Technical Report

# NetApp OnCommand Unified Manager Reporting for NetApp ONTAP

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November 2016 | TR-4565

## Abstract

This technical report describes the reporting features introduced with NetApp® OnCommand® Unified Manager 6.2 for NetApp ONTAP® management software. Instructions are provided for implementing this capability in OnCommand 6.3 through 7.0 and how to create and manage custom reports, including how to export and import external reports. This report also provides examples and reference information for creating native and custom reports within OnCommand installations.

## TABLE OF CONTENTS



## LIST OF TABLES

## LIST OF FIGURES



# 1 Purpose

This document is designed to help OnCommand Unified Manager administrators and storage administrators effectively use the reporting and custom reporting functionalities in Unified Manager versions 6.3 through 7.x.

**Note:** We worked with Eclipse, an open-source integrated development environment (IDE), for the custom reports in this documentation.

# 2 Glossary of Terminology

**Table 1) Technical report terminology.**

| Acronym | Description |
|---|---|
| BIRT | Business intelligence reporting tool from OpenText; the embedded reporting engine in OnCommand Unified Manager |
| DB | Database |
| Eclipse | Open-source IDE used to create report definitions for BIRT |
| IDE | Integrated development environment |
| FQDN | Fully qualified domain name |
| REST | Representational state transfer |
| SVM | Storage virtual machine |
| UI | User interface |
| .war | Web application archive |

# 3 Introduction

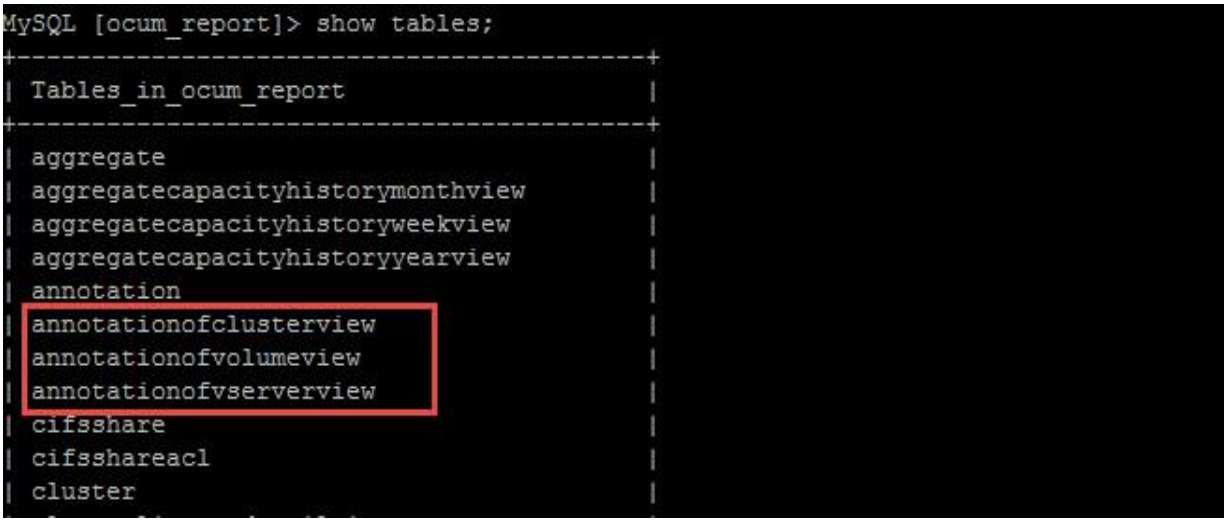
An IT environment requires the accurate and comprehensive reporting of its assets to optimize operations and improve asset use. These reports can be informational, for measuring storage and capacity information, or for administrative purposes. As the number of reports increases, so does the complexity of the reporting process.

# 4 Reporting Feature Overview

With OnCommand Unified Manager 6.2, NetApp introduced a new reporting feature that includes a library of standard reports about the underlying NetApp storage infrastructure. With these reports, administrators can easily obtain the information that they need to effectively manage their NetApp FAS and All Flash FAS. If preferred, administrators can customize reports to capture only the desired data objects with the extended reporting capabilities in Unified Manager.

Unified Manager versions 6.3 and above further extend the custom reporting capabilities with the addition of annotation tables. With this capability, administrators can simplify the process of customizing reports with the ability to expose annotation tables as a database view.

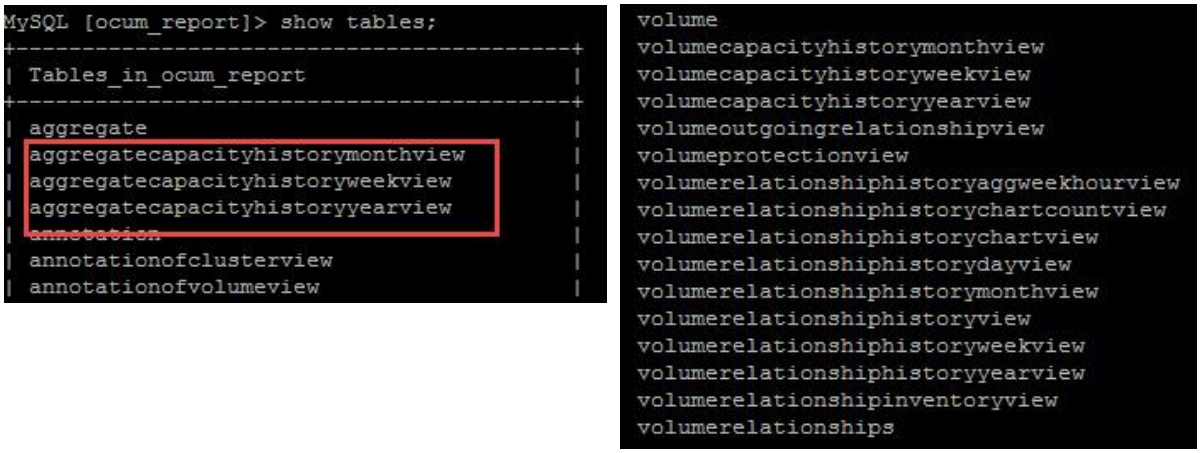
**Figure 1) Annotation further enhances reporting capabilities for Unified Manager 6.3.**




Unified Manager versions 6.4 and above further extend custom reporting capabilities.

- Enables both the aggregate and the volume history to be exposed as a database view, facilitating custom reports to capture capacity utilization metrics
- Exposes protection relationships as database views for users to build custom reports, as shown in Figure 2
- Imports custom reports without table elements in the report design (see Section 9: Portability of (Custom) Reports for more details)

**Figure 2) OnCommand 6.4 extends annotation enhancements.**




**Note:** The annotations and history options displayed above are not currently available with standard reports.

## 4.1 OnCommand Unified Manager Report Features

OnCommand Unified Manager reports provide storage visibility and analytics for NetApp FAS and All Flash FAS. Operating as agentless browser-based software, Unified Manager reports allow administrators to create extensive reports on:

- Operations management: events, severity, and status trend charts
- Capacity: storage summary, aggregate, volume, qtree

- Inventory: cluster, SVM, volumes
- Protection relationships

With the Unified Manager reporting feature, administrators can:

- Customize core reports for additional use cases:
  - Group, filter, sort, add compute fields, hide, and delete at the column level (for each column) in the report.
  - Get hints to customize the preceding list of additional use cases.
- Export and import report definitions to enable sharing of information.
- Schedule and share reports; view reports in PDF, CSV, XLS, HTML, or TXT format.
- Group storage resources with a single identifier for analysis and reporting; for example, by business function or by application.
- Make full use of Eclipse, a third-party tool, to create custom, comprehensive reports that can be imported to import Unified Manager as a design template.

# 5 Architecture Overview

OnCommand Unified Manager 6.x ships with standard reports in the following categories:

- Capacity utilization
- Operational
- Inventory
- Data protection

In addition, users can create custom reports or support third-party reports with the OpenText BIRT component. An IDE connects to the Unified Manager database over port 3306 by using a MySQL Java Database Connectivity (JDBC) driver. Users can interact to view reports online (in real time), offline through sharing or exporting, or through scheduling of standard and imported reports.

**Note:** Although this technical report provides guidance on creating custom reports from available IDEs, NetApp does not support issues that users might incur with the custom reports that are created. The creation, management, and maintenance of custom reports are the responsibility of the customer.

A database has been added to the Unified Manager server (ocum_report). It is accessible by users who have been defined with a report schema role. The database provides wrapper views to imported reports that are created by using Eclipse. BIRT uses various customized feature-rich REST APIs for background tasks: share, schedule, and import reports created from IDEs.

## 5.1 OnCommand Unified Manager Reporting Under the Hood

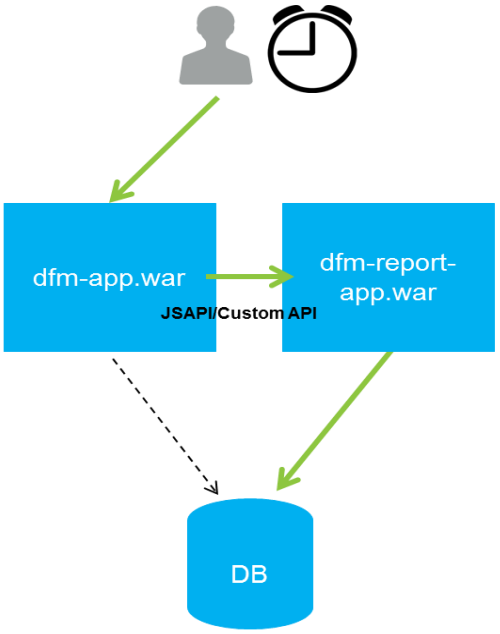
The application server in OnCommand Unified Manager comes with two main war files:

- **dfm-app.war** contains UM content.
- **dfm-report-app.war** is a wrapper over the third-party Actuate BIRT component; the war file contains canned report designs.

In addition, an intermediate `dfm-report.war` is available to help port to the OnCommand product foundation.

Figure 3) OnCommand Unified Manager reporting architecture.




BIRT: Business Intelligence and Reporting Tool

# 6 Granular Reporting with Annotations

## 6.1 Annotation

With annotation, users can tie SVMs, volumes, and clusters into a single group for better manageability. An annotation is a combination of a name-value pair that can be applied to storage objects in NetApp ONTAP—clusters, SVMs, and volumes—using user-defined rules. With this capability, users can create storage tags that can be used for reporting and administration of storage objects linked to that tag.

An *annotation name* refers to the metadata that is associated with storage objects. And storage objects can be associated with one or more unique annotation names. Examples of an annotation include an application, a data center, and a business unit.

An *annotation value* is the value associated with an annotation name, such as:

```
Data Center = New York, Application = Exchange, Business Unit = Finance
```

With OnCommand Unified Manager 6.4 and above, users can create custom annotations by applying rules to augment supported storage objects—clusters, SVMs, and volumes. The following conditions hold true for annotation association:

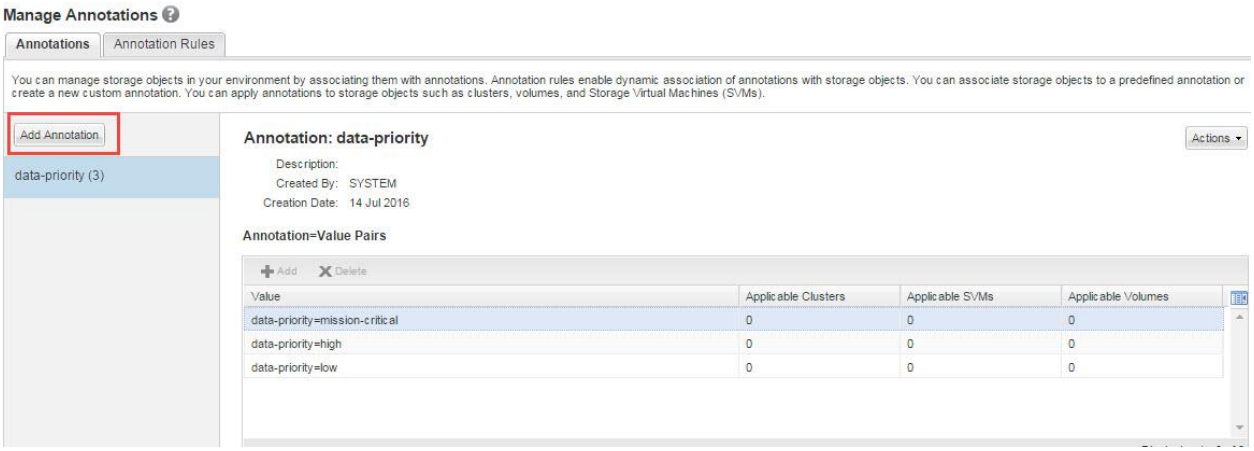
- A given storage object can associate any number of annotation labels with it.
- A storage object can have only one annotation value for a given annotation name.

## 6.2 Create Annotations

To create an annotation, use the following procedure:

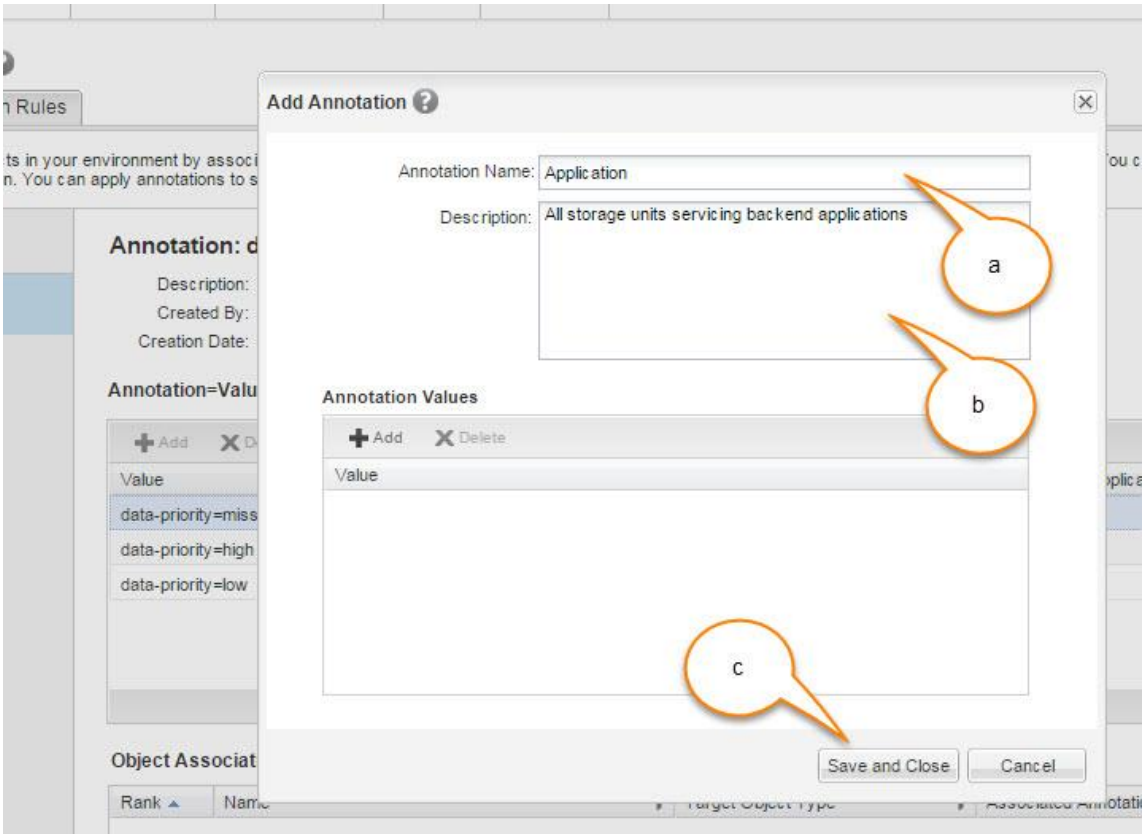
1. Log in to Unified Manager as the OnCommand administrator.


2. Navigate to Administration → Manage Annotations.
   On the Manage Annotations window, click Add Annotation.

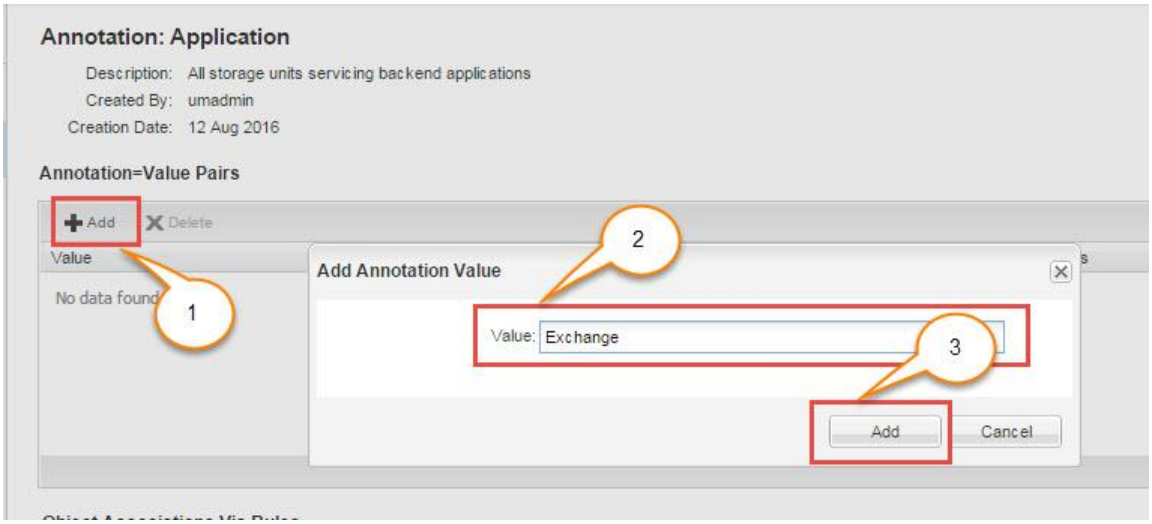


3. On the Add Annotation screen, enter:
    - The annotation name
    - A description of the annotation

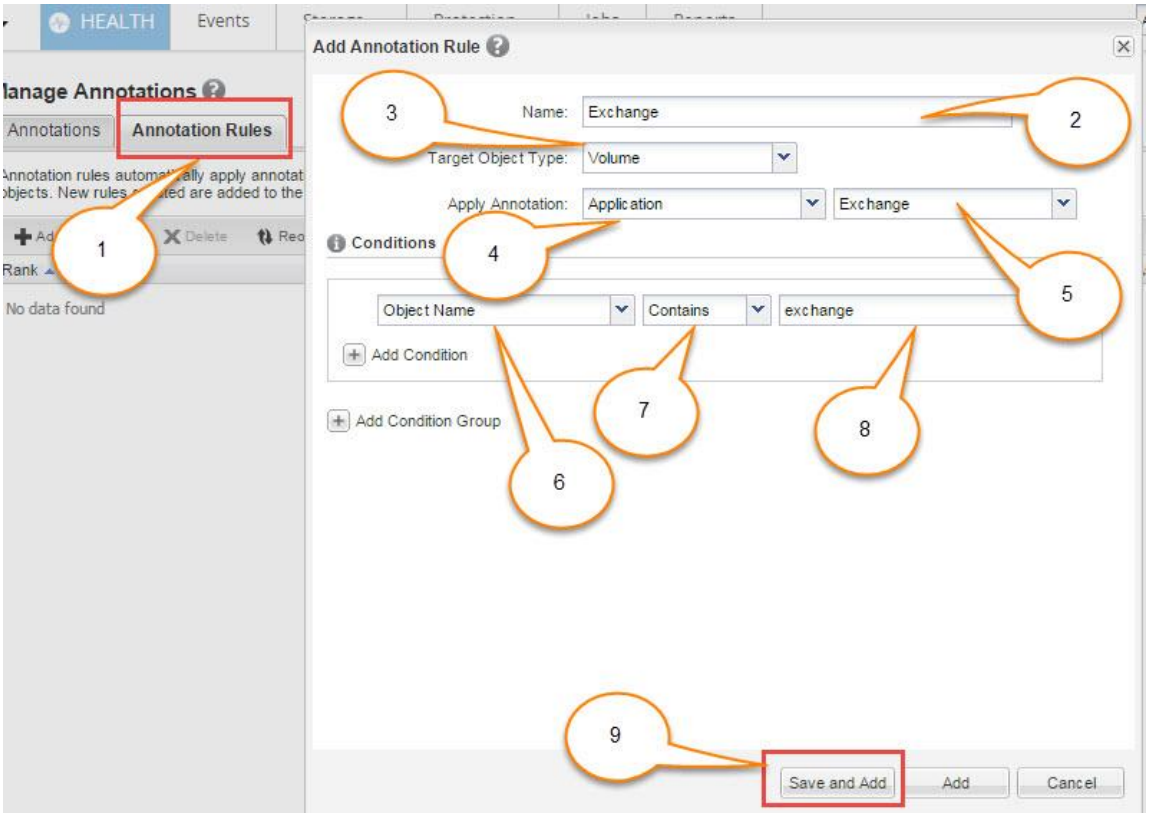
Then click Save and Close.




