

The repository appears.

2. In the Folder panel, navigate to **Analysis Components > Analysis Schemas**.

3. Right-click the folder and navigate to **Add Resource > File > OLAP Schema**.

The Upload a File From Your Local Computer page appears and prompts you to select a file and set its properties.

Figure 3-25 Upload a File From Your Local Computer

4. Next to the **Path to File** field, click **Browse** and locate the OLAP schema you want to add.

5. Enter a name and description for the schema.

The **Resource ID** is auto-generated as you type in the **Name** field. You can change the ID if necessary.

6. Next to the **Save Location** field, click **Browse** and navigate to the location in the repository where you want the file to reside.

7. Click **Submit**.

The new file appears in the repository.

3.7 Editing an OLAP Schema

To change an OLAP schema's naming and file source:

1. In the **Search** field, enter the name (or partial name) of the schema you want to edit, and click the Search icon. For example, enter `sugar`.

The search results appear, displaying objects that match the text you entered.

2. Select the schema, right-click, and then click **Edit**.

The Upload a File From Your Local Computer page appears and prompts you to the values.



You cannot change the **Type** field or the **Resource ID** field.

Figure 3-26 Upload a File From Your Local Computer Page

3. To upload a new file, next to the **Path to File** field, click **Browse** and navigate to the file you want to upload.
4. Enter changes to the **Name** and **Description** fields as necessary.
5. Next to the **Save Location** field, click **Browse** and navigate to the location where you want to store the file, and click **Select**.
6. Click **Submit**.

The edited schema appears in the repository.

3.8 Editing a Data Source

To change a data source's properties:

1. In the **Search** field, enter the name (or partial name) of the object you want to edit, and click the Search icon. For example, enter `sugar`.

The search results display objects that match the text you entered.

2. Right-click the data source and click **Edit** from the context-menu.

The Set Data Source Type and Properties page appears.

Add Data Source

Set Data Source Type and Properties

First, select the type of data source you wish to add, then enter the required property values.

Type: **JDBC Data Source**

Name (required):
SugarCRM Data Source

Resource ID (read-only):
SugarCRMDDataSource

Description:
SugarCRM Data Source

Driver (required):
com.mysql.jdbc.Driver
Hint: com.mysql.jdbc.Driver

URL (required):
jdbc:mysql://localhost:3306/sugarcrm?useUnicode=true&characterEncoding=UTF-8&autoReconnect=true
Hint: jdbc:mysql://localhost:3306/mydb

User Name (required):
root

User Name:
password

Time Zone:
Use database setting
Hint: Do not change the time zone setting unless you know the database timestamp data is incorrect.

Test Connection

Submit Cancel

Figure 3-27 Set Data Source Type and Properties



Different options appear, depending on the type of data source (JDBC, JNDI, or Bean by default). For more information, refer to the *JasperReports Server Ultimate Guide*.

3. Change the values as necessary and then click **Test Connection**.
4. If the test fails, check the values you entered and ensure that the system the data source points to is available.
5. When the test is successful, click **Submit**.

3.9 XML/A Configuration

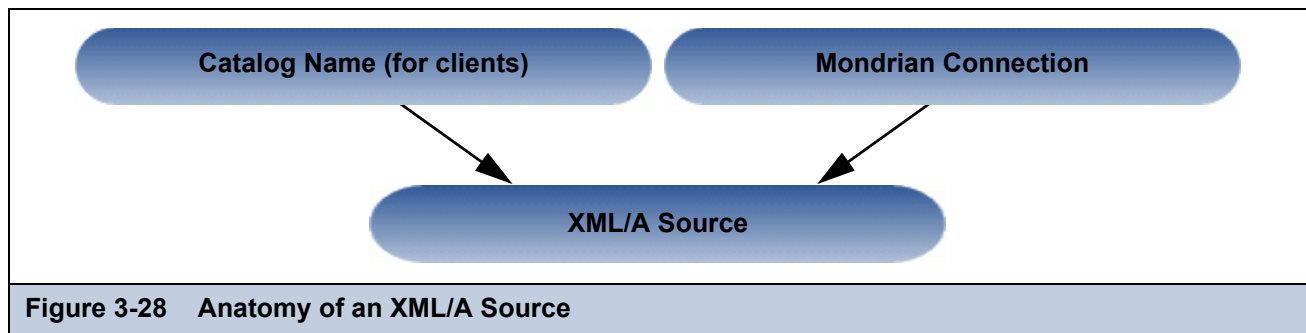
XML/A connections point to Mondrian connections in remote XML/A providers, allowing you to separate your front end processing from your back end processing when analyzing data in OLAP views.

