



**Hewlett Packard**  
Enterprise

# HPE Storage Operations Manager

Software Version: 10.20  
Windows® and Linux® operating systems

## Reports Guide

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### Acknowledgements

This product includes software developed by the Apache Software Foundation.  
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This product uses the j-Interop library to interoperate with COM servers.  
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The title page of this document contains the following identifying information:

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# Contents

|   |           |
|---|-----------|
| <b>Chapter 1: Introduction</b> .....  | <b>7</b>  |
| HPE Storage Operations Manager Content Packs .....  | 7         |
| HPE Storage Operations Manager Common Content Pack .....  | 8         |
| HPE Storage Operations Manager Content Pack for End-to-End Connectivity .....                               | 8         |
| HPE Storage Operations Manager Content Pack for Switches .....  | 8         |
| HPE Storage Operations Manager Content Pack for Hosts .....   | 9         |
| HPE Storage Operations Manager Content Pack for Storage Systems .....                                       | 9         |
| HPE Storage Operations Manager Content Pack for HPE 3PAR Performance Statistics .....                       | 10        |
| HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics .....                         | 10        |
| HPE Storage Operations Manager Content Pack for EMC CLARiiON and VNX Performance Statistics .....           | 11        |
| HPE Storage Operations Manager Content Pack for EMC DMX Performance Statistics .....                        | 11        |
| HPE Storage Operations Manager Content Pack for EMC VMAX Performance Statistics .....                       | 12        |
| HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics .....                  | 12        |
| HPE Storage Operations Manager Content Pack for NetApp 7-Mode Performance Statistics .....                  | 12        |
| HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics .....                 | 13        |
| HPE Storage Operations Manager Content Pack for IBM SVC Performance Statistics .....                        | 13        |
| Prerequisites to use the HPE Storage Operations Manager Content Packs .....                                 | 14        |
| <b>Chapter 2: Post-Installation Configuration of HPE Operations Bridge Reporter (OBR)</b> .....             | <b>15</b> |
| Task 1: Launching the Administration Console .....  | 16        |
| Task 2: Creating the Vertica Database .....   | 17        |
| Task 3: Creating the Management Database User Account .....   | 19        |
| Task 4: Configuring the Collectors .....  | 20        |
| Task 5: Selecting the Data Source .....   | 21        |
| Task 6: Configuring the Topology Source .....   | 22        |
| Task 7: Summary .....   | 23        |
| <b>Chapter 3: Installing SOM Content Packs</b> .....  | <b>25</b> |
| Installation Package .....  | 25        |
| Installing SOM Content Packs .....  | 26        |
| Uninstalling SOM Content Packs .....  | 26        |
| <b>Chapter 4: Deploying the Components of the SOM Content Packs</b> .....                                   | <b>27</b> |
| Removing the Components of the SOM Content Packs .....  | 28        |
| <b>Chapter 5: Connecting the SOM Management Server and the SOM Reporting Server</b> .....                   | <b>30</b> |
| Task 1: Connect the SOM Management Server to the SOM Reporting Server .....                                 | 30        |
| Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server .....            | 31        |
| Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards .....                       | 32        |
| <b>Chapter 6: Connect the SOM Management Server, the SOM Reporting Server, and the HPE OMi Server</b> ..... | <b>33</b> |
| Task 1: Establish Connections .....   | 34        |

|   |           |
|---|-----------|
| Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server ..                     | 36        |
| Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards .....                             | 37        |
| <b>Chapter 7: Certificates for HPE OBR .....</b>  | <b>38</b> |
| Use Secured Socket layer (SSL) Certificate .....  | 38        |
| Client Authentication Certificate for HPE OBR .....   | 38        |
| Prerequisites of Certificate Based Authentication .....   | 38        |
| Task 1: Create a Keystore File Containing HPE OBR Server Certificate and Private Key .....                        | 39        |
| Task 2: Create a Keystore File Containing the Certifying Authority (CA) Certificates .....                        | 39        |
| Task 3: Determine If Certificate Revocation Check Should Be Enabled .....   | 40        |
| Task 4: Determine the Proxy Server Address If There Is a Proxy Between the HPE OBR<br>Server and Internet .....   | 40        |
| Task 5: Determine the Username Extraction Mechanism .....   | 40        |
| Task 6: Import Certificate and Configure Browser .....  | 41        |
| Configure Username Extraction Method .....  | 42        |
| Configure HPE OBR Administration Console .....  | 42        |
| Task 1: Configure Trusted Authentication .....  | 42        |
| Task 2: Stop the HPE_PMDB_Platform_Administrator Service .....  | 42        |
| Task 3: Configure the config.prp File .....   | 43        |
| Task 4: Configure Certificate-based Authentication .....  | 43        |
| Task 5: Configure Username Extraction .....   | 44        |
| Task 6: Start the HPE_PMDB_Platform_Administrator Service .....   | 44        |
| Task 7: Verify Certificate-based Authentication .....   | 45        |
| Configure SAP BusinessObjects BI Launch Pad .....   | 45        |
| Task 1: Configure Trusted Authentication .....  | 45        |
| Task 2: Stop the SAP BusinessObjects WebServer Service .....  | 46        |
| Task 3: Stop the HPE_PMDB_Platform_Administrator Service .....  | 46        |
| Task 4: Configure the config.prp File .....   | 47        |
| Task 5: Configure Certificate-based Authentication .....  | 47        |
| Task 6: Start the SAP BusinessObjects WebServer Service .....   | 48        |
| Task 7: Start the HPE_PMDB_Platform_Administrator Service .....   | 49        |
| Task 8: Verify Certificate-based Authentication .....   | 49        |
| <b>Chapter 8: Verifying Data Collection .....</b>   | <b>50</b> |
| <b>Chapter 9: Generating CSV Files for Elements Discovered by SOM .....</b>                                       | <b>52</b> |
| <b>Chapter 10: Running and Designing Reports .....</b>  | <b>53</b> |
| Access the Standard Reports .....   | 53        |
| Standard Reports .....  | 53        |
| Customized Reports .....  | 54        |
| <b>Chapter 11: Creating Custom Reports .....</b>  | <b>56</b> |
| Create a Custom Report for End-to-End Connectivity .....  | 56        |
| Create a Custom Report to Display the Storage Allocated to a Host, Mounted on a Host, and Used<br>by a Host ..... | 57        |
| Create a Custom Report to Display the NAS Information and Details of a Client Host .....                          | 60        |
| Create a Custom Report to Display the High-Level List of All Managed Hosts .....                                  | 63        |
| Create a Custom Report to Display all the Managed Hosts without Cluster Hosts .....                               | 64        |