4. The next step is to add values to the annotation:
    - Click Add.
    - Enter the value name for tagging.
    - Click Add to save.



5. The final step is to define the annotation value conditions with rule definitions. Doing so associates all storage objects matching the annotation “Application” and the value “Exchange.”




**Step 1:** Click Annotation Rules to bring up the Annotation Rule window.

**Step 2:** Enter the name of the rule.

**Step 3:** Associate the rule to a storage object type from the drop-down menu.

**Step 4:** Associate the rule to the annotation name created above.

**Step 5:** Select the value to which to attach this rule.

**Steps 6, 7, 8:** Create filtering definitions to augment storage objects to this value (additional conditions can be included for advanced filtering).

**Step 9:** Review the definitions, click Save and Add, and close the window.

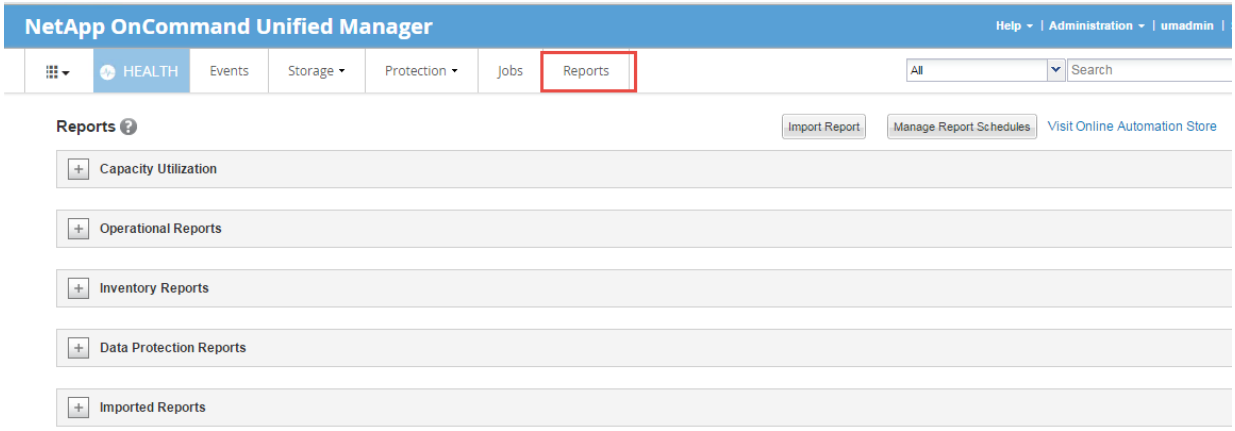
# 7 Reporting Dashboard

The reporting dashboard is the main page on which reports are categorized and listed:

- Capacity utilization
- Operational reports
- Inventory reports
- Data protection reports
- Imported reports

To navigate to the reporting dashboard, click the Reports tab at the top navigation bar.

**Figure 4) OnCommand Unified Manager Reports dashboard.**




The first four categories contain standard reports. To view the reports available within a category, click "+". Each of these reports can be customized as described in Section 7.2 Enhance Standard Reports.

In addition, imported reports can also be customized using Eclipse (free license open-source report designer) or the OpenText Actuate Analytics Designer (free commercial-grade designer). To customize imported reports, the BIRT reporting engine must be installed on the system. See Section 8 Custom Reports for more information.

## 7.1 Reporting Functions

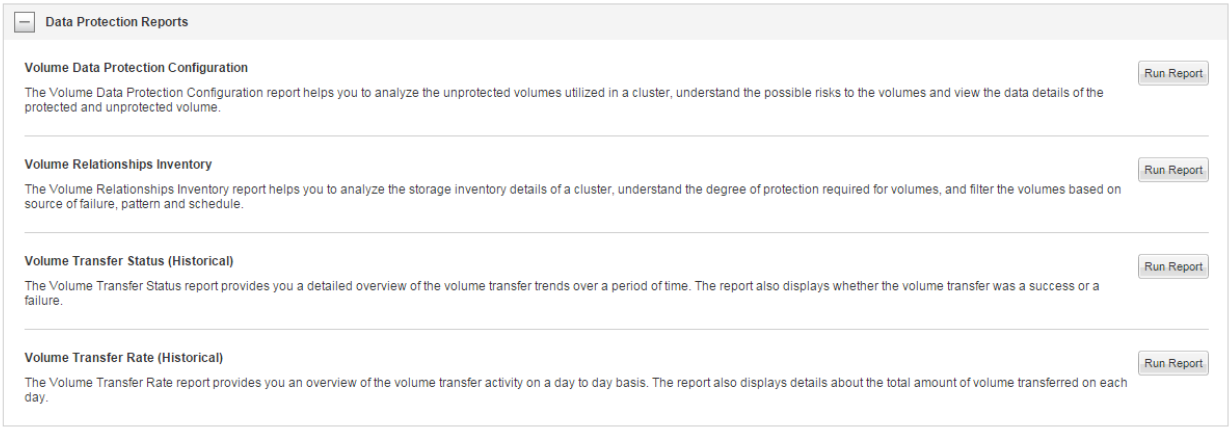
The reporting function in OnCommand Unified Manager provides a comprehensive view of all NetApp ONTAP devices in the environment. This view assists administrators with operational tasks such as capacity and operations management. With this capability, users can perform the following reporting functions:

- View reports under the reporting categories listed in the dashboard, as mentioned earlier.
- Run a report.
- Schedule a report.
- Customize standard reports.
- Import a report using the third-party Eclipse designer tool.

### View Reports

Each of the reporting categories can be expanded to view the specific reporting capabilities available. For example, the following standard reports are available within the Data Protection category.

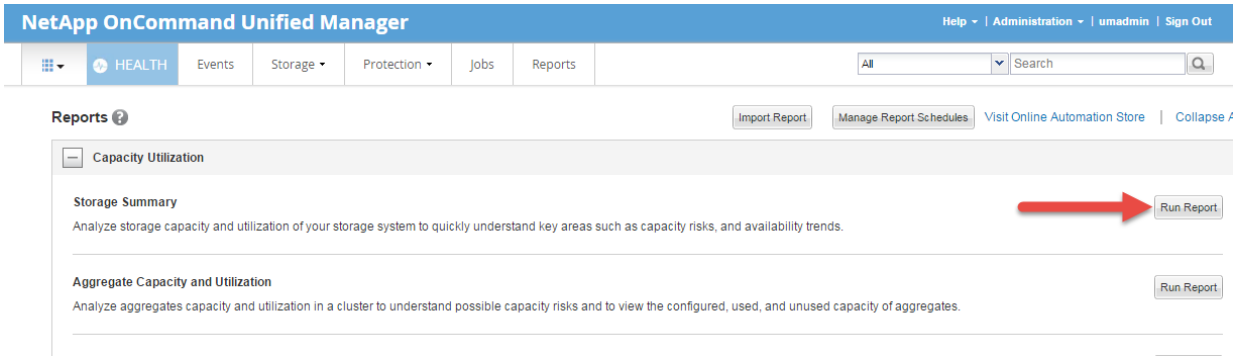
**Figure 5) Sample of standard data protection reports.**



## Run a Report

To run a report, expand the category, then click the Run Report button next to the desired report. Doing so takes you to the Report Details page.

**Figure 6) Unified Manager Reports page.**




## Schedule a Report

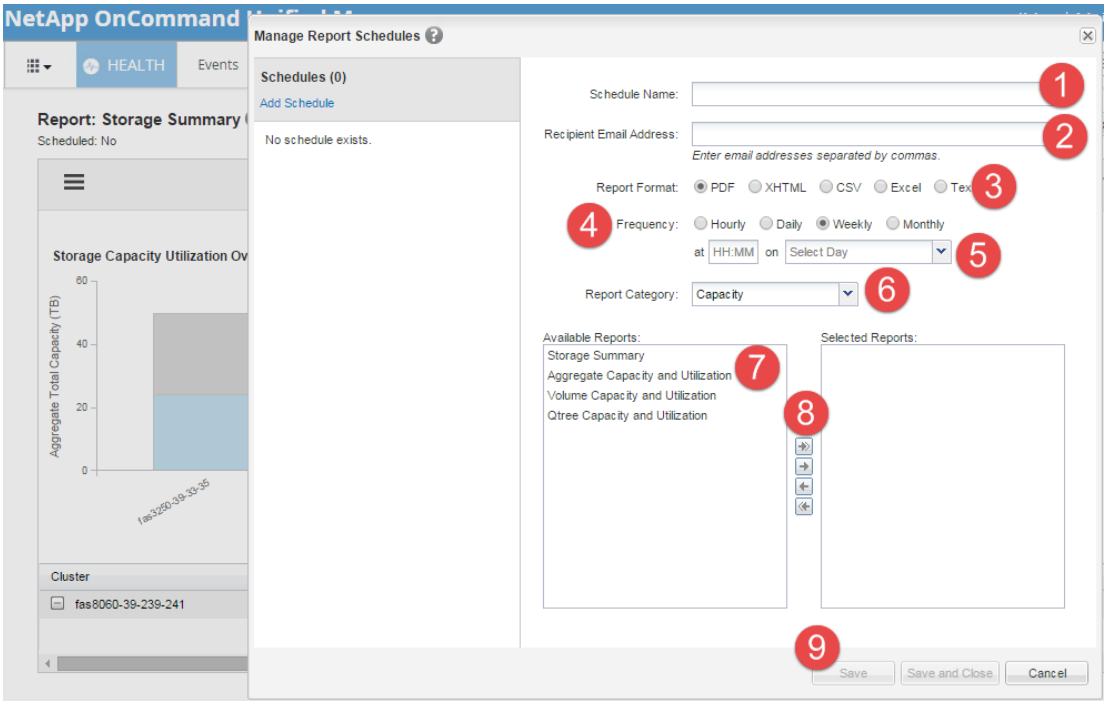
The scheduling feature allows you to define the specific time to run a report, with the ability to automatically send to administrators and other essential recipients by e-mail. A variety of formats is supported, including PDF, HTML, CSV, Excel, and so on.

To schedule a report, go to the individual report summary page. Click Manage Report Schedules and complete the following fields, as shown in Figure 7:

1. Schedule Name
2. Recipient E-Mail Address
3. Report Format
4. Frequency (of the reporting intervals)
5. Date and Time
6. Report Category
7. Select Available Reports
8. Click “+” to Add to the Schedule
9. Click “Save” to Complete the Task

**Note:** The drag-and-drop feature lets you add specific fields within the schedule.

Figure 7) Example of report scheduling process.

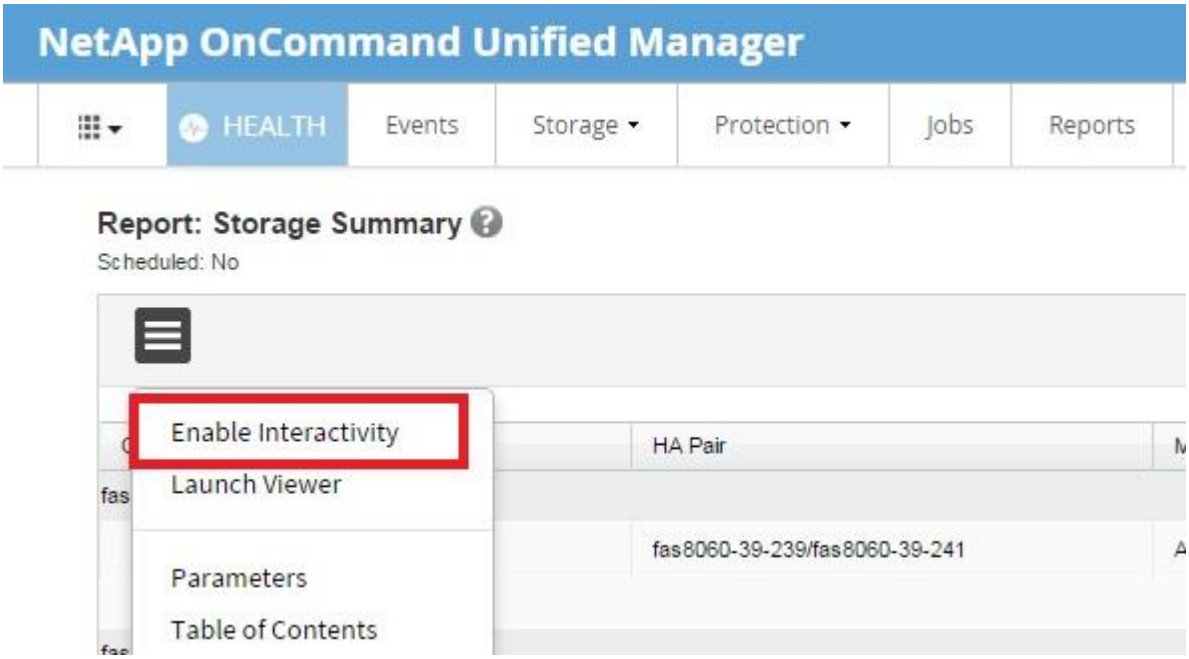



## 7.2 Enhance Standard Reports

You can further customize standard reports by selecting the specific reporting fields that you want to include in your report. To customize a report, first select Enable Interactivity on the report, as shown in Figure 8.

**Note:** This choice is enabled by default.

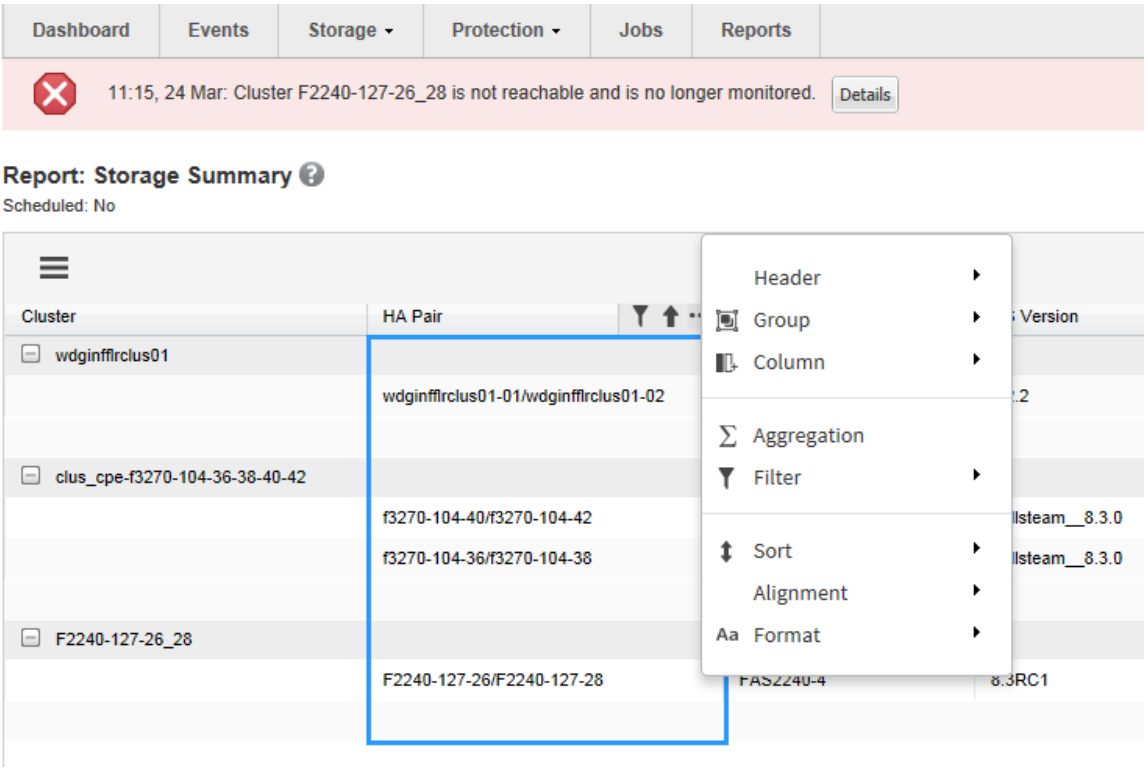
Figure 8) Customize reports with the Enable Interactivity function.



Once interactivity has been enabled, you can customize your report to sort, filter, or delete a row or a column from the report. When the customization is complete, you can save the modified report for future reference or schedule this report to run on a regular basis.

To customize a standard report, click any of the columns, as shown in Figure 9, to explore the available features.