Jaspersoft OLAP can run as a XML/A server, allowing OLAP queries to be run from remote clients and query results returned to those clients over the XML/A web services protocol. The OLAP data for XML/A comes from Mondrian Connections.

Jaspersoft OLAP XML/A connections (Shown in [Figure 3-28 on page 48](#), which were defined above, provide a client view to XML/A servers, including Jaspersoft OLAP. You may want to run separate Jaspersoft OLAP servers, splitting the Jaspersoft OLAP XML/A clients from the XML/A servers. This client/server configuration allows load balancing, 24/7 availability, and fail over in Jaspersoft OLAP environments. Other clients that can connect to Jaspersoft OLAP running as a XML/A server include Excel Pivot Tables with the Jaspersoft ODBO Driver.

In order to allow Jaspersoft OLAP to run as a XML/A server, XML/A sources need to be defined in the repository. The list of XML/A sources a given client can connect to can be controlled by repository permissions, as XML/A clients must authenticate via user name and password, and their access to the repository can be limited by permissions. In Jaspersoft OLAP Professional and Enterprise, OLAP data level security can be used to filter OLAP query results based on the logged in user making the XML/A requests.

3.9.1 Creating an XML/A Source



An XML/A source defines a single OLAP data source that can be used by an XML/A client. The Catalog name uniquely defines the data source for the XML/A client. The XML/A source defines a particular Mondrian connection in the repository that will answer OLAP query requests.

To add an XML/A source:

1. Click **View > Repository**.
2. In the Folder panel, navigate to **Analysis Components > xml/a**.
3. Right-click **xmla** and select **Add Resource > Mondrian XML/A Source** from the context-menu.

The Set Mondrian XML/A Source Properties page appears and prompts you to enter basic information.

Add Mondrian XML/A Source

Set Mondrian XML/A Source Properties

Name (required):

Resource ID (required):

Once created, this value cannot be changed.

Description:

Catalog (required):

Hint: Foodmart

Mondrian Connection Reference
/organizations/organization_1/analysis/connections/Foodmart

Figure 3-29 Set Mondrian XML/A Source Properties

4. Enter XML/A source information. For example:

Name	SugarCrmMondrianXmlaSource
Resource ID	Sugar CRM Mondrian XML/A Source
Description	Sugar CRM Mondrian XML/A Source
Catalog	The name of the database that contains the data to analyze.
Mondrian Connection Reference	The path and name of the connection this XML/A source references. If the XML/A provider is JasperReports Server, its value is the connection's URI.

5. Click **Submit** to save the XML/A source.

Once you create an XML/A source in and XML/A provider such as Jaspersoft OLAP, you must create an XML/A connection in your client application that points to it. For more information, see [3.11.2, “Performance Tuning,” on page 51](#).

3.9.2 Editing an XML/A Source

You can change an XML/A source name and connection properties.

To edit an XML/A source:

- In the **Search** field, enter the name (or partial name) of the schema you want to edit, and click the Search icon.
For example, enter `sugar`.
The search results appear, displaying objects that match the text you entered.
- Right-click an XML/A source, and click **Edit** on the context-menu.
The Set Data Source Type and Properties page appears.

Add Mondrian XML/A Source

Set Mondrian XML/A Source Properties

Name (required):

Resource ID (required):

Once created, this value cannot be changed.

Description:

Catalog (required):

Hint: Foodmart

Mondrian Connection Reference
/organizations/organization_1/analysis/connections/Foodmart

Figure 3-30 Set Data Source Type and Properties

- Click each active field you want to change and enter the new data.
- Click **Submit**.

The updated source appears in the repository.

3.10 Logging

Jaspersoft OLAP logging is controlled through log4j settings. log4j's statement logging occurs in the `mondrian.mdx` and `mondrian.sql` log4j categories. These categories log the statements and how long execution ran. The SQL log also records the number of results returned in the result set.