**Figure 9) Options for customizing reports.**

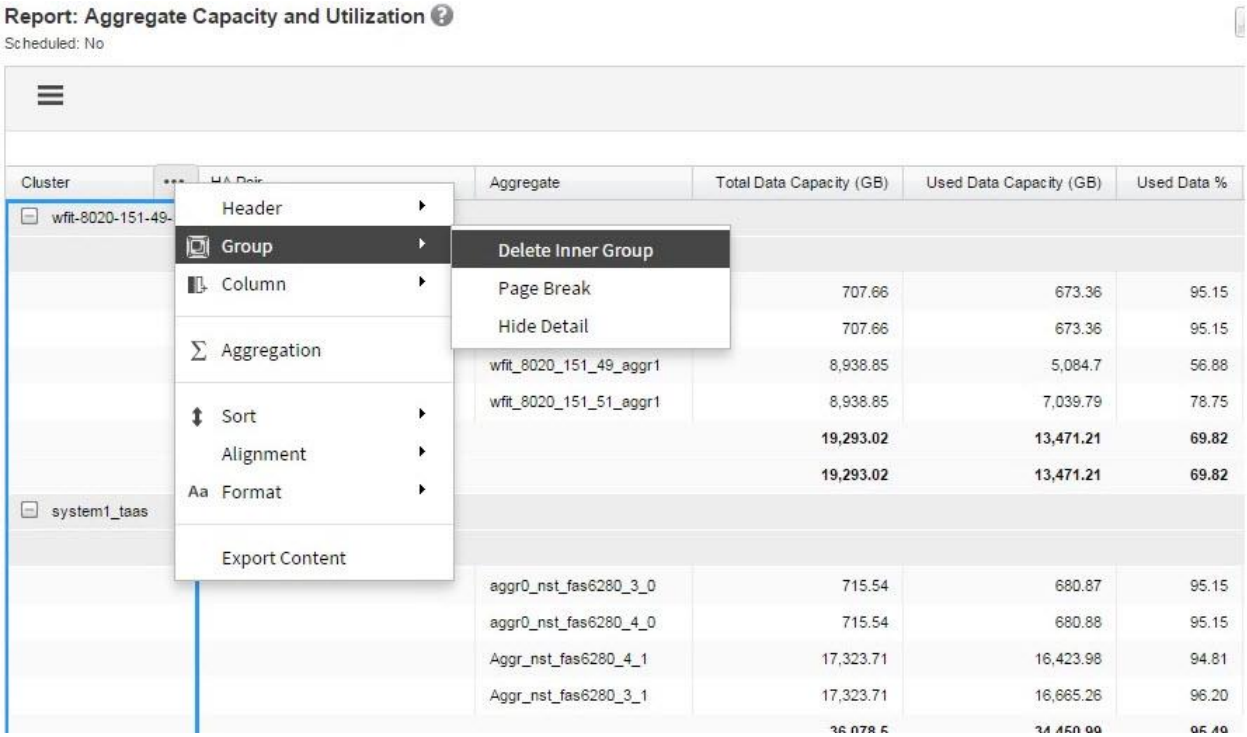



## Enhance Standard Reports Example 1

This example describes the process to customize a report that highlights all volumes in the data center that exceeded the Space Full Threshold. From the Report: Aggregate Capacity and Utilization page, as shown in Figure 10, click Run Report. Then perform the following steps to get your desired report:

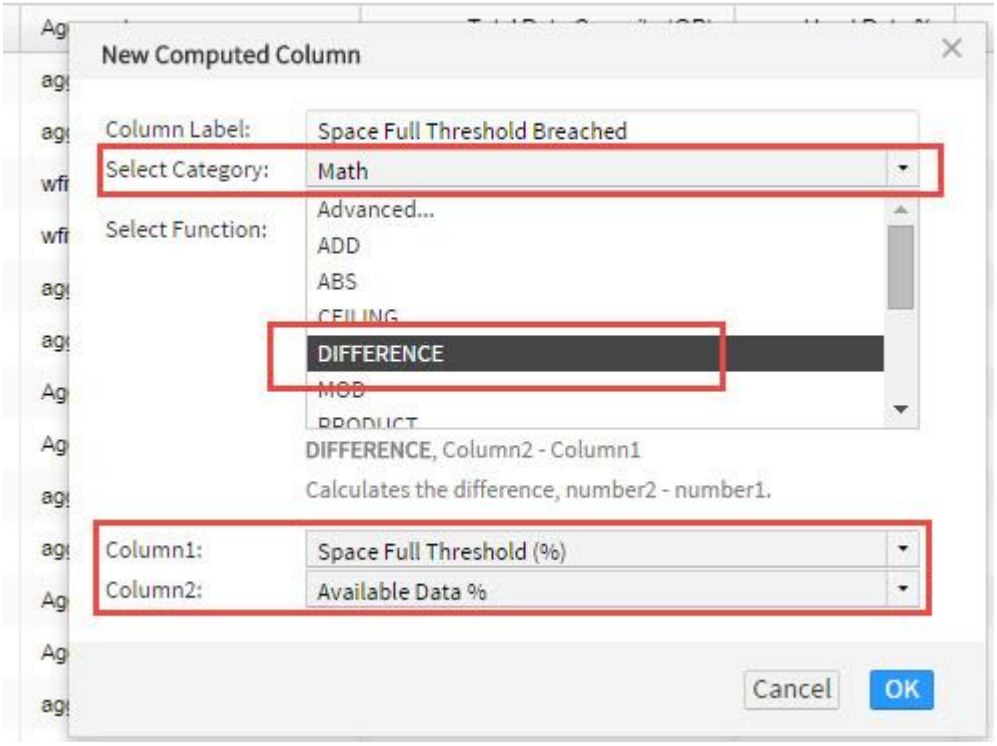
1) To remove grouping by cluster or HA pair, perform the following steps:
   a) Click the column that needs to be ungrouped (in this case, the Cluster and HA Pair columns)
   b) Click the ••• icon.
   c) Select Group → Delete Inner Group.

**Figure 10) Ungrouping clusters or HA pairs.**




2) To display the difference between Space Full Threshold % and Available Data %, add a new column, as shown in Figure 11:
   a) Select the column and click the ••• icon.
   b) Select Column → New Computed Column.
   c) In the New Computed Column dialog box, enter a column label.
   d) From the Select Category list, select Math.
   e) From the Select Function list, select DIFFERENCE.
   f) From the Column 1 list, select Space Full Threshold (%).
   g) From the Column 2 list, select Used Data (%).
   h) Click OK.

**Figure 11) Customize reports with new columns.**




3) To filter values greater than 0 in the new column, click the New Computed column and open the Filter dialog box by clicking the icon.

4) From the Condition drop-down list, select Greater Than.

5) In the Value field, type 0 and click OK.

6) To sort the values, click the New Computed column and click the icon.

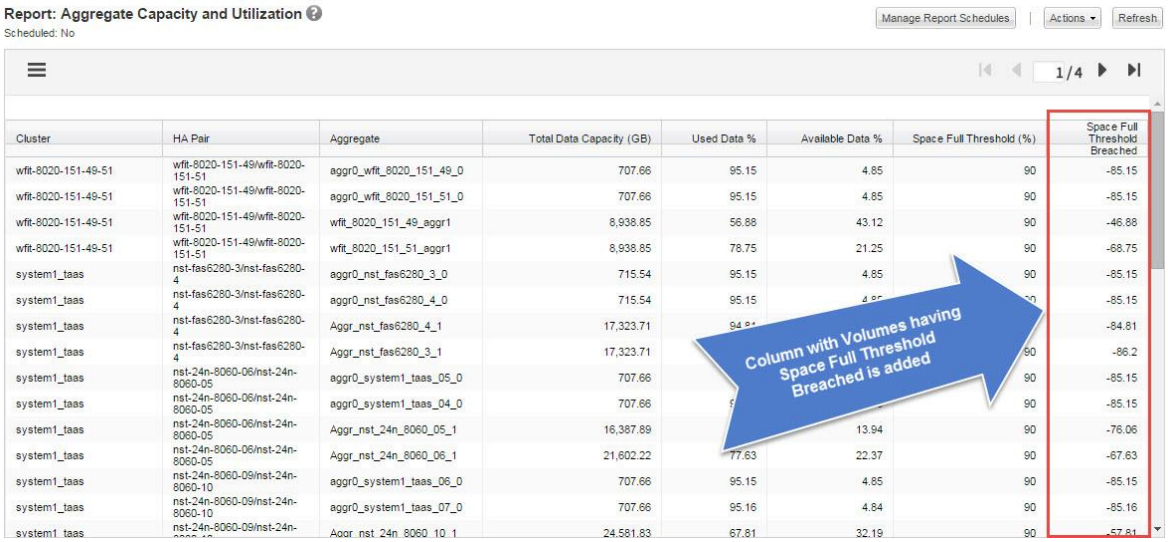
7) Select Filter → Top/Bottom N.

8) In the Top/Bottom N dialog box, select Top N from the Filter field and enter a value in the text field.

9) Click OK.

Table 12 displays the new report that now includes the volumes that breached the Space Full Threshold. Save this report with a new name to differentiate it from the standard report included in the OnCommand Unified Manager library.

**Figure 12) Customized report with new column inserted.**




| Cluster | HA Pair | Aggregate | Total Data Capacity (GB) | Used Data % | Available Data % | Space Full Threshold (%) | Space Full Threshold Breached |
|---|---|---|---|---|---|---|---|
| wfit-8020-151-49-51 | wfit-8020-151-49/wfit-8020-151-51 | aggr0_wfit_8020_151_49_0 | 707.66 | 95.15 | 4.85 | 90 | -85.15 |
| wfit-8020-151-49-51 | wfit-8020-151-49/wfit-8020-151-51 | aggr0_wfit_8020_151_51_0 | 707.66 | 95.15 | 4.85 | 90 | -85.15 |
| wfit-8020-151-49-51 | wfit-8020-151-49/wfit-8020-151-51 | wfit_8020_151_49_aggr1 | 8,938.85 | 56.88 | 43.12 | 90 | -46.88 |
| wfit-8020-151-49-51 | wfit-8020-151-49/wfit-8020-151-51 | wfit_8020_151_51_aggr1 | 8,938.85 | 78.75 | 21.25 | 90 | -68.75 |
| system1_taas | nst-fas6280-3/nst-fas6280-4 | aggr0_nst_fas6280_3_0 | 715.54 | 95.15 | 4.85 | 90 | -85.15 |
| system1_taas | nst-fas6280-3/nst-fas6280-4 | aggr0_nst_fas6280_4_0 | 715.54 | 95.15 | 4.85 | 90 | -85.15 |
| system1_taas | nst-fas6280-3/nst-fas6280-4 | Aggr_nst_fas6280_4_1 | 17,323.71 | 94.81 | 5.19 | 90 | -84.81 |
| system1_taas | nst-fas6280-3/nst-fas6280-4 | Aggr_nst_fas6280_3_1 | 17,323.71 | 88.8 | 11.2 | 90 | -86.2 |
| system1_taas | nst-24n-8060-06/nst-24n-8060-05 | aggr0_system1_taas_05_0 | 707.66 | 95.15 | 4.85 | 90 | -85.15 |
| system1_taas | nst-24n-8060-06/nst-24n-8060-05 | aggr0_system1_taas_04_0 | 707.66 | 95.15 | 4.85 | 90 | -85.15 |
| system1_taas | nst-24n-8060-06/nst-24n-8060-05 | Aggr_nst_24n_8060_05_1 | 16,387.89 | 86.06 | 13.94 | 90 | -76.06 |
| system1_taas | nst-24n-8060-06/nst-24n-8060-05 | Aggr_nst_24n_8060_06_1 | 21,602.22 | 77.63 | 22.37 | 90 | -67.63 |
| system1_taas | nst-24n-8060-09/nst-24n-8060-10 | aggr0_system1_taas_06_0 | 707.66 | 95.15 | 4.85 | 90 | -85.15 |
| system1_taas | nst-24n-8060-09/nst-24n-8060-10 | aggr0_system1_taas_07_0 | 707.66 | 95.16 | 4.84 | 90 | -85.16 |
| system1_taas | nst-24n-8060-09/nst-24n- | Aggr_nst_24n_8060_10_1 | 24,581.83 | 67.81 | 32.19 | 90 | -57.81 |

Similarly, you can customize multiple reports from the standard reports to suit your specific requirements. The following identifies typical scenarios you can customize:

a) Listing top aggregates reaching their full capacity

b) Listing aggregates with overcommitted threshold breached

c) Listing NetApp SnapLock® compliance volumes

d) Top qtrees that breached soft limits

e) Listing events with a severity type

f) Listing most critical events

g) Listing nodes that are breaching the maximum nodes limit

h) Listing volumes with inaccessible junction path

i) Listing volumes with default export policy

j) Data protection reports based on schedules on which they are run

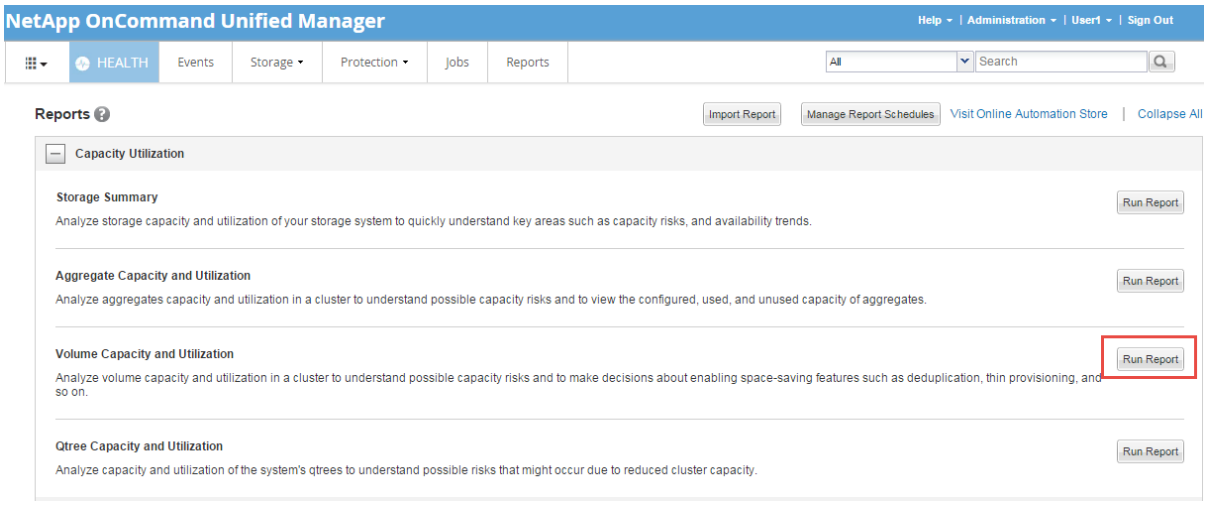
k) Data protection volumes grouped by the timelines by which they are triggered, etc.

l) … and many more.

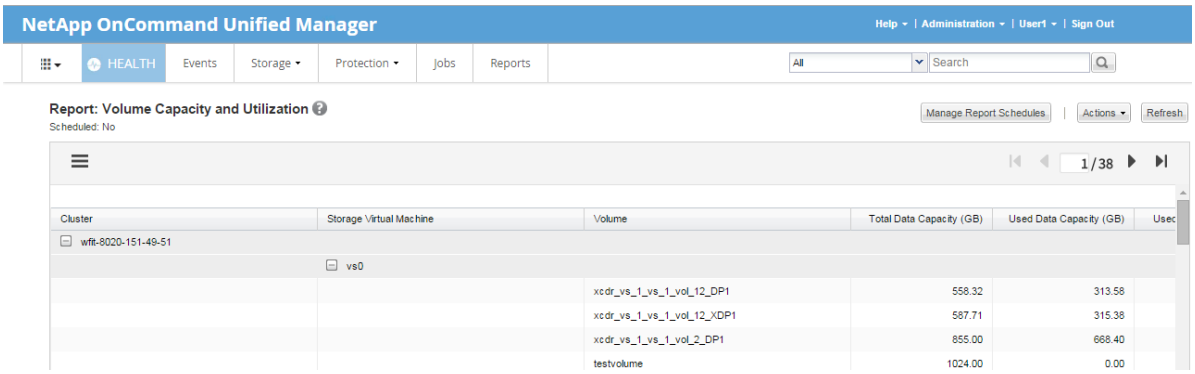
## Enhance Standard Reports Example 2

This example describes the process to create a simple volume report using filtering to select volumes that reached 85% to 95% of capacity. The following steps show how to use color in contextual formatting and in removing the grouping from the standard report:

1) Go to the Reports tab and run the following report:




2) Doing so takes you to the report:



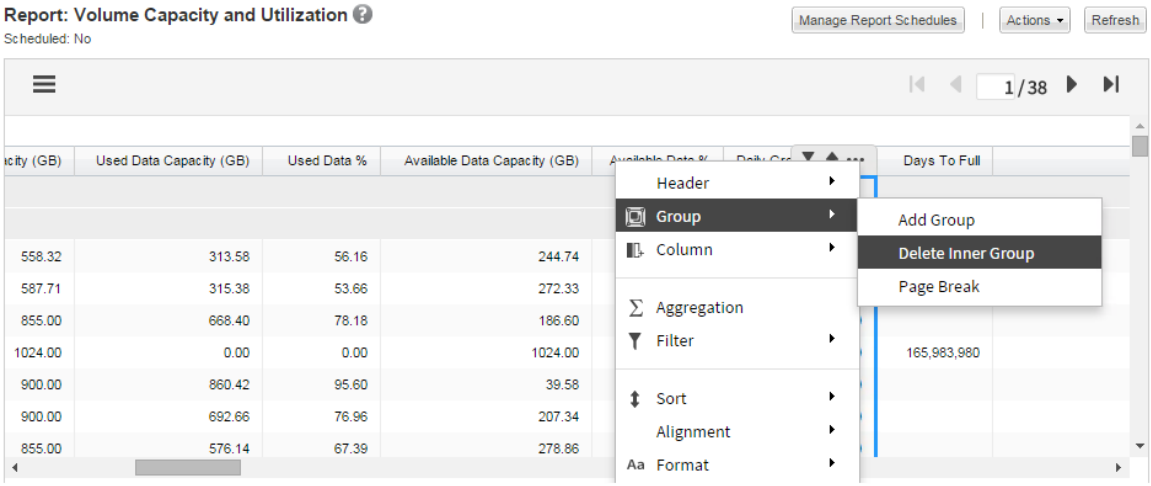

3) To remove a grouping by cluster or HA pair and SVM(s), perform the following steps on the columns Cluster and Storage Virtual Machine:

   a) Click in the column that needs to be ungrouped (the Cluster and HA Pair columns in this case)

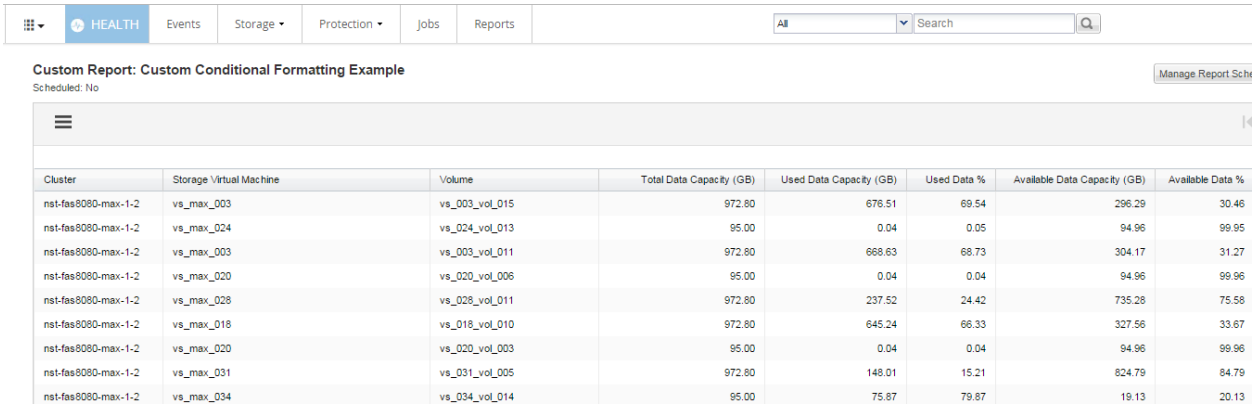
   b) Click the  icon.

   c) Select Group → Delete Inner Group.

4) Delete all the columns you want to remove from the report:

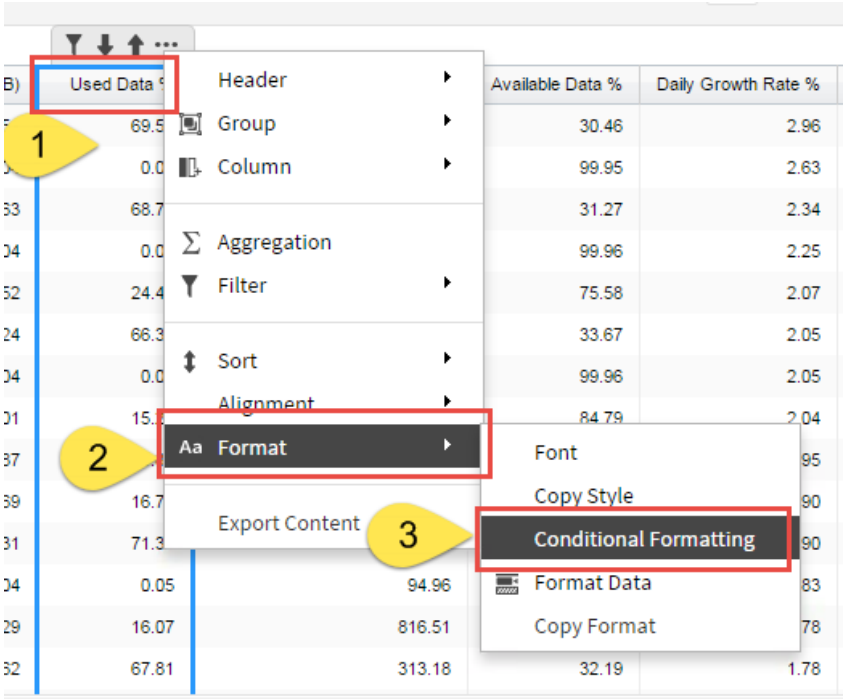



5) The report now displays the cluster and SVM information and the required fields, as shown here:

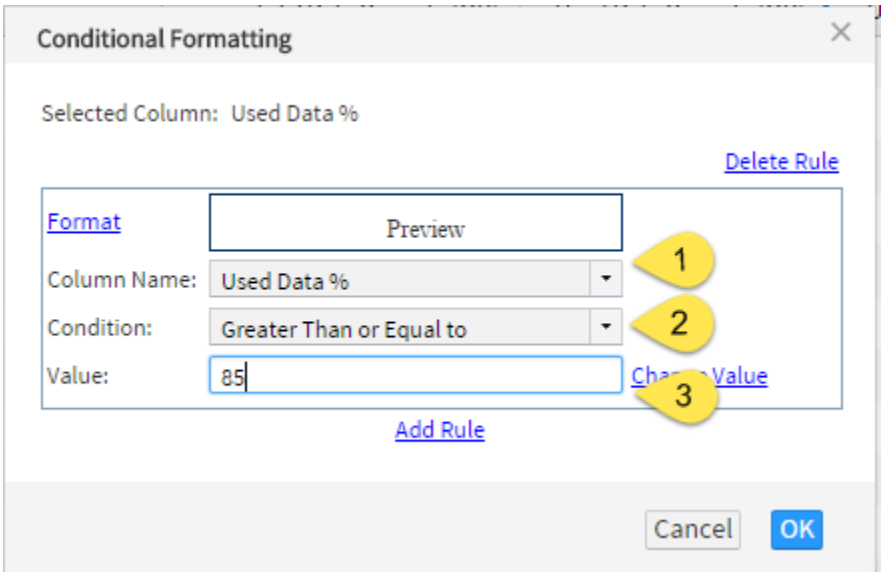


6) Perform the following steps to create conditional filtering on the Used Data% column:

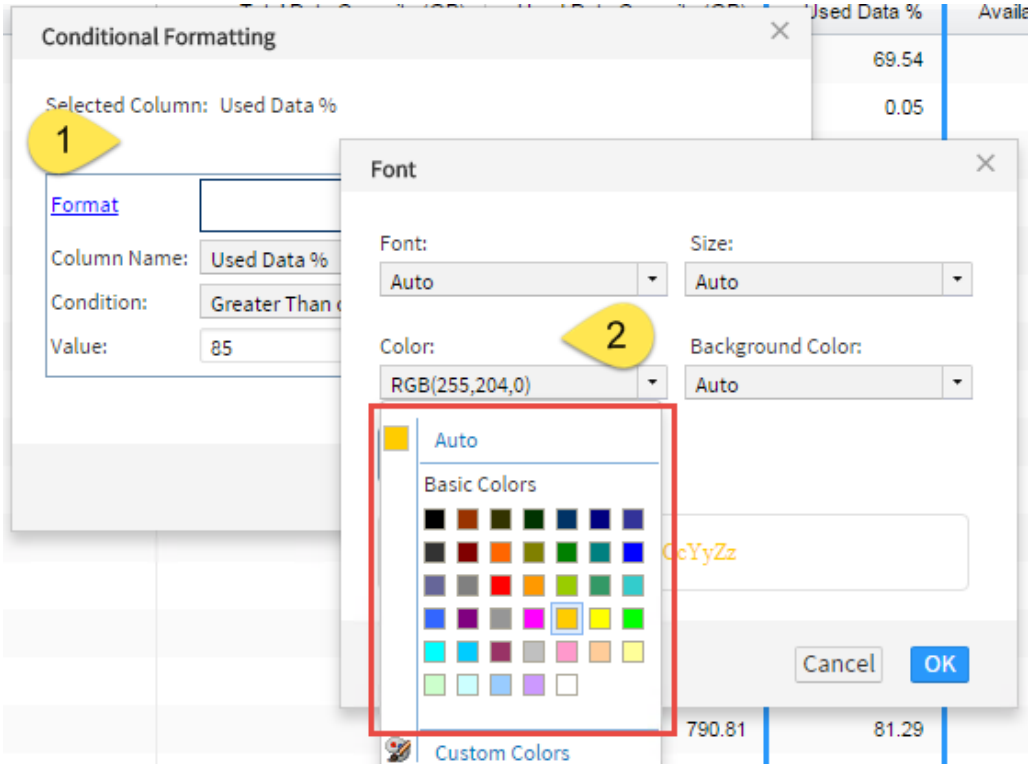



7) On the conditional formatting window, select Column Name, Condition, and Value (for used data %):

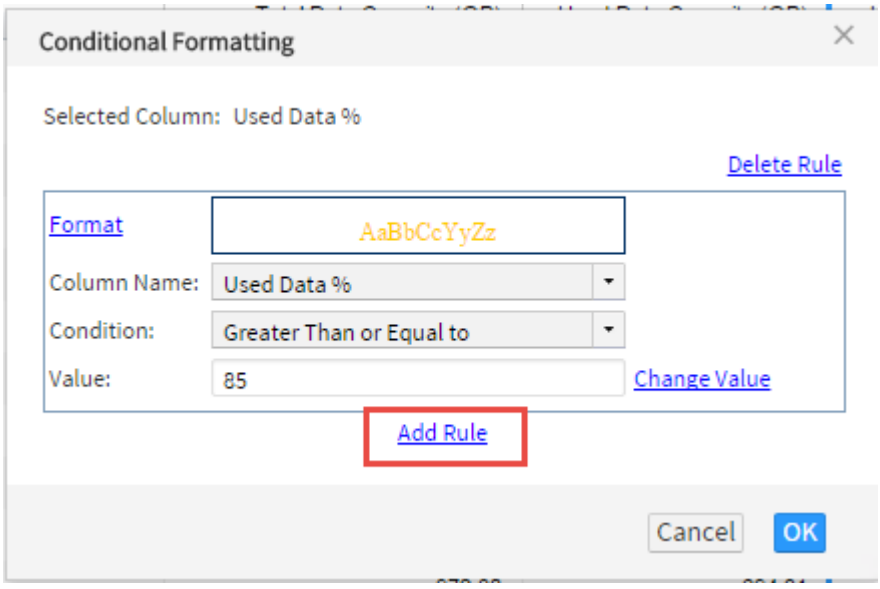


8) Now add a color to the conditional value (that is, any volume with a used data percentage greater than or equal to 85%). In this example, we selected yellow to highlight the volumes that match this criteria.

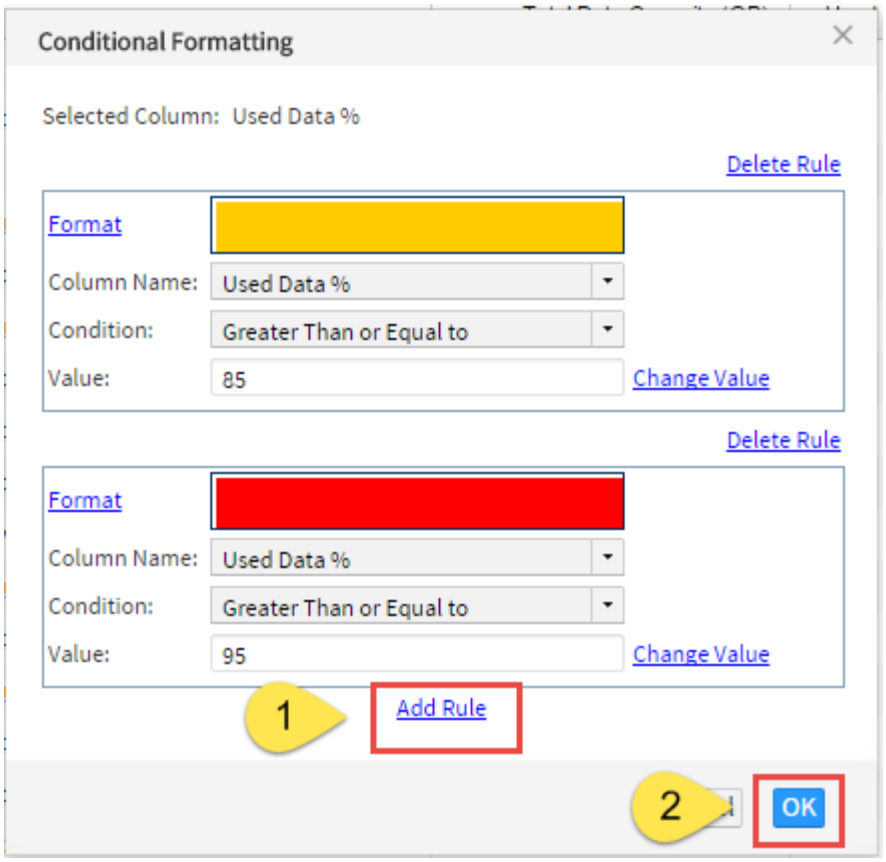
**Note:** You can select either a font color or a background color.




9) Click Add Rule and OK on the Conditional Formatting window to complete the task:



10) Repeat steps 7 and 8 if you want to create additional rules with the condition “Greater Than or Equal to 95%” and add red to this value, as shown in Step 9 (above).




Click OK to complete all the steps.

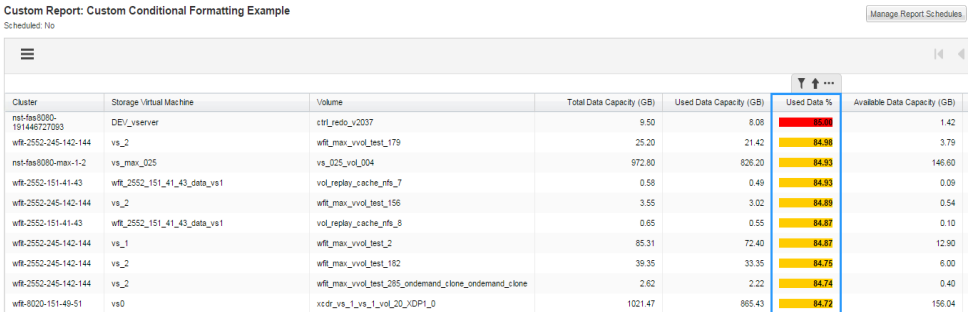
**Note:** The values in the example are differentiated by background color.

11) Figure 13 shows the report with the selected color-coded values for Used Data %.

**Note:**

- The example uses yellow for values >=75% and red for values >=85% to show the data appropriately. You can customize these colors and percentages to suit your requirements.
- You can save the report with a new name, schedule the report, or export the new report to an e-mail address, as explained earlier.

**Figure 13) Example of custom conditional formatting.**



# 8 Custom Reports

To build a new custom report, you need the following:

- A fully operational OnCommand Unified Manager server
- An Eclipse-based tool installed on a separate system to design reports using simple SQL queries

## 8.1 Software Requirements

To produce feature-rich custom reports, you can apply the open-source Eclipse tool or the OpenText Actuate Analytics Designer.

To install the Eclipse tool, use either of these links:

- Eclipse IDE for Java and report developers: http://www.eclipse.org/downloads/packages/eclipse-ide-java-and-report-developers/marsr
- "All-in-one" package: http://download.eclipse.org/birt/downloads/

**Note:** Eclipse can be installed on Windows, Mac OS X, and Linux operating systems. To set up and configure the designer of your choice, follow the installation instructions for the software.

To download the OpenText Actuate Analytics Designer, go to:

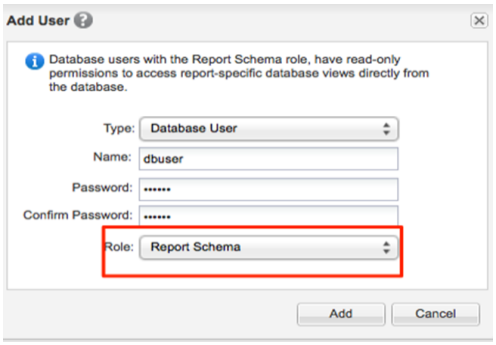
- http://birt.actuate.com/products/analytics-designers/analytics-designer

## 8.2 Eclipse Prerequisites

Eclipse requires a connection to the Unified Manager database, using Port 3306 to connect through a JDBC connector and a database user for authorization.

To create a database user in the Unified Manager server:

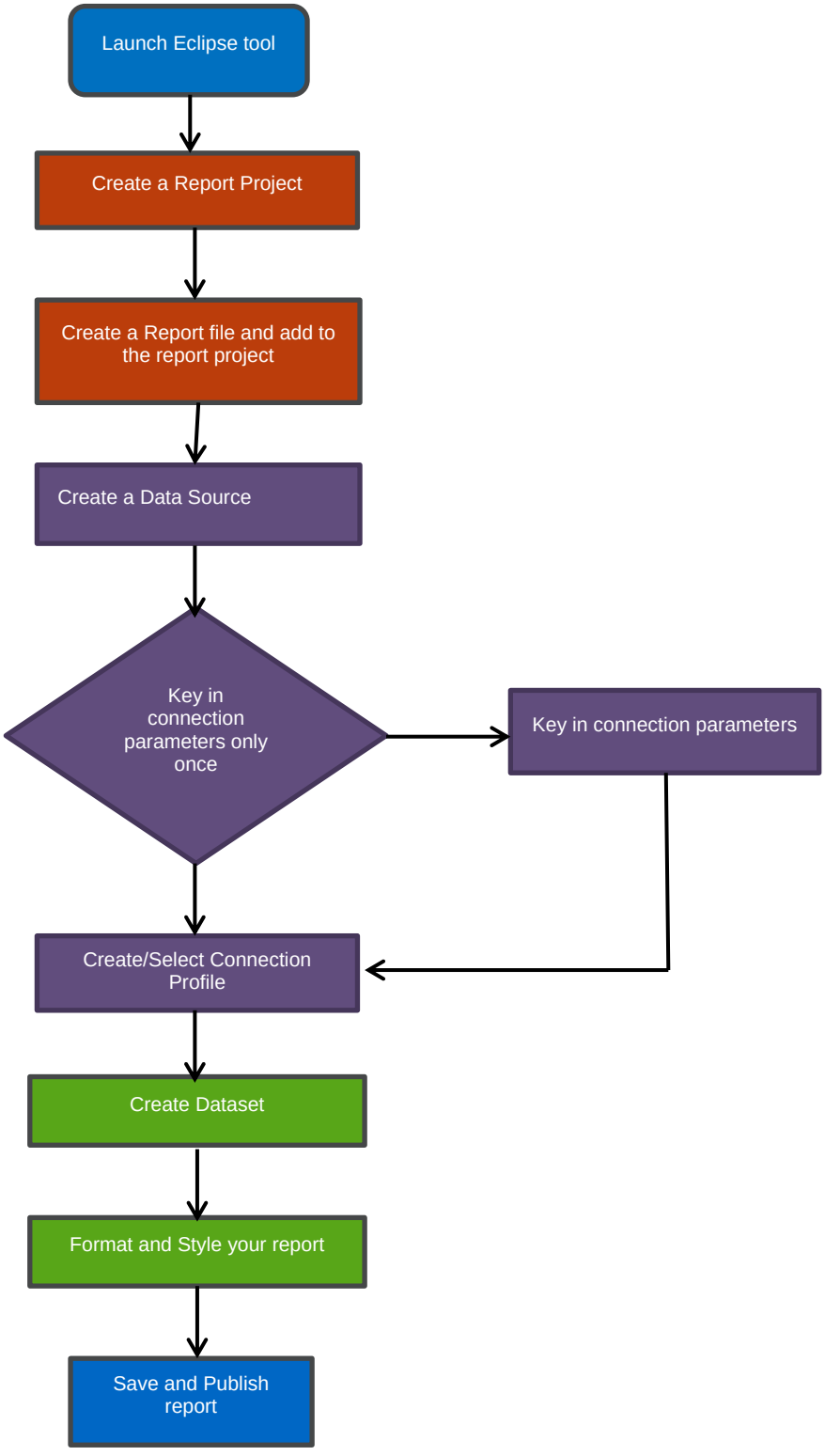
1. Log in to Unified Manager as the OnCommand administrator.
2. Navigate to Administration → Manage Users.
3. Click Add and add a database user with Report Schema as the role definition.



## 8.3 Creating Custom Reports with Eclipse

The following workflow provides a basic guide on creating your custom report.

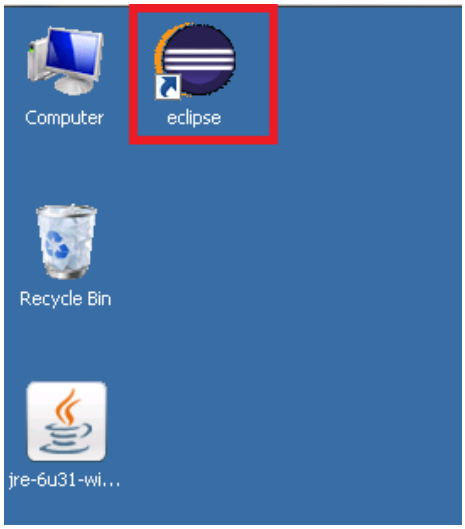
**Figure 14) Workflow to create custom report with Eclipse.**



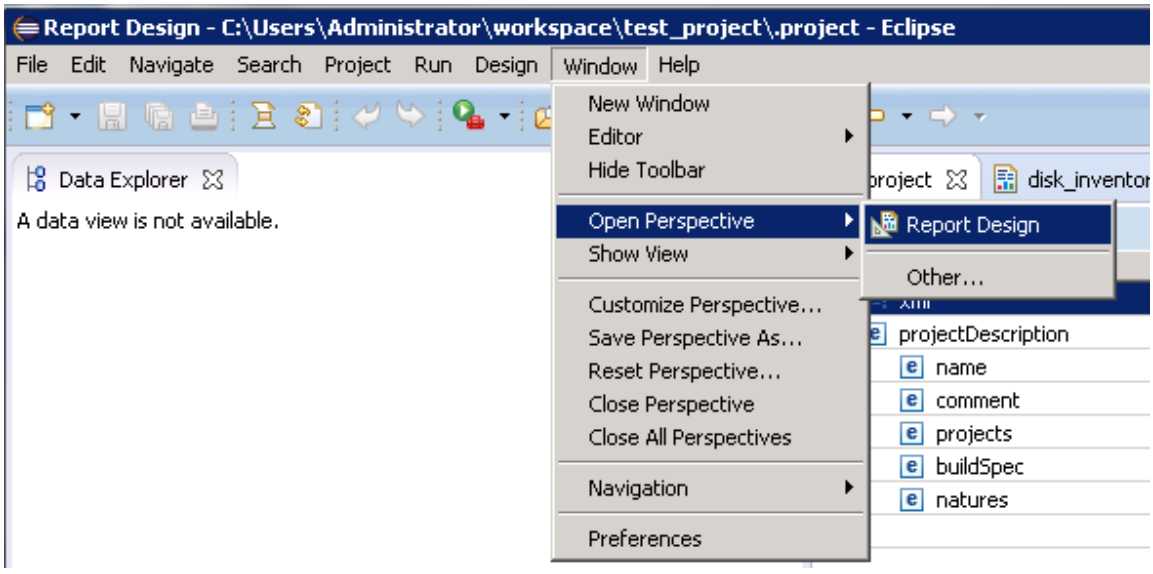
## Create a Report Project

The following steps describe the process to create a new report using Windows after Eclipse is set up on a separate system (as described in Section 8.1 Software Requirements). The Linux and Mac OS X versions follow similar procedures.