To log your MDX and SQL queries, edit the `/WEB-INF/log4j.properties` file and uncomment these lines:

```
#log4j.logger.mondrian.mdx=debug, jasperanalysis
#log4j.logger.mondrian.sql=debug, jasperanalysis
```

To log all possible Mondrian debugging information, add this line to the `log4j.properties` file:

```
log4j.logger.mondrian=debug
```

Adding this property also ensures that Jaspersoft OLAP logs all SQL and MDX queries.

To log the SQL generated when users drill-through to the underlying transactional data, add this line to the `log4j.properties` file:

```
log4j.logger.jasperanalysis.drillthroughSQL=DEBUG, jasperanalysis
```

3.11 Technical Considerations

3.11.1 XML/A Security

The default configuration uses HTTP Basic authentication to challenge requests for the `/xmla` path. If the client doesn't have a valid JasperReports Server user name and password in its XML/A connection source, the connection will fail, unless the user

name and password are left blank; in this case, the credentials of the logged in user are passed by the client application to the remote server.



With HTTP Basic authentication, clear-text passwords are transmitted in the header of an HTTP request unless you have enabled JasperReports Server to use encrypted passwords.

When creating an XML/A connection, you can either specify a user name and password for all users to share, or you can leave user name and password blank, so that the connection passes the current user's name and password to the server.

3.11.2 Performance Tuning

For a simple application with a relatively small dataset for which performance is not critical, (for example, a small intranet application or developer environment), the simplest server configuration is to run a single application server that connects to a local database, which contains both the data being analyzed (that is, the operational data store) and the JasperReports Server repository database. However, this configuration doesn't perform under a large load. This section describes steps you can take to improve performance for larger implementations and data sets.

For larger analysis applications, the ROLAP database is often a performance bottleneck. In this case, dedicate a computer to host the ROLAP database, and configure JasperReports Server to access it. The database and its host should be optimized for disk read and write. This separation of the application from the data is sufficient for many implementations.

To improve performance further, separate the Jaspersoft OLAP user interface from other elements. Inside Jaspersoft OLAP, the application that visualizes your results and provides navigation (JPivot) competes for resources with the analysis engine (Mondrian). To separate these processing resources, run two different instances of Jaspersoft OLAP: one that handles JPivot's tasks, and another that handles Mondrian's. The former instance is called the XML/A client; the latter is called the XML/A provider (or XML/A server). In the XML/A provider, define Mondrian connections that point to your operational data store. Then define XML/A connections in the XML/A client that point to Mondrian connections in the XML/A provider.

In this configuration, your users connect to the XML/A client, which sends XML/A requests to the XML/A provider, which in turn connects to the database (using a Mondrian connection) to retrieve the results; it returns the results to the XML/A client. The XML/A client then provides visualization and navigation for your end users.

In this configuration, Mondrian and JPivot don't compete for resources, and performance in large implementations is improved. For more information, see [3.9, "XML/A Configuration," on page 48](#).

GLOSSARY

Ad Hoc Editor

The interactive report designer in JasperReports Server Professional and Enterprise editions. Starting from a collection of fields predefined in a Topic or selected from a Domain, the Ad Hoc Editor lets you drag and drop report elements to draft, preview, and finalize reports. Like JRXML reports, Ad Hoc reports can be run, printed, and scheduled within JasperReports Server. In addition, Ad Hoc reports may be reopened in the Ad Hoc Editor, further modified, and saved.

Analysis Client Connection

A definition for retrieving an analysis view. An analysis client connection is either a direct Java connection (Mondrian connection) or an XML-based API connection (XML/A connection).

Analysis Schema

A metadata definition of a multidimensional database. In Jaspersoft OLAP, schemas are stored in the repository as XML file resources.

Analysis View

A view of multidimensional data that is based on an analysis client connection and an MDX query. It is the entry point to analysis operations, such as slice and dice, drill down, and drill through.

Audit Archiving

To prevent audit logs from growing too large to be easily accessed, the system installer configures JasperReports Server to move current audit logs to an archive after a certain number of days, and to delete logs in the archive after a certain age. The archive is another table in the JasperReports Server's private database.

Audit Domains

A Domain that accesses audit data in the repository and lets administrators create Ad Hoc reports of server activity. There is one Domain for current audit logs and one for archived logs.