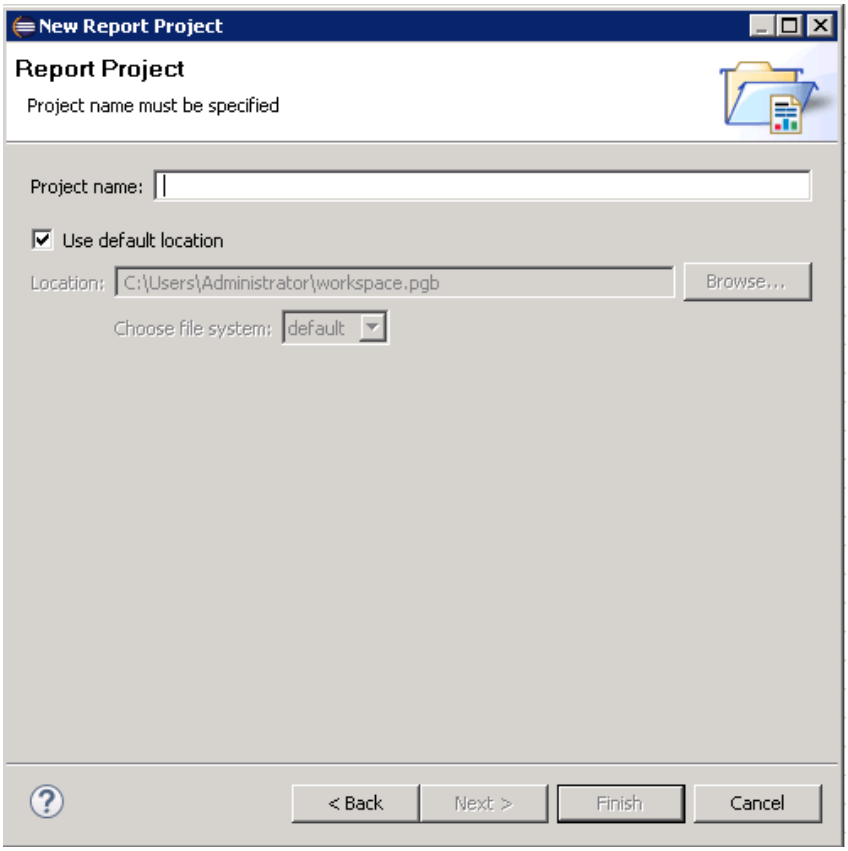
1. Log in to the system hosting Eclipse and open the application.



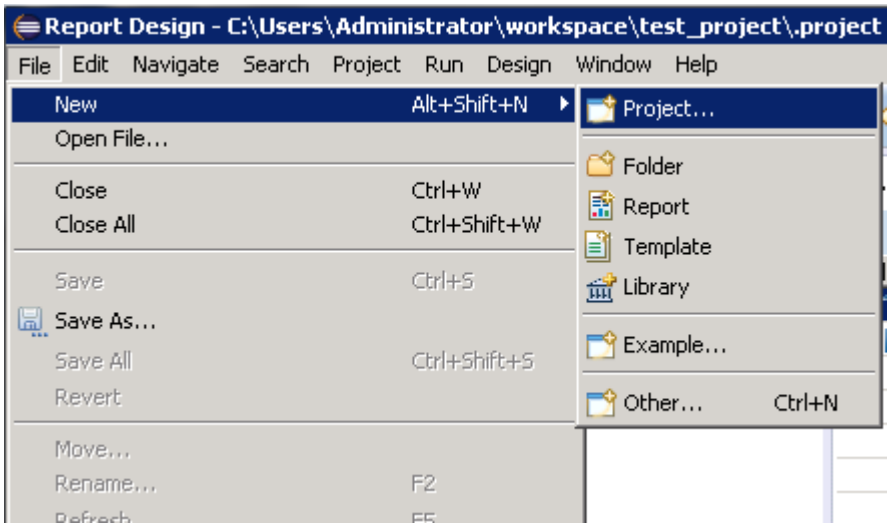

2. Change the view to the Report Design perspective. Click Window → Open Perspective → Report Design.



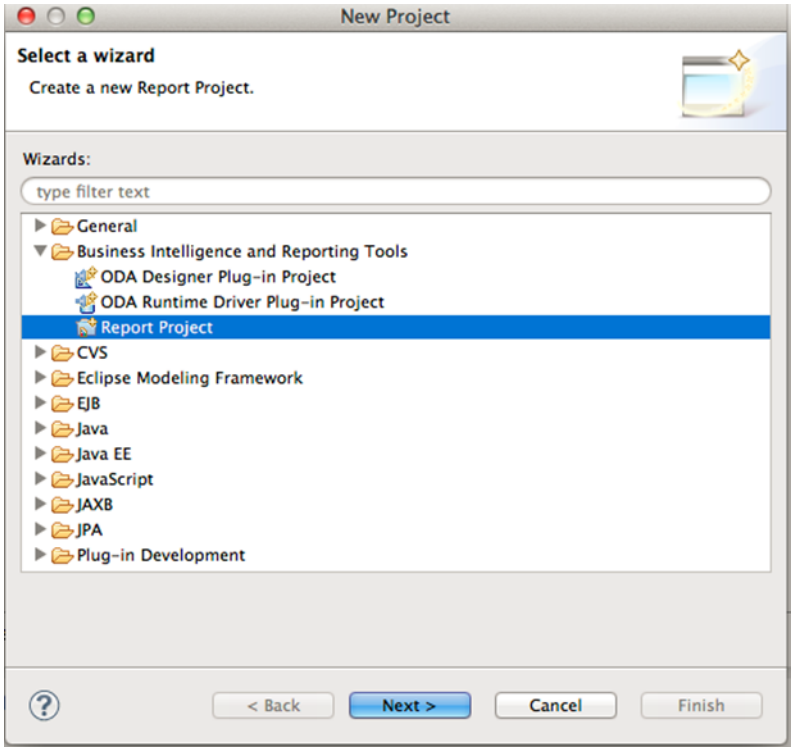
3. To create a new project, navigate to File → New → Project. The following screen appears.



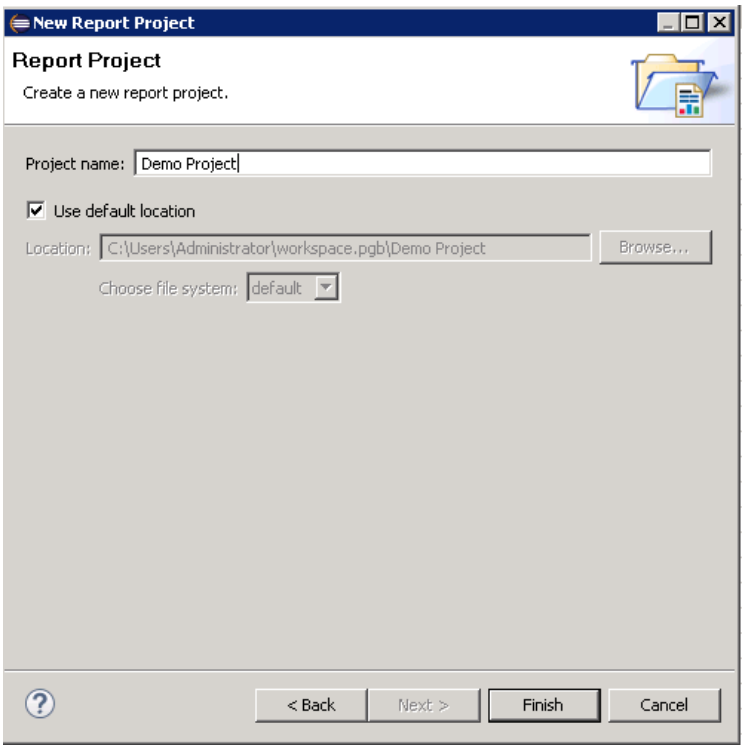

4. In the wizard, click New Report Project and click Next.



5. On the Eclipse launch page, create a new project. Navigate to New Project → Report Project and then click Next. Provide a name for the project and click Finish.

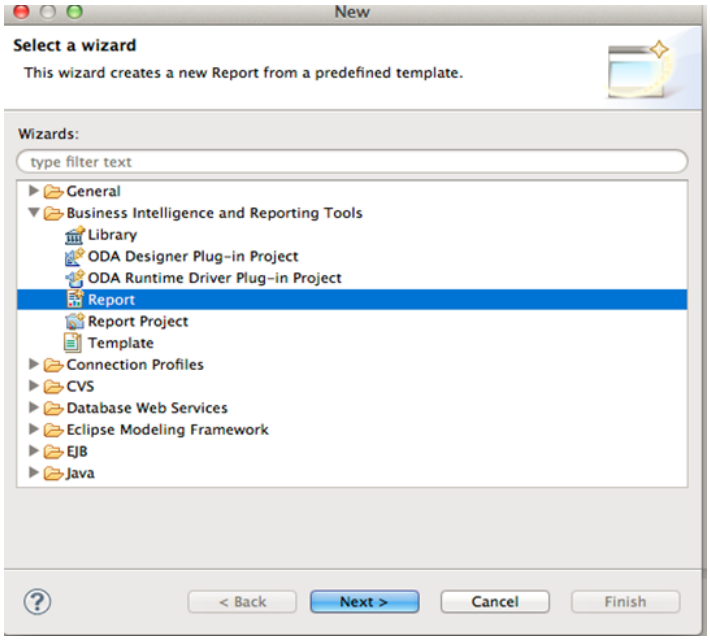



6. Provide a new name for the project and then click Finish. Either use the default location for storing your reports or specify the desired location by “unclicking” the checkbox.

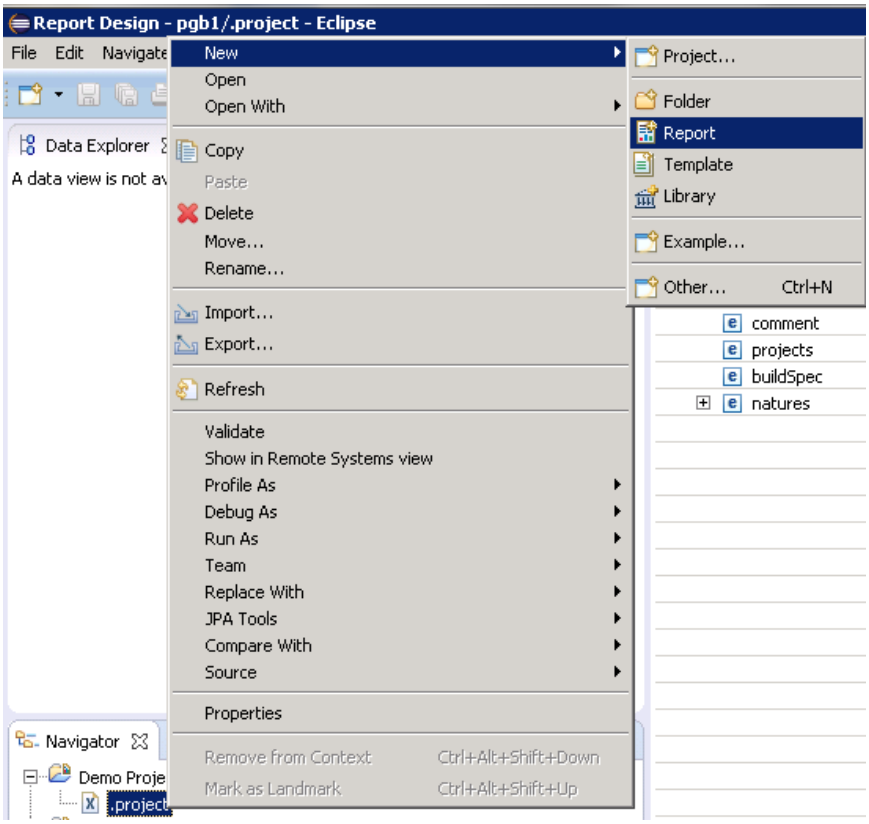


## Create a Report File

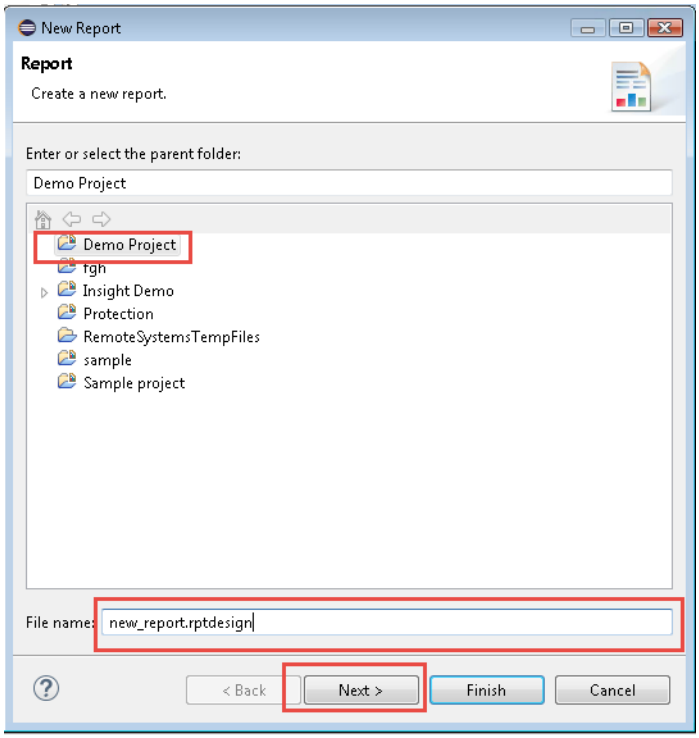
1. To create a new report under a project, click File → New → Report.



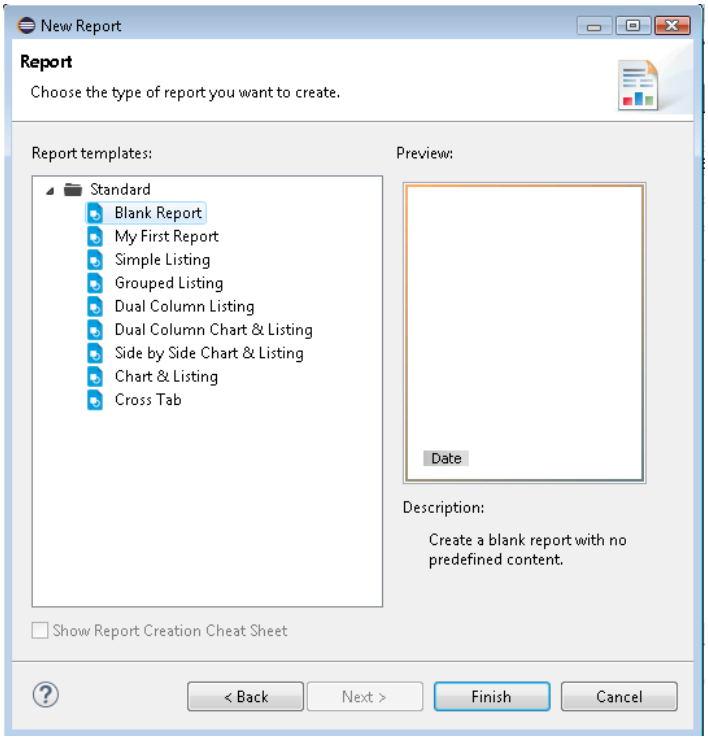

Alternatively, right-click the new project and select New. In the selections, click Report.



2. Select the report project name to store your report. For this demo, we selected Demo Project, as created above. Provide a name for the new report and click Next.



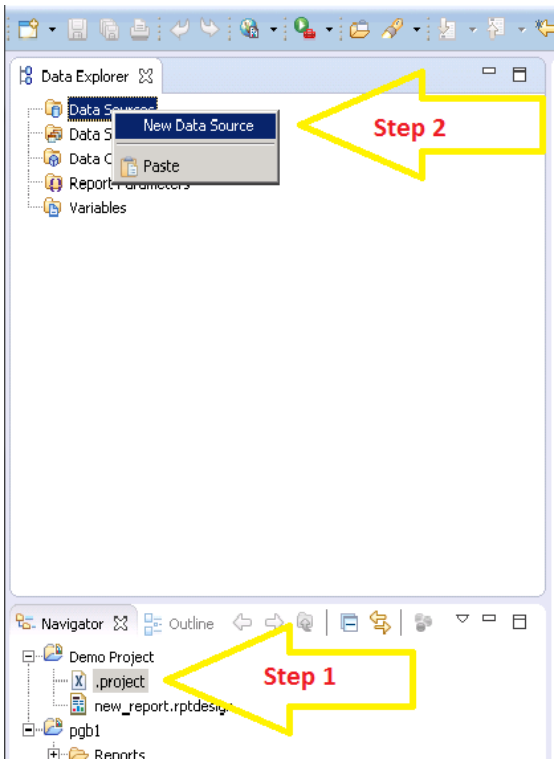

3. The next page of the New Report dialog box presents a selection of report templates. Select the type of template that you want to create and then click Finish.



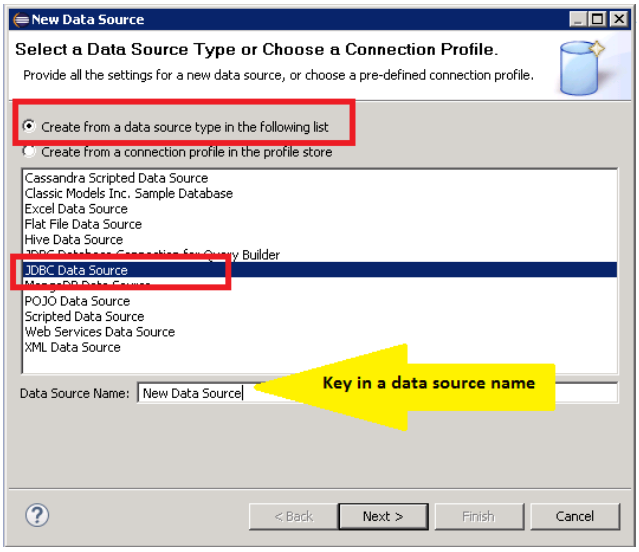
## Create a Data Source

BIRT reports use a data source element to connect to the OnCommand Unified Manager database and to query and retrieve data from the data provider.

1. Open the Data Explorer view.
2. Select the Data Source node within the tree. Right-click Data Source and select New Data Source from the drop-down menu:



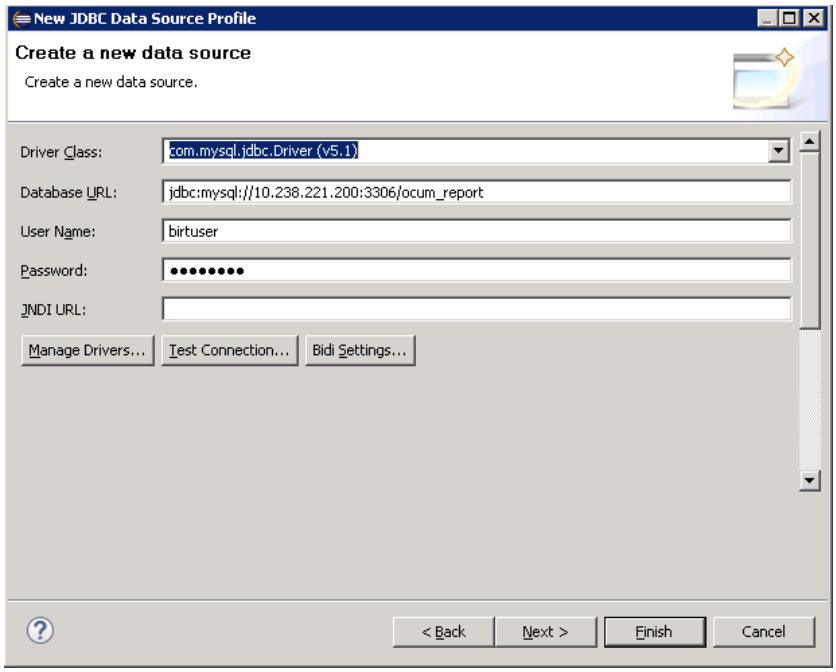

3. Select Create from a Data Source Type in the Following List and then select JDBC Data Source from the drop-down menu. Type a name in the Data Source Name field. Click Next.



**Note:** If you already created a connection profile, you can select Create from a connection profile in the profile store. For details about the benefits and use of a connection profile, see Section 9.1 Connection Profile.

4. Provide the database URL (replace the IP here with the FQDN/IP of Unified Manager), user name, and password from the Section 8.2 Eclipse Prerequisites. In addition, provide the following information in the applicable fields:

   - Add the database driver by clicking the Manage Drivers button. Select the `mysql-connector-java-*-bin.jar` file that is available to you.
   - Driver Class: `com.mysql.jdbc.Driver (v5.1)`. This name is available as a drop-down selection.
   - Database URL: `jdbc:mysql://<ip address of OCUM server>:3306/ocum_report`
   - User Name: This is the name of the database user that was created in the Unified Manager server for the BIRT designer.
   - Password: This is the password of the database user.




**Note:**

- You need not fill in the JNDI URL field.
- You should test the connection by clicking Test Connection to validate a successful connection to the OnCommand Unified Manager database. Then click Finish.
- You can use the FQDN instead of the IP address for the database URL.
- For an IPv6 address, the Database URL field should be in the following format:

  `jdbc:mysql://address=(protocol=tcp)(host=fd20:8b1e:b255:8477:42f:11e:64e3:5338)(port=3306)/ocum_report`

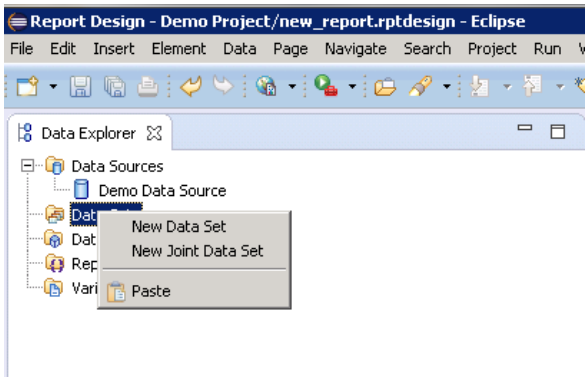
  Where `host=fd20:8b1e:b255:8477:42f:11e:64e3:5338` is the host IPv6 address.

## Create a Dataset

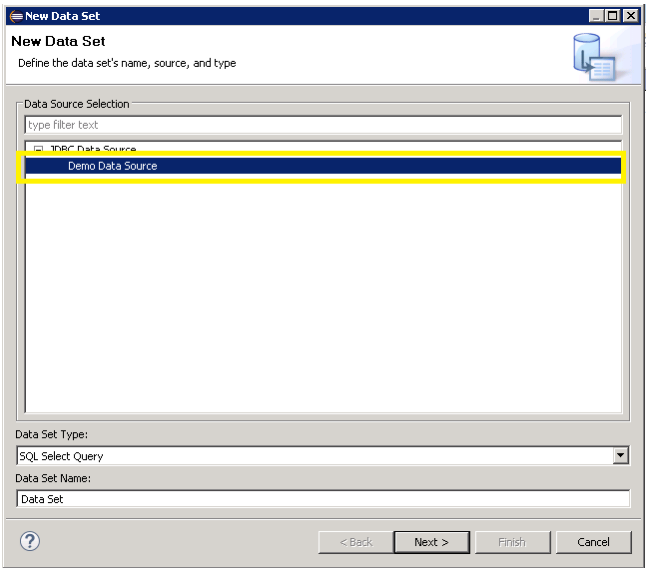
With the database connection established between the Eclipse designer and the OnCommand Unified Manager database, you are ready to create the report logic. The report logic is created in the Eclipse editor using simple SQL queries. Advanced users can use MySQL Workbench to create queries and paste in the Eclipse dataset.

The following steps guide you through creating a dataset and SQL queries:

1. Navigate to Data Explorer → Data Set and click New Data Set.

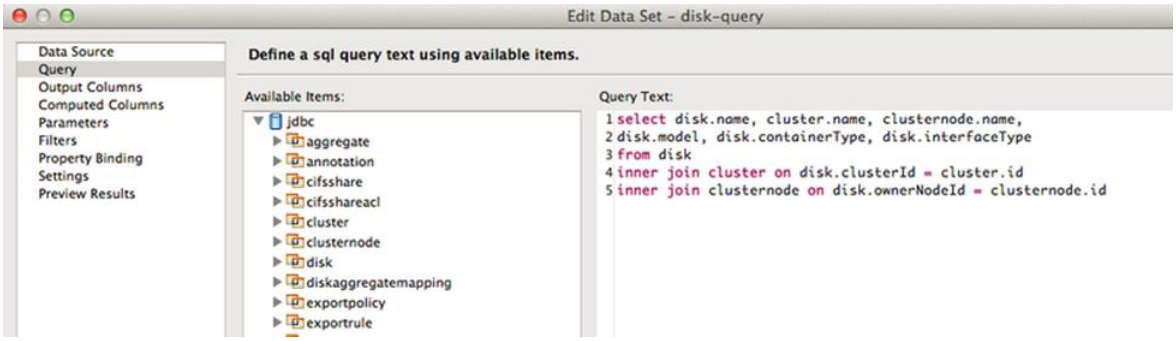



2. Select the data source created in the earlier section and:
   a. Select SQL Select Query from the Data Set Type drop-down menu.
   b. Type in a name under Data Set Name.
   c. Click Next.




3. When the SQL query window appears, define a SQL query for the report that you want to produce. To create a query, use the fields from the Available Items on the left-hand side. Expand an item to use the fields that are available under that item.

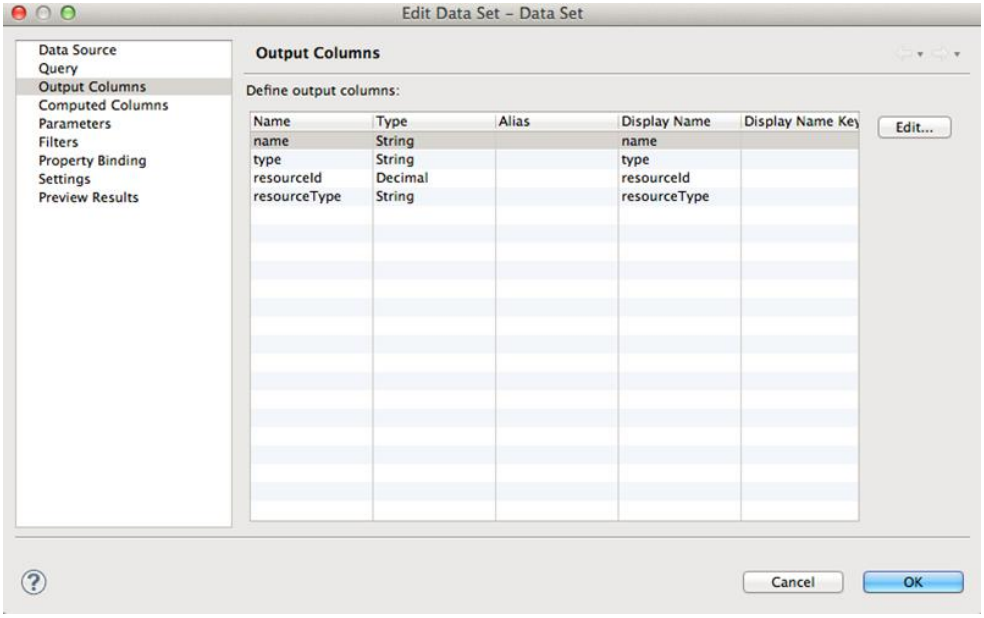
   Alternatively, drag and drop the Unified Manager database table fields (available under “available items”) to create your logic.



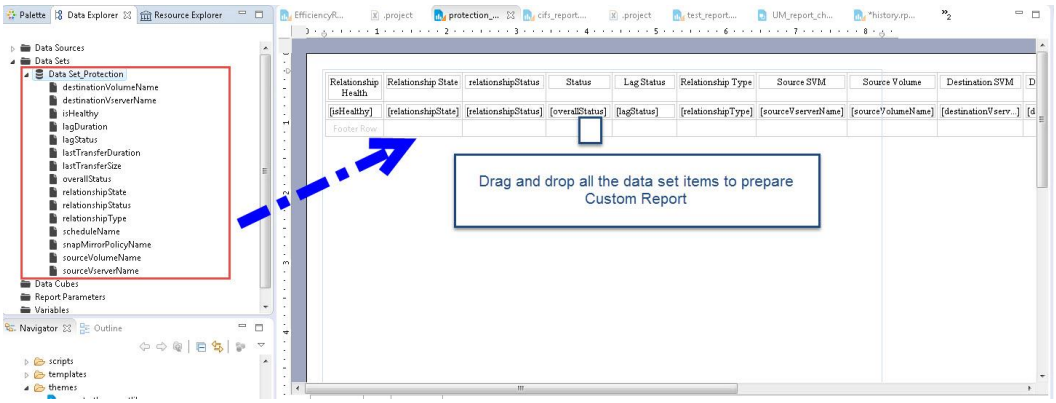

When you complete your selections, click Finish to view the results.

**Note:** If an incorrect query syntax or logic statement is submitted, an error occurs and the user is alerted with a pop-up message.

4. Select the output columns you want to include in the report and click OK.

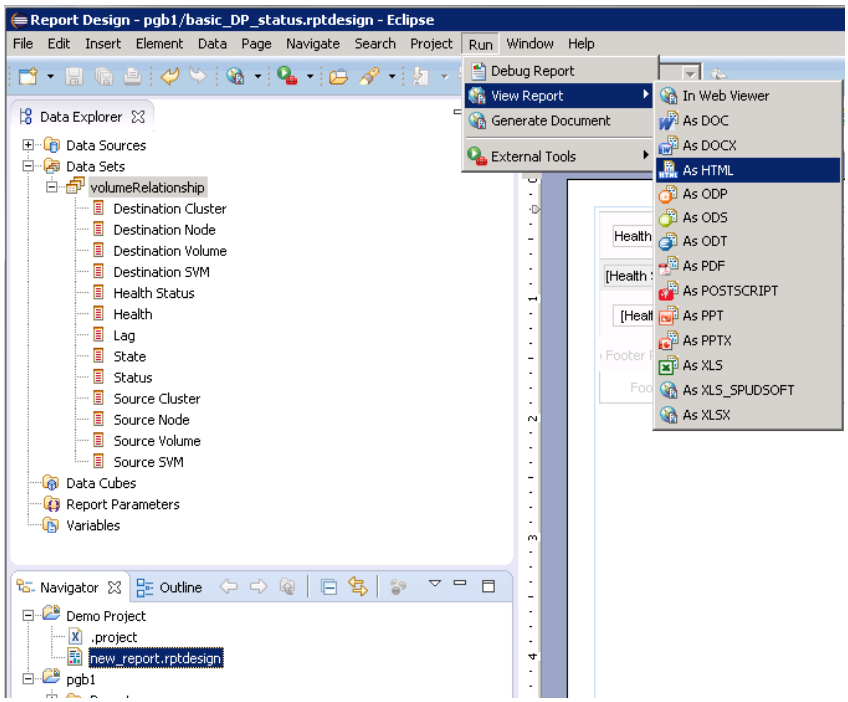



5. Drag the columns from the Data Sets to the Detail Row in the order that you want them displayed.



6. After you save the query, you can review the output by using a browser. Select the report available in the bottom left-hand corner and click Run → View Report → As HTML.




7. To import this report into OnCommand Unified Manager, locate the `new_report.rptdesign` file (normally located in the workspace location defined during installation of Eclipse). Copy this file to a system that can browse Unified Manager using the importing function explained in Section 9 Portability of Custom Reports.

**Note:** The custom reports, once saved, will have `*.rptdesign` extensions in the file names.

## 8.4 Expanded Customization Using Format and Style

### Eclipse Designer UI Functions

A wide range of style and formatting functions is available with the Eclipse tool. The basic UI functions are described below.

#### Layout Editor

The Layout Editor is the central area in which report designs are created. The editor has five tabs:

- Layout—Edit report design.
- Preview—Run reports and show output.
- Script—Add JavaScript to reports to customize their behavior.
- XML Source—View and modify the XML source of a report.
- Master Page—Format page data such as page headers.

### Views

- Palette—BIRT view shows the standard report items that can be added to your report using drag and drop.
- Outline—BIRT view that shows the structure of your report as a tree view.
- Navigator—Standard Eclipse view that shows your projects and the reports within your projects.
- Data Explorer—BIRT view that shows your data sources (connections), datasets (queries), and report parameters. You also use this view to add dataset columns to your report layout.
- Property Editor—BIRT view that displays properties for many report items. It has tabs and groupings that organize properties into categories.
- Properties View—Standard Eclipse view that shows all properties for a report item as a simple list.

## Format and Style

Once you create the report logic (SQL queries), as explained in Step 4 of Section Create New Data Set, you can further customize using formatting by charting the data points. The following figures highlight some of the basic functions.

**Figure 15) Drag-and-drop fields from the dataset to create tables.**

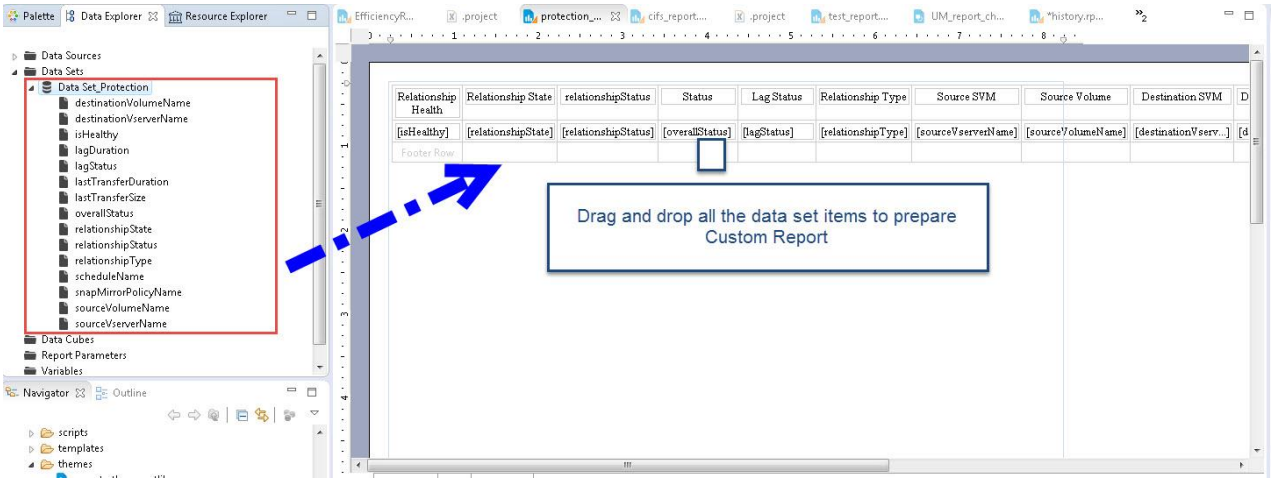



**Figure 16) Create charts using functions in the Palette tab.**

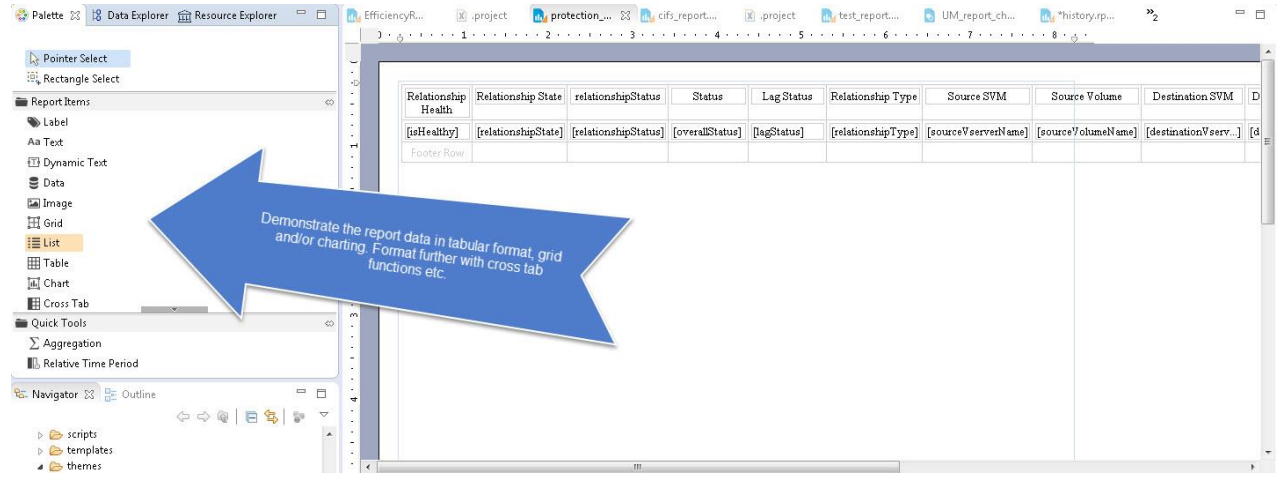
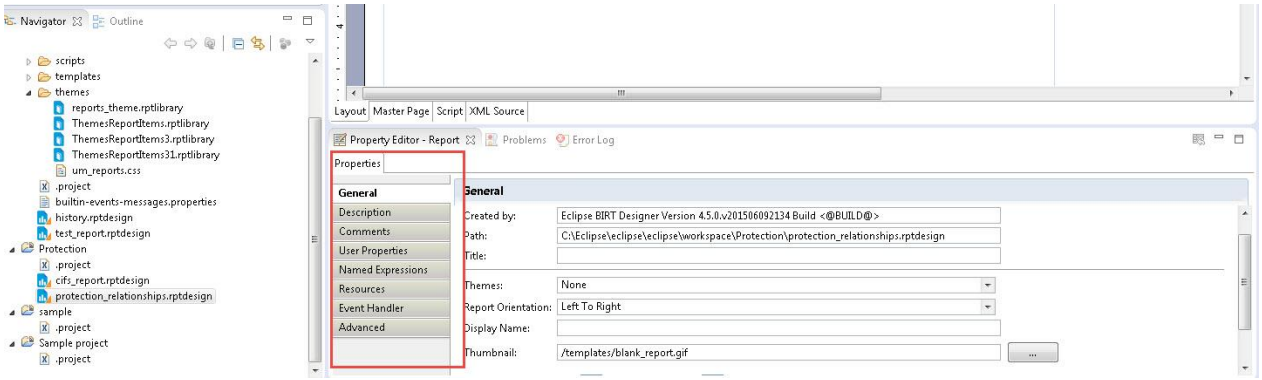


**Figure 17) Format fonts and captions for charts created.**




# 9 Portability of Custom Reports

Custom reports, created with the Eclipse designer, can be imported between environments. This capability enables you to seamlessly import a report (`.rptdesign`) file created in Unified Manager instance A to Unified Manager instance B.