Audit Logging

When auditing is enabled, audit logging is the active recording of who used JasperReports Server to do what when. The system installer can configure what activities to log, the amount of detail gathered, and when to archive the data. Audit logs are stored in the same private database that JasperReports Server uses to store the repository, but the data is only accessible through the audit Domains.

Auditing

A feature of JasperReports Server Enterprise edition that records all server activity and allows administrators to view the data.

Calculated Field

In a Domain, a field whose value is calculated from a user-written formula that may include any number of fields, operators, and constants. A calculated field is defined in the Domain Designer, and it becomes one of the items to which the Domain's security file and locale bundles can apply.

CRM

Customer Relationship Management. The practice of managing every facet of a company's interactions with its clientele. CRM applications help businesses track and support their customers.

CrossJoin

An MDX function that combines two or more dimensions into a single axis (column or row).

Cube

The basis of most analysis applications, a cube is a data structure that contains three or more dimensions that categorize the cube's quantitative data. When you navigate the data displayed in an analysis view, you are exploring a cube.

Custom Field

In the Ad Hoc Editor, a field that is created through menu items as a simple function of one or two available fields, including other custom fields. When a custom field becomes too complex or needs to be used in many reports, it is best to define it as a calculated field in a Domain.

Dashboard

A collection of reports, input controls, graphics, labels, and web content displayed in a single, integrated view. Dashboards often present a high level view of your data, but input controls can parameterize the data to display. For example, you can narrow down the data to a specific date range. Embedded web content, such as other web-based applications or maps, make dashboards more interactive and functional.

Derived Table

In a Domain, a derived table is defined by an additional query whose result becomes another set of items available in the Domain. For example, with a JDBC data source, you can write an SQL query that includes complex functions for selecting data. You can use the items in a derived table for other operations on the Domain, such as joining tables, defining a calculated field, or filtering. The items in a derived table can also be referenced in the Domain's security file and locale bundles.

Data Policy

In JasperReports Server, a setting that determines how the server processes and caches data used by Ad Hoc reports. Select your data policies by clicking **Manage > Ad Hoc Settings**.

Data Source

Defines the connection properties that JasperReports Server needs to access data. The server transmits queries to data sources and obtains datasets in return for use in filling reports and previewing Ad Hoc reports. JasperReports Server supports JDBC, JNDI, and Bean data sources; custom data sources can be defined as well.

Dataset

A collection of data arranged in columns and rows. Datasets are equivalent to relational results sets and the `JRDataSource` type in the JasperReports Library.

Datatype

In JasperReports Server, a datatype is used to characterize a value entered through an input control. A datatype must be of type text, number, date, or date-time. It can include constraints on the value of the input, for example maximum and minimum values. As such, a datatype in JasperReports Server is more structured than a datatype in most programming languages.

Denormalize

A process for creating table joins that speeds up data retrieval at the cost of having duplicate row values between some columns.

Dice

An OLAP operation to select columns.

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.

Domain

A virtual view of a data source that presents the data in business terms, allows for localization, and provides data-level security. A Domain is not a view of the database in relational terms, but it implements the same functionality within JasperReports Server. The design of 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 reports.

Domain Topic

A Topic that is created from a Domain by the Data Chooser. A Domain Topic is based on the data source and items in a Domain, but it allows further filtering, user input, and selection of items. Unlike a JRXML-based Topic, a Domain Topic can be edited in JasperReports Server by users with the appropriate permissions.

Drill

To click on an element of an analysis view to change the data that is displayed:

- Drill down. An OLAP operation that exposes more detailed information down the hierarchy levels by delving deeper into the hierarchy and updating the contents of the navigation table.
- Drill through. An OLAP operation that displays detailed transactional data for a given aggregate measure. Click a fact to open a new table beneath the main navigation table; the new table displays the low-level data that constitutes the data that was clicked.
- Drill up. An OLAP operation for returning the parent hierarchy level to view to summary information.

Eclipse

An open source Integrated Development Environment (IDE) for Java and other programming languages, such as C/C++.

ETL

Extract, Transform, Load. A process that retrieves data from transactional systems, and filters and aggregates the data to create a multidimensional database. Generally, ETL prepares the database that your reports will access. The Jaspersoft ETL product lets you define and schedule ETL processes.

Fact

The specific value or aggregate value of a measure for a particular member of a dimension. Facts are typically numeric.

Field

A field is equivalent to a column in the relational database model. Fields originate in the structure of the data source, but you may define calculated fields in a Domain or custom fields in the Ad Hoc Editor. Any type of field, along with its display name and default formatting properties, is called an item and may be used in the Ad Hoc Editor.

Frame

A dashboard element that displays reports or custom URLs. Frames can be mapped to input controls if their content can accept parameters.

Group

In a report, a group is a set of data rows that have an identical value in a designated field.

- In a table, the value appears in a header and footer around the rows of the group, while the other fields appear as columns.
- In a chart, the field chosen to define the group becomes the independent variable on the X axis, while the other fields of each group are used to compute the dependent value on the Y axis.

Hierarchy Level

In analysis, a member of a dimension containing a group of members.

Input Control

A button, check box, drop-down list, text field, or calendar icon that allows users to enter a value when running a report or viewing a dashboard that accepts input parameters. For JRXML reports, input controls and their associated datatypes must be defined as repository objects and explicitly associated with the report. For Domain-based reports that prompt for filter values, the input controls are defined internally. When either type of report is used in a dashboard, its input controls are available to be added as special content.

iReport Designer

An open source tool for graphically designing reports that leverage all features of the JasperReports Library. The Jaspersoft iReport Designer lets you drag and drop fields, charts, and sub-reports into a canvas, and also define parameters or expressions for each object to create pixel-perfect reports. iReport Designer outputs the JRXML of the report or uploads it directly to JasperReports Server.

Item

When designing a Domain or creating a Topic based on a Domain, an item is the representation of a database field or a calculated field along with its display name and formatting properties defined in the Domain. Items can be grouped in sets and are available for use in the creation of Ad Hoc reports.

JasperReports Library

An embeddable, open source, Java API for generating a report, filling it with current data, drawing charts and tables, and exporting to any standard format (HTML, PDF, Excel, CSV, and others). JasperReports processes reports defined in JRXML, an open XML format that allows the report to contain expressions and logic to control report output based on run-time data.

JasperReports Server

A commercial open source, server-based application that calls the JasperReports library to generate and share reports securely. JasperReports Server authenticates users and lets them upload, run, view, schedule, and send reports from a web browser. Commercial versions provide metadata layers, interactive report and dashboard creation, and enterprise features such as organizations and auditing.

Jaspersoft ETL

A graphical tool for designing and implementing your data extraction, transforming, and loading (ETL) tasks. It provides hundreds of data source connectors to extract data from many relational and non-relational systems. Then, it schedules and performs data aggregation and integration into data marts or data warehouses that you use for reporting.

Jaspersoft OLAP

A relational OLAP server integrated into JasperReports Server that performs data analysis with MDX queries. The product includes query builders and visualization clients that help users explore and make sense of multidimensional data. Jaspersoft OLAP also supports XML/A connections to remote servers.

JavaBean

A reusable Java component that can be dropped into an application container to provide standard functionality.

JDBC

Java Database Connectivity. A standard interface that Java applications use to access databases.

JNDI

Java Naming and Directory Interface. A standard interface that Java applications use to access naming and directory services.

Join Tree

In Domains, a collection of joined tables from the actual data source. A join is the relational operation that associates the rows of one table with the rows of another table based on a common value in given field of each table. Only the fields in a same join tree or calculated from the fields in a same join tree may appear together in a report.

JPivot

An open source graphical user interface for OLAP operations. For more information, visit <http://jpivot.sourceforge.net/>.

JRXML

An XML file format for saving and sharing reports created for the JasperReports Library and the applications that use it, such as iReport Designer and JasperReports Server. JRXML is an open format that uses the XML standard to define precisely all the structure and configuration of a report.

MDX

Multidimensional Expression Language. A language for querying multidimensional objects, such as OLAP (On Line Analytical Processing) cubes, and returning cube data for analytical processing. An MDX query is the query that determines the data displayed in an analysis view.

Measure

Depending on the context:

- In a report, a formula that calculates the values displayed in a table's columns, a crosstab's data values, or a chart's dependent variable (such as the slices in a pie).
- In an analysis view, a formula that calculates the facts that constitute the quantitative data in a cube.

Mondrian

A Java-based, open source multidimensional database application.