**Note:** The methods for importing files are different for Unified Manager 6.4 and 7.x.

## 9.1 Connection Profile

A connection profile contains the required connection property information to connect to a data source (in this example, a Unified Manager database). With a connection profile, administrators are not required to repeat the connection definitions nor add the required MySQL drivers multiple times for each “custom” report created within a single Unified Manager instance. The administrator can also use connection profiles to import external BIRT reports (`.rptdesign` files) from another environment.

A connection profile is an XML file with an `.acconnprofiles` extension. A connection profile contains the database connection-related data for BIRT run-time environments. Optionally, the entire content in the connection profile can be encrypted for additional security. The major components in a connection profile include:

- Data source name
- Database server class information
- Database URL that connects to the Unified Manager database
- Database user name and password to connect to the Unified Manager database

### Advantages of Using a Connection Profile

With a connection profile, you can:

- Create the profile one time for multiple (or all of the) reports used in a Unified Manager instance and its associated storage objects.
- Create multiple reports without having to reenter the connection parameters (database driver, user name, and password), resulting in significant time savings.
- With a simple understanding of the connection profile, you can import the same report to multiple Unified Manager instances (the same file name but different parameters).
- Encrypt content (optional).

### Connection Profile Prerequisites

The following components are required to create a connection profile. These components can be downloaded from the host where the Eclipse designer is installed:

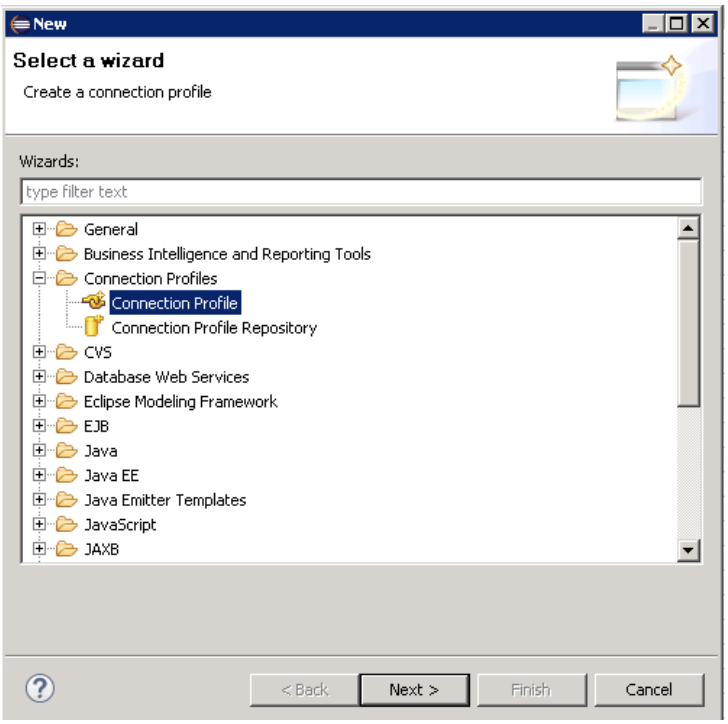
- BIRT designer editor (Eclipse with a BIRT plug-in or Eclipse from Actuate).
- Fully operational Unified Manager server with a report user created.
- Downloaded `mysql-connector-java-*-bin.jar` from the web. For optimal reporting solutions, NetApp recommends the version `mysql-connector-java-5.1.26-bin.jar` or higher. You can download this version from http://downloads.mysql.com/archives/c-j/.

**Note:** The Unified Manager server must be in the same network as that of the server that hosts the BIRT designer or, at a minimum, it should have port 3306 allowed.

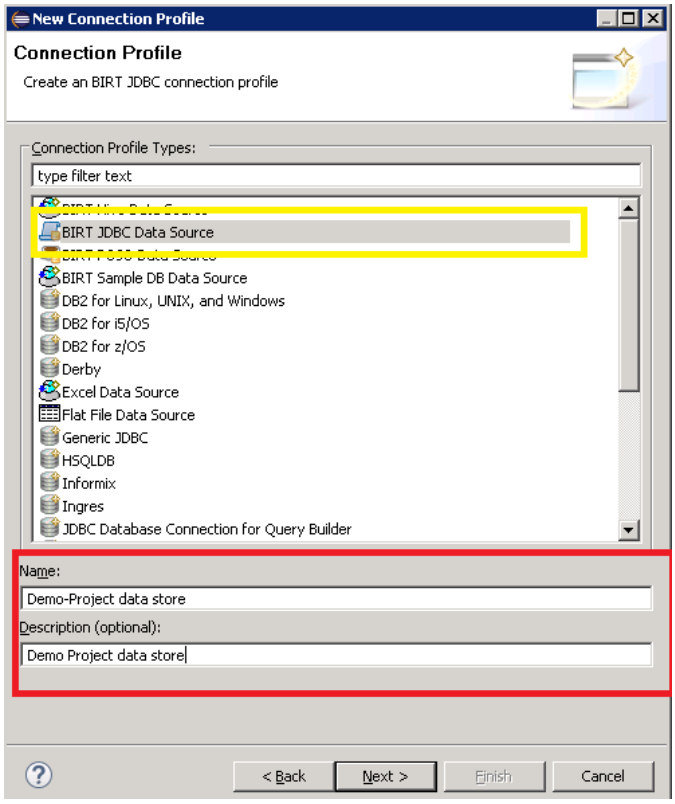
## 9.2 Creating a Connection Profile

Log in to the host where the Eclipse designer is installed. Follow these steps to create a connection profile:

1. From the main menu, select File → New → Other.
2. Under Connection Profiles, select Connection Profile from the wizard and click Next.




3. Select the connection profile type.
4. Enter a unique name for the connection profile type.
5. Select BIRT JDBC Data Source under Connection Profile Types. Enter a name and a description identifier for the datastore. Click Next.




**Note:** Make sure that you document the data source name. This information is extremely important from a report portability perspective. If you need to import another report (an `.rptdesign` file from an external BIRT server or from another environment), your BIRT server must have the **same data source name** while creating the connection profile.

6. Complete the required information in the wizard for your connection profile type. Provide the database URL (replace the IP here with the FQDN/IP of Unified Manager), the user name, and the password from the Connection Profile Prerequisites section above. In addition, complete the following fields with this information:

   a. Add the database driver by clicking the Manage Drivers button. Select the available `mysql-connector-java-*-bin.jar` file.

   b. Driver Class: com.mysql.jdbc.Driver (v5.1). This name is available as a drop-down selection.

   c. Database URL: jdbc:mysql://<ip address of Unified Manager server>:3306/ocum_report.

   d. User Name: The name of the database user that was created in the Unified Manager server for the BIRT designer.

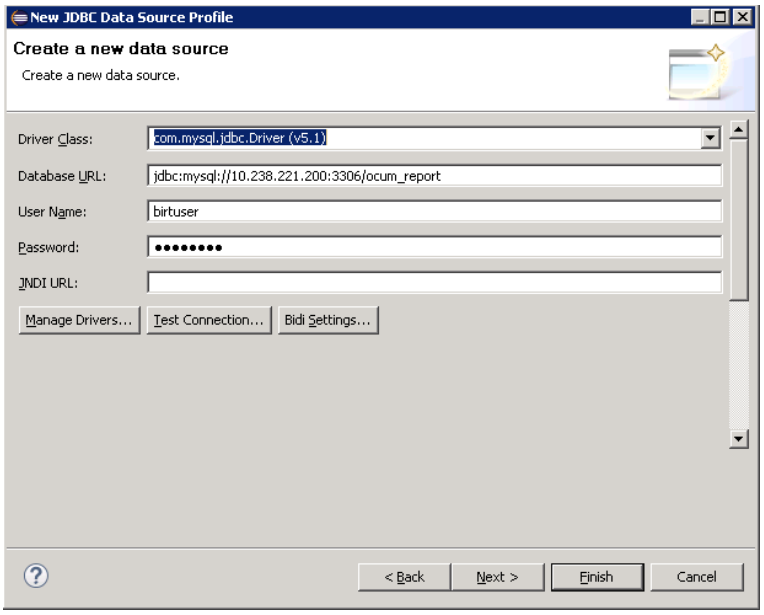
   e. Password: The password of the database user.

   **Note:** For an IPv6 address, the Database URL field should be in the following format:

   ```
   jdbc:mysql://address=(protocol=tcp)(host=fd20:8b1e:b255:8477:42f:11e
   :64e3:5338)(port=3306)/ocum_report
   ```

   Where `host=fd20:8b1e:b255:8477:42f:11e:64e3:5338` is the host IPv6 address.

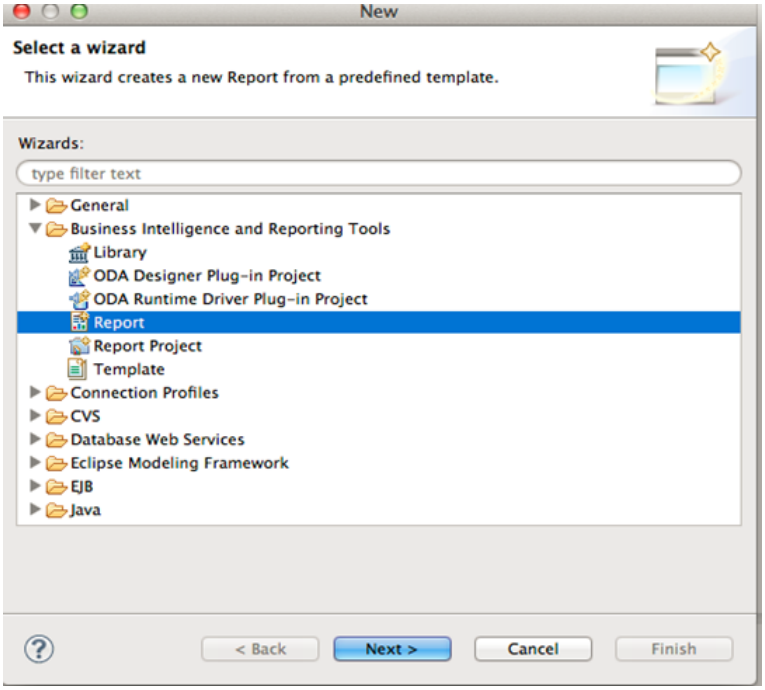
7. This is the JDBC Data Source Profile window.



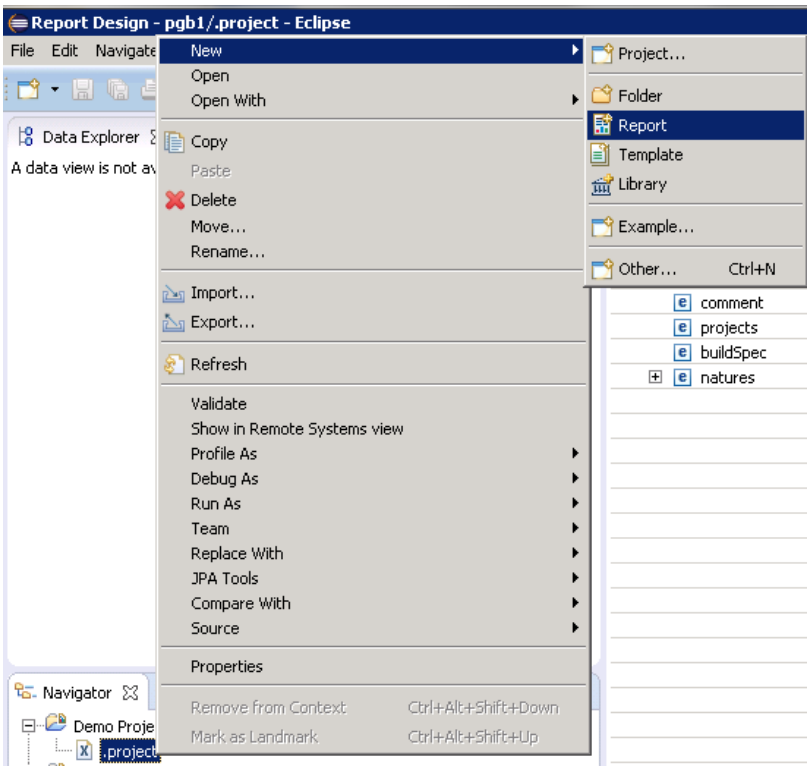

## 9.3 Creating Reports Using Connection Profile

To create a report using a connection profile:

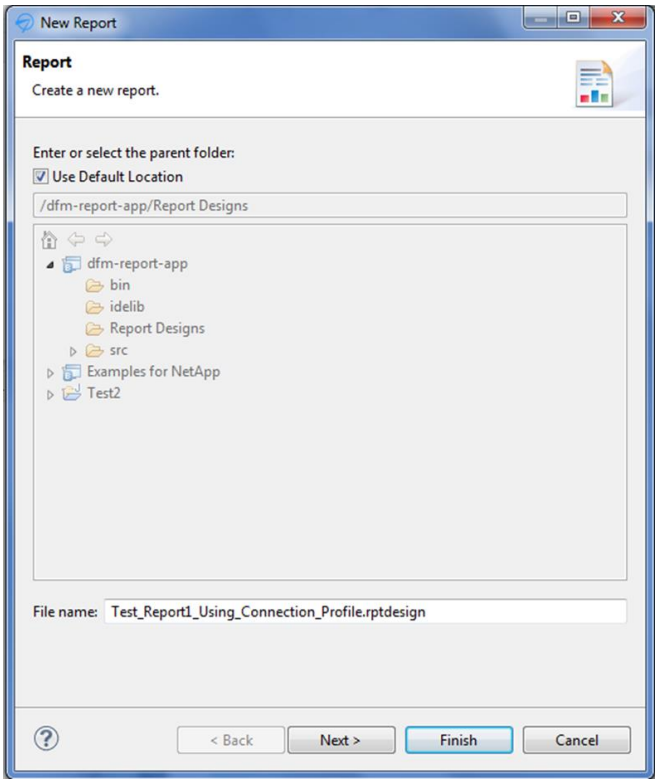
1. Create a new report in your report project by clicking File → New → Report.



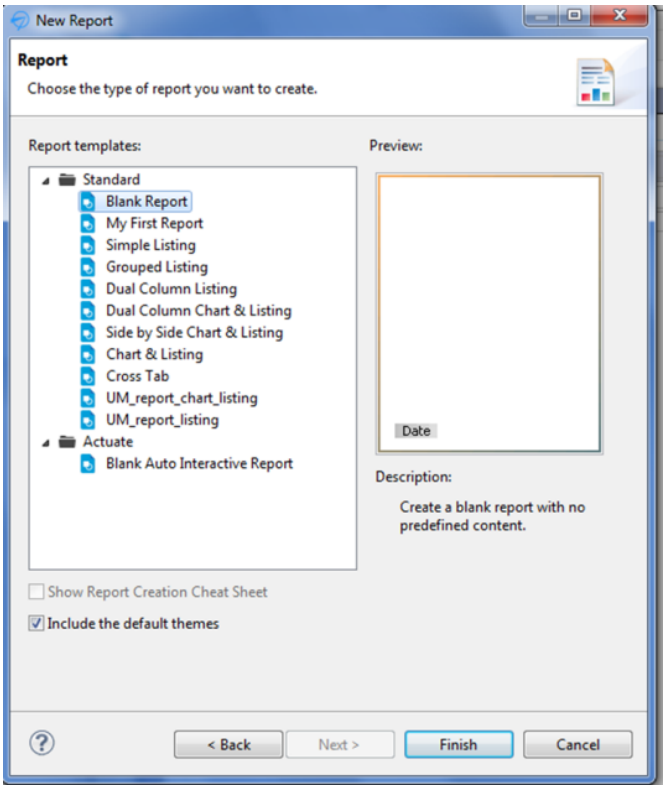

Alternatively, you can right-click the new project and select New. In the selections, click Report.



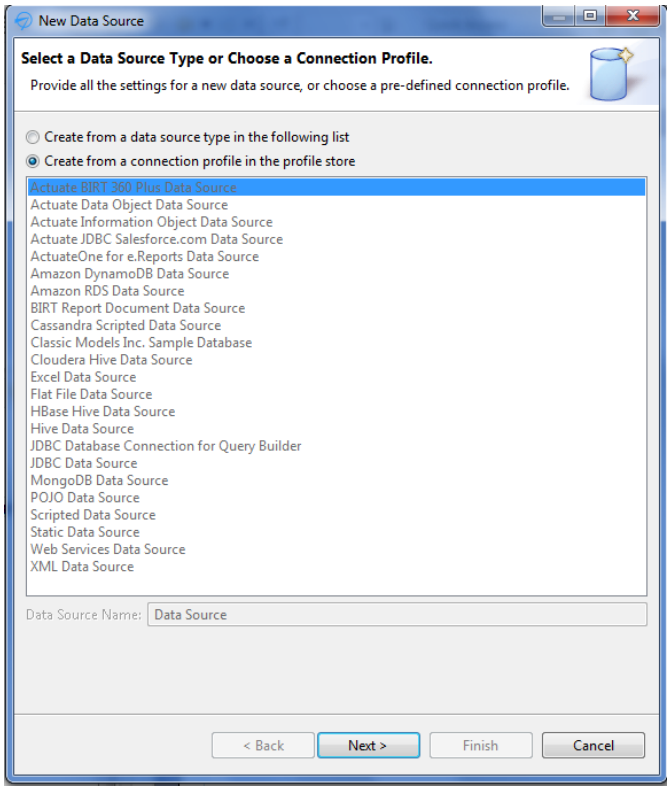

2. Provide a name for the new report. You can use the default location to store all reports by checking the Use Default Location box. Click Next.



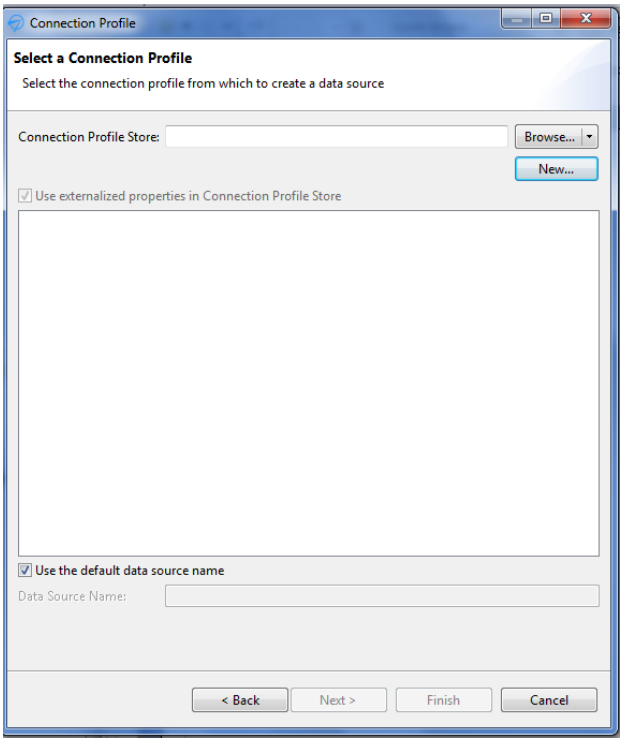
3. Select the type of report from the report template; in this case, we selected Blank Report. Click Finish.