Mondrian Connection

An analysis client connection that consists of an analysis schema and a data source used to populate an analysis view.

Mondrian Schema Editor

An open source Eclipse plugin for creating Mondrian analysis schemas.

Mondrian XMLA Source

A server-side XMLA source definition of a remote client-side XML/A connection used to populate an analysis view using the XMLA standard.

MySQL

An open source relational database management system. For information, visit <http://www.mysql.com/>.

Navigation Table

The main table in an analysis view that displays measures and dimensions as columns and rows.

ODBO Connect

Jaspersoft ODBO Connect enables Microsoft Excel 2003 and 2007 Pivot Tables to work with Jaspersoft OLAP and other OLAP servers that support the XML/A protocol. After setting up the Jaspersoft ODBO data source, business analysts can use Excel Pivot Tables as a front-end for OLAP analysis.

OLAP

On Line Analytical Processing. Provides multidimensional views of data that help users analyze current and past performance and model future scenarios.

Organization

A set of users that share folders and resources in the repository. An organization has its own user accounts, roles, and root folder in the repository to securely isolate it from other organizations that may be hosted on the same instance of JasperReports Server.

Organization Admin

Also called the organization administrator. A user in an organization with the privileges to manage the organization's user accounts and roles, repository permissions, and repository content. An organization admin can also create sub-organizations and manage all of their accounts, roles, and repository objects. The default organization admin in each organization is the `jasperadmin` account.


Outlier

A fact that seems incongruous when compared to other member's facts. For example, a very low sales figure or a very high number of helpdesk tickets. Such outliers may indicate a problem (or an important achievement) in your business. The analysis features of Jaspersoft OLAP excel at revealing outliers.

Parameter

Named values that are passed to the engine at report-filling time to control the data returned or the appearance and formatting of the report. A report parameter is defined by its name and type. In JasperReports Server, parameters can be mapped to input controls that users can interact with.

Pivot

To rotate a crosstab such that its row groups become column groups and its column groups become rows. In the Ad Hoc Editor, pivot a crosstab by clicking .

Pivot Table

A table with two physical dimensions (for example, X and Y axis) for organizing information containing more than two logical dimensions (for example, PRODUCT, CUSTOMER, TIME, and LOCATION), such that each physical dimension is capable of representing one or more logical dimensions, where the values described by the dimensions are aggregated using a function such as SUM. Pivot tables are used in Jaspersoft OLAP.

Properties

Settings associated with an object. The settings determine certain features of the object, such as its color and label. Properties are normally editable. In Java, properties can be set in files listing objects and their settings.

Repository

The tree structure of folders that contain all saved reports, dashboards, analysis views, and resources. Users access the repository through the JasperReports Server web interface or through iReport. Applications can access the repository through the web service API. Administrators use the import and export utilities to back up the repository contents.

Resource

In JasperReports Server, anything residing in the repository, such as an image, file, font, data source, Topic, Domain, report element, saved report, report output, dashboard, or analysis view. Resources also include the folders in the repository. Administrators set user and role-based access permissions on repository resources to establish a security policy.

Role

A security feature of JasperReports Server. Administrators create named roles, assign them to user accounts, and then set access permissions to repository objects based on those roles. Certain roles also determine what functionality and menu options are displayed to users in the JasperReports Server interface.

Schema

A logical model that determines how data is stored. For example, the schema in a relational database is a description of the relationships between tables, views, and indexes. In Jaspersoft OLAP, an OLAP schema is the logical model of the data that appears in an analysis view; they are uploaded to the repository as resources. For Domains, schemas are represented in XML design files.

Schema Workbench

A graphical tool for easily designing OLAP schemas, data security schemas, and MDX queries. The resulting cube and query definitions can then be used in Jaspersoft OLAP to perform simple but powerful analysis of large quantities of multi-dimensional data stored in standard RDBMS systems.

Set

In Domains and Domain Topics, a named collection of items grouped together for ease of use in the Ad Hoc Editor. A set can be based on the fields in a table or entirely defined by the Domain creator, but all items in a set must originate in the same join tree. The order of items in a set is preserved.

Slice

An OLAP operation for filtering data rows.

SQL

Structured Query Language. A standard language used to access and manipulate data and schemas in a relational database.

System Admin

Also called the system administrator. A user who has unlimited access to manage all organizations, users, roles, repository permissions, and repository objects across the entire JasperReports Server instance. The system admin can create root-level organizations and manage all server settings. The default system admin is the `superuser` account.

Topic

A JRXML file created externally and uploaded to JasperReports Server as a basis for Ad Hoc reports. Topics are created by business analysts to specify a data source and a list of fields with which business users can create reports in the Ad Hoc Editor. Topics are stored in the Ad Hoc Components folder of the repository and displayed when a user launches the Ad Hoc Editor.

Transactional Data

Data that describe measurable aspects of an event, such as a retail transaction, relevant to your business. Transactional data are often stored in relational databases, with one row for each event and a table column or field for each measure.

User

Depending on the context:

- A person who interacts with JasperReports Server through the web interface. There are generally three categories of users: administrators who install and configure JasperReports Server, database experts or business analysts who create data sources and Domains, and business users who create and view reports and dashboards.
- A user account that has an ID and password to enforce authentication. Both people and API calls accessing the server must provide the ID and password of a valid user account. Roles are assigned to user accounts to determine access to objects in the repository.

WCF

Web Component Framework. A low-level GUI component of JPivot. For more information, see <http://jpivot.sourceforge.net/wcf/index.html>.

Web Services

A SOAP (Simple Object Access Protocol) API that enables applications to access certain features of JasperReports Server. The features include repository, scheduling and user administration tasks.

XML

eXtensible Markup language. A standard for defining, transferring, and interpreting data for use across any number of XML-enabled applications.

XML/A

XML for Analysis. An XML standard that uses Simple Object Access protocol (SOAP) to access remote data sources. For more information, see <http://www.xmla.org/>

XML/A Connection

A type of analysis client connection that consists of Simple Object Access Protocol (SOAP) definitions used to populate an analysis view.

INDEX

A

- administering JasperSoft OLAP
 - security 50
 - servers 51
- Adobe Acrobat 16
- analysis cache 40
- analysis properties 34
- analysis schemas 34, 46
- analysis views
 - connections 23, 29, 40, 44
 - editing 32
 - folder 9
 - samples 9

B

- bibliography 7
- browsing the repository 6

C

- cache. *See* analysis schemas.
- connections
 - editing 40, 44
 - Mondrian 23, 40, 48, 49
 - XML/A 29, 44, 48, 49
- CSV format 19

D

- data sources 46
- drill-through options
 - Edit Properties 19
 - Output as CSV 19
 - Page Controls 19

E

- editing
 - analysis properties 34
 - analysis schemas 46
 - analysis views 32
 - connections 40, 44
 - data sources 46

- Mondrian XML/A source 49

- Excel 16, 19
- exporting analysis views 16

F

- flushing the analysis cache 40
- Foodmart Sample Analysis View 10
- further readings 7

J

- JasperSoft OLAP
 - logging 34
 - prerequisites 5
- JPivot 21

L

- locale 6
- logging 34, 50
- login 5

M

- MDX queries 15, 21, 23, 29
- Mondrian
 - and XML/A connections 48
 - connections 23, 40, 48, 49
 - XML/A sources 49

N

- navigation options
 - Expand All/Collapse All 18
 - Expand/Collapse Member 17
 - Expand/Collapse Position 17
 - Show Source Data 18
 - Zoom In/Out 18
 - Zoom Out All 18

O

- OLAP 9
- output of analysis views 16, 19

P

- PDF 16

prerequisites for Jaspersoft OLAP 5
properties. *See* analysis properties.

Q

queries, logging 34

R

repository page 6
ROLAP 21

S

samples
 analysis views 9
 Foodmart 10
saving analysis views 19
schemas. *See* analysis schemas.
SQL, logging queries 34

T

time zone 6
tool bar
 Change Data Cube 15
 Cube Options 12
 Drill into a Dimension Member 11

Drill-through Operations 13
Edit Chart Options 14
Edit Display Option 12
Edit Output Operations 16
Export to Excel 16
Export to PDF 16
overview 11
Show Chart 14
Show Empty Rows & Columns 11
Sort Across Hierarchy 11
Sort Option 13
Swap Axes 12

V

views. *See* analysis views.

X

XML/A
 configuration 48
 connections 29, 44, 48, 49
 creating a Mondrian XML/A source 49
 source 48