4. For the new report, create a data source by using the Connection Profile option. Click Next.

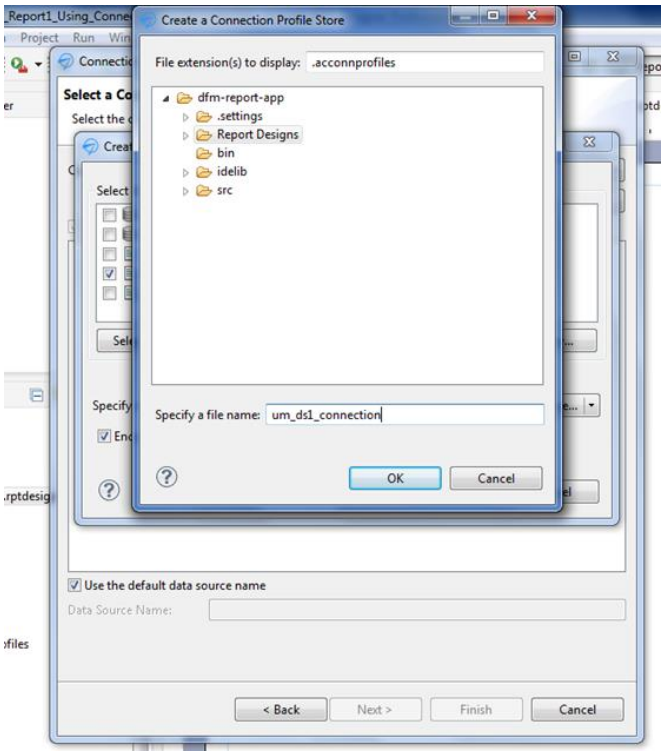


5. On the Connection Profile screen, click New.

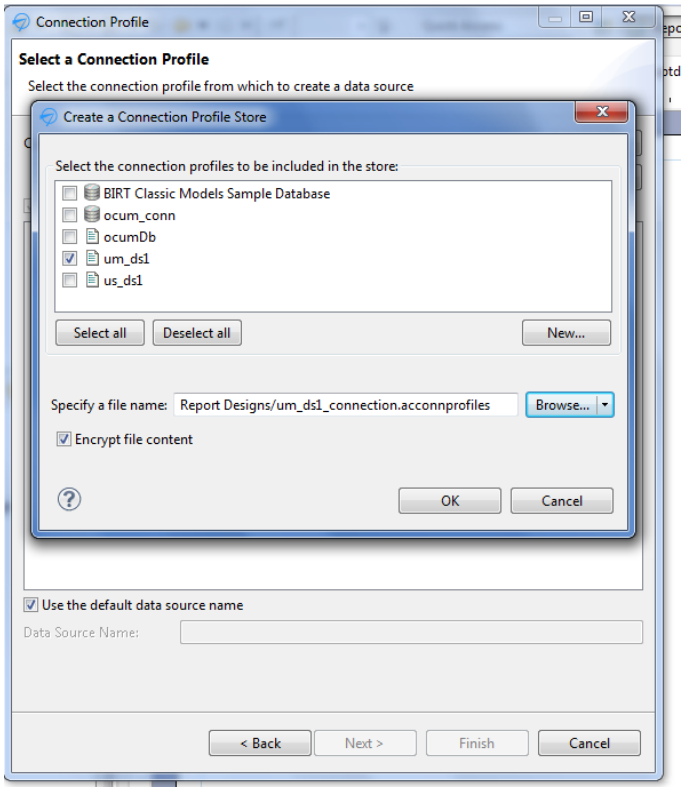



6. Select your connection profile. Provide a file name and path in the Specify a File Name field to create a profile at that location.

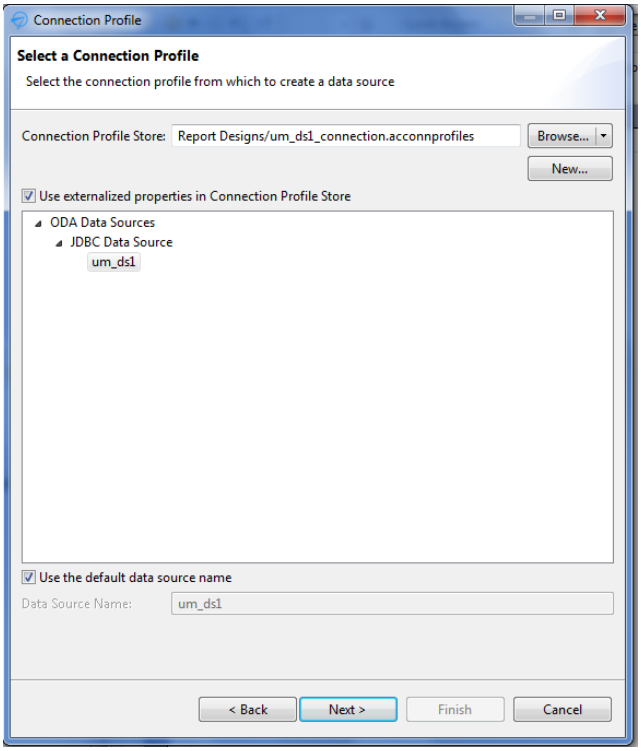
   **Note:** This step is a one-time operation. After you take this step, you can always choose this file in Step 5 (above) by clicking Browse.



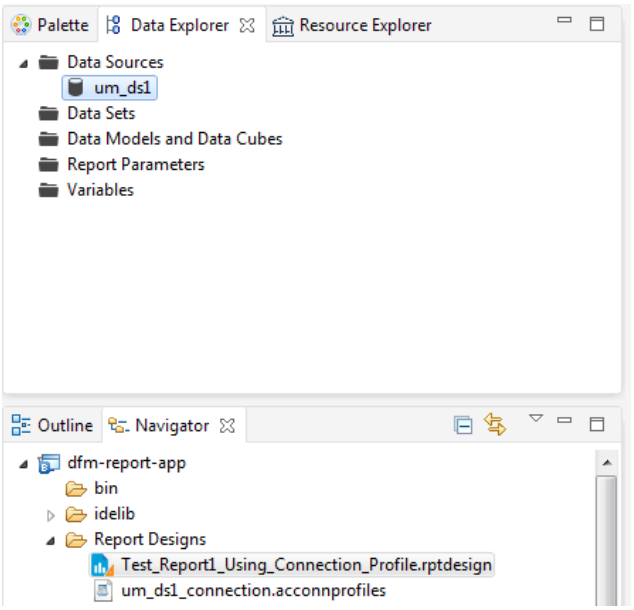
7. In Create a Connection Profile Store, click OK.



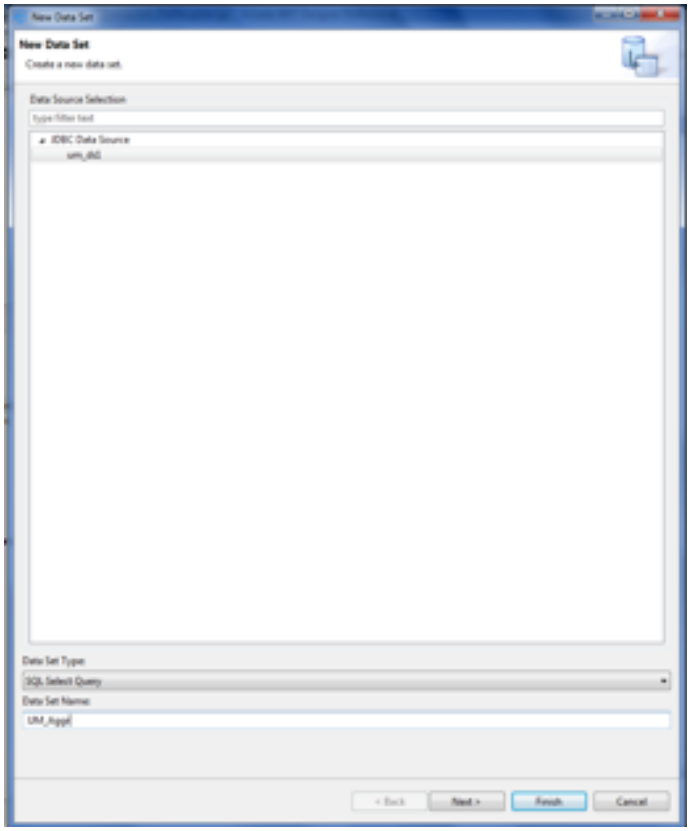

8. Click Next.



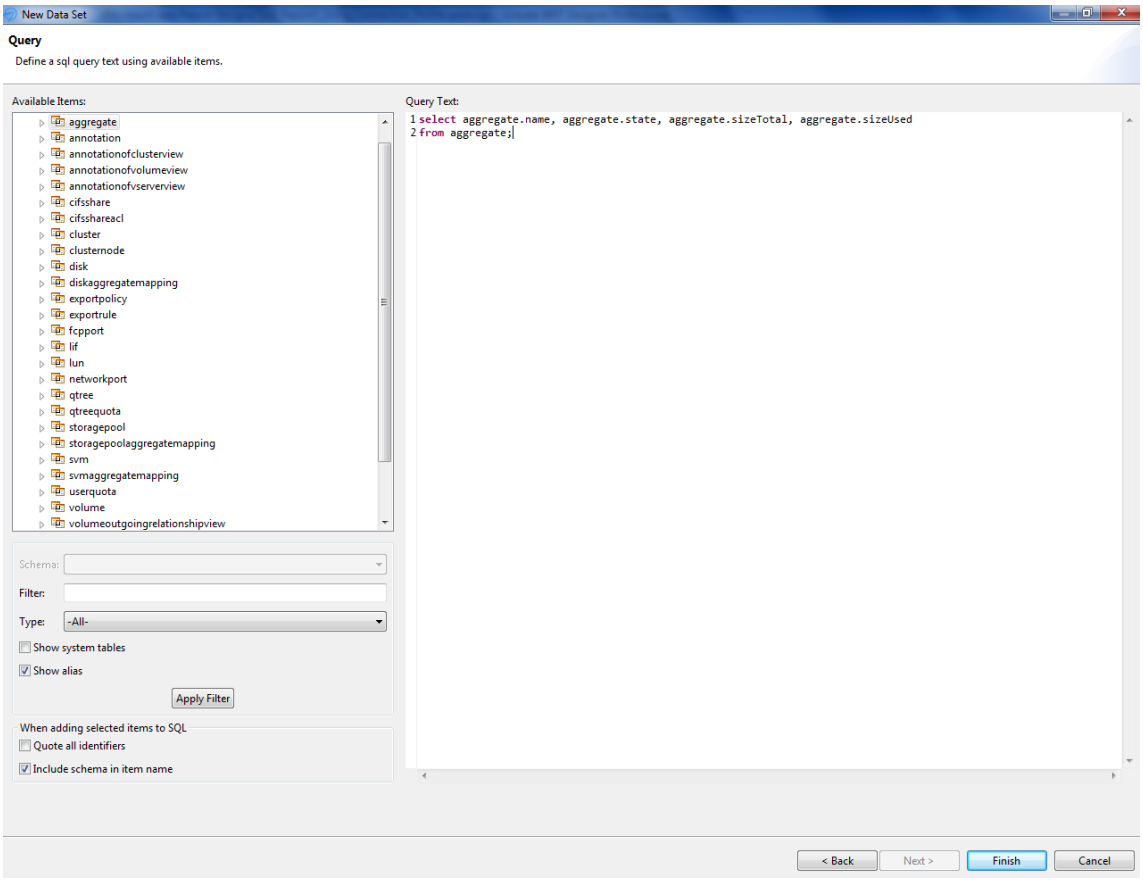
9. After the process has finished, you can see the connection profile with `.acconnprofiles` in your workplace, showing the datastore that was created.




10. Now you can create a dataset with the desired query for the report. Click Next.



11. Fill in the query and click Finish.




**Note:**

- You should create the data source by using a connection profile.
- Do not provide a name for the data source.
- You should select the Use the Default Data Source Name checkbox.
- Create an encrypted connection profile. (This step is optional and is offered in case you want a secure method of communication.)
- The `.rptdesign` file with a connection profile has the following lines under the Data Sources design element. You can review the lines in bold to identify that the report is using a connection profile.

```
<property name="odaDriverClass">com.mysql.jdbc.Driver</property>
<property name="odaURL">jdbc:mysql://192.168.1.1:3306/ocum_report</property>
<property name="odaUser">birtuser</property>
<encrypted-property                                          name="odaPassword"
encryptionID="base64">bmV0YXBwMSE=</encrypted-property>
<property name="OdaConnProfileName">NtapReport</property>
<property
name="OdaConnProfileStorePath">Conn/ntap_conn.acconprofiles</property>
```

**Note:** For an IPv6 address, the database URL should be in the following format:

```
jdbc:mysql://address=(protocol=tcp)(host=fd20:8b1e:b255:8477:42f:11e:64
e3:5338)(port=3306)/ocum_report
```

Where `host=fd20:8b1e:b255:8477:42f:11e:64e3:5338` is the host IPv6 address.

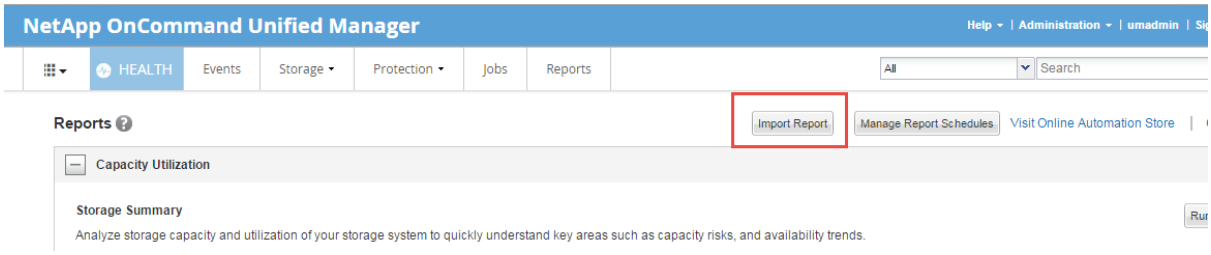
# 10 Importing Custom Reports

This section describes the different steps required to import custom reports in Unified Manager 7.0 and 6.x versions.

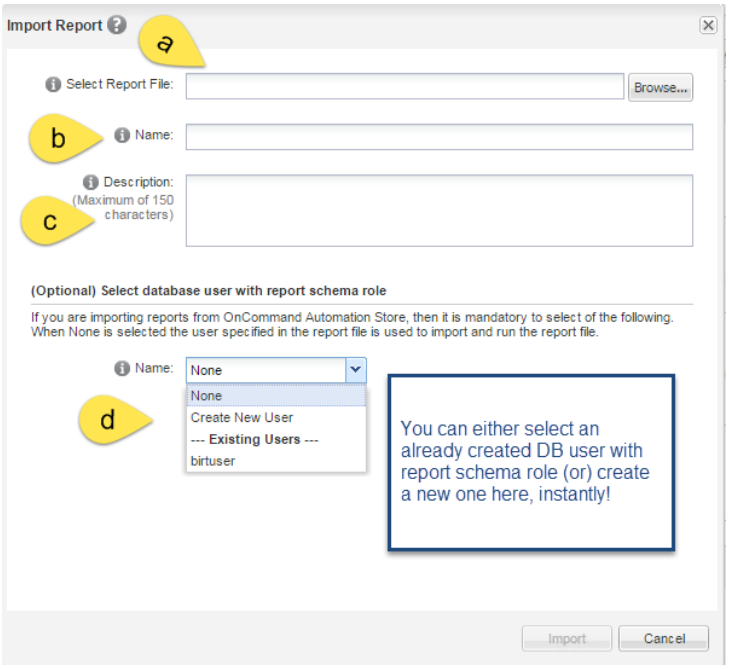
## 10.1 Importing Custom Reports in OnCommand Unified Manager 7.0

The OnCommand Unified Manager 7.0 report import feature is interactive and simple to use. Once the `*.rptdesign` file is running in the Unified Manager instance, perform the following steps:

1. Click Reports Tab. On the Reports page, click Import Report.




2. In the Import Report window, enter the following details:
   a) Browse and select the custom report (`*.rptdesign`) file.
   b) Enter the report name.
   c) Provide a description for the report.
   d) Select an existing Unified Manager database user with the “report schema” role and create a new user.



3. Click Import and the report will successfully import to your Unified Manager instance. You can schedule and/or further customize the reports, similar to standard reports.

## 10.2 Importing Custom Reports in OnCommand Unified Manager 6.x

To import external reports (`.rptdesign` files) into your environment:

- To start the import process, you must have a defined connection profile in your OnCommand Unified Manager instance.
- You must have a separate connection profile for each Unified Manager instance. The same connection profile cannot be used for multiple Unified Manager instances.
- Reports that are imported with or without connection profiles will stop working if:
  - The report user is deleted.
  - The report user password is changed in the Unified Manager server.
  - The Unified Manager server URL has changed (it must be the same URL that you used when you created a data source profile; for example, `jdbc:mysql://192.168.1.1:3306/ocum_report`).
- Always keep a copy of the original `.rptdesign` file that you plan to import.

**Note:**

- You can replace the IP address with the Unified Manager server FQDN in the database URL field.
- For an IPv6 address, the Database URL field should be in the following format:

  ```
  jdbc:mysql://address=(protocol=tcp)(host=fd20:8b1e:b255:8477:42f:11e:64e3:5338)(port=3306)/ocum_report
  ```

  Where `host=fd20:8b1e:b255:8477:42f:11e:64e3:5338` is the host IPv6 address.

### Configuration Changes

To import an external `.rptdesign` file, you need to make a few configuration adjustments:

1. Log in to the Unified Manager instance and create a directory called Conn under the reports directory. For Linux systems, the default location is `/opt/netapp/ocum/reports/`.

   **Note:** For OnCommand Unified Manager servers that are deployed as vApp, log in to the server by using root credentials.

2. Copy the connection profile that you created for this Unified Manager instance to the Conn directory.
3. Change the `.rptdesign` file contents to point to this connection profile location. (The following example is from a Unified Manager instance that is installed in Linux; you should find equivalent information for Windows.)

**From**

```
<property
name="OdaConnProfileStorePath">Conn/ntap_conn.acconprofiles</property>
```

**To**

```
<property
name="OdaConnProfileStorePath">/opt/netapp/ocum/reports/Conn/ntap_conn.acconp
rofiles</property>
```

4. To confirm that the report is connected using the connection profile, remove the following lines. These lines are optional and are used by BIRT as a fallback mechanism if it cannot connect through the connection profile:

```
<property name="odaDriverClass">com.mysql.jdbc.Driver</property>
<property name="odaURL">jdbc:mysql://192.168.1.1:3306/ocum_report</property>
<property name="odaUser">birtuser</property>
<encrypted-property name="odaPassword" encryptionID="base64">bmV0YXBwMSE=</encrypted-property>
```

**Note:** For an IPv6 address, the database URL should be in the following format:

`jdbc:mysql://address=(protocol=tcp)(host=fd20:8b1e:b255:8477:42f:11e:64e3:5338)(port=3306)/ocum_report`

Where `host=fd20:8b1e:b255:8477:42f:11e:64e3:5338` is the host IPv6 address.

5. Now import the external `.rptdesign` file.

## References

- NetApp OnCommand customer community in which users post questions and subject-matter experts respond and in which users can interact with peers
  http://community.netapp.com/t5/OnCommand-Storage-Management-Software-Discussions/bd-p/oncommand-storage-management-software-discussions
- OnCommand Unified Manager on NetApp.com
  http://www.netapp.com/us/products/management-software/oncommand/
- OnCommand Unified Manager on the NetApp TechComm TV channel on YouTube
  https://www.youtube.com/watch?v=34Pzo0KuMOQ
- Download site for the latest version of Unified Manager and product documentation
  mysupport.netapp.com

Refer to the Interoperability Matrix Tool (IMT) on the NetApp Support site to validate that the exact product and feature versions described in this document are supported for your specific environment. The NetApp IMT defines the product components and versions that can be used to construct configurations that are supported by NetApp. Specific results depend on each customer's installation in accordance with published specifications.




TR-4565-1116