|  |           |
|--|-----------|
| Create a Custom Report to Display the Connected Hosts and the External Storage Capacity .....    | 66        |
| Create a Custom Report to Display the Performance for the Top HPE EVA Arrays .....               | 67        |
| Create a Custom Report to Display the Storage Tier Information, Hosts, and Storage Volumes ..... | 70        |
| <b>Chapter 12: Remove a Configured SOM Reporting Server from the SOM Management Server .....</b> | <b>74</b> |
| <b>Chapter 13: Known Issues .....</b>  | <b>75</b> |
| <b>Send Documentation Feedback .....</b>   | <b>77</b> |

# Chapter 1: Introduction

The HPE Storage Operations Manager (SOM) content packs for HPE Operations Bridge Reporter (OBR) provide detailed reports of current and historical information about hosts, storage systems, switches, and connectivity in the storage network. SOM also provides content packs for reporting the performance of various storage devices.

The SOM content packs determine what metrics to process, how to process those metrics, and display the processed data on the reports. A typical content pack defines the statistics and inventory associated with the particular domain content.

## HPE Storage Operations Manager Content Packs

HPE Storage Operations Manager provides the following content packs:

- "HPE Storage Operations Manager Common Content Pack" on the next page
- "HPE Storage Operations Manager Content Pack for End-to-End Connectivity" on the next page
- "HPE Storage Operations Manager Content Pack for Switches" on the next page
- "HPE Storage Operations Manager Content Pack for Hosts" on page 9
- "HPE Storage Operations Manager Content Pack for Storage Systems" on page 9
- "HPE Storage Operations Manager Content Pack for HPE 3PAR Performance Statistics" on page 10
- "HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics" on page 10
- "HPE Storage Operations Manager Content Pack for EMC CLARiiON and VNX Performance Statistics" on page 11
- "HPE Storage Operations Manager Content Pack for EMC DMX Performance Statistics" on page 11
- "HPE Storage Operations Manager Content Pack for EMC VMAX Performance Statistics" on page 12
- "HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics" on page 12
- "HPE Storage Operations Manager Content Pack for NetApp 7-Mode Performance Statistics" on page 12
- "HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics" on page 13
- "HPE Storage Operations Manager Content Pack for IBM SVC Performance Statistics" on page 13

Each content pack includes standard reports for immediate access to the relevant storage management content. For information about the standard reports, see the help for each report in *HPE Operations Bridge Reporter Online Help for Users*.

Additionally, you can customize reports by selecting from the list of objects in the classes of the Business Objects Universe provided with all installed content packs.

# HPE Storage Operations Manager Common Content Pack

The HPE Storage Operations Manager Common Content Pack contains common list of objects used across SOM content packs. It provides information about assets and node groups.

The list of objects in the common reporting universe are as follows:

- Assets
- Node groups

For more information, see the *HPE Storage Operations Manager Universe Reference for the Common Content Pack* document.

# HPE Storage Operations Manager Content Pack for End-to-End Connectivity

The HPE Storage Operations Manager Content Pack for End-to-End Connectivity provides information that can be used to view and analyze the connectivity information for hosts, switches, and storage systems.

The list of classes in the connectivity reporting universe are as follows:

- Host Switch Connectivity
- Storage Switch Connectivity
- Host Path Connectivity
- Presented Storage Connectivity
- Switch ISL Connectivity
- NAS Client Connectivity

For more information, see the *HPE Storage Operations Manager Universe Reference for the End-to-End Connectivity Content Pack* document.

# HPE Storage Operations Manager Content Pack for Switches

The HPE Storage Operations Manager Content Pack for Switches provides detailed standard reports that display the utilization summary as well as the input and output performance data of switch ports.

The list of classes in the switches reporting universe are as follows:

- Switch Fabric
- Switch Capacity Statistics
- Switch Port Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the Switches Content Pack* document.



# HPE Storage Operations Manager Content Pack for Hosts

The HPE Storage Operations Manager Content Pack for Hosts provides detailed standard reports that display information about the host capacity utilization.

The list of classes in the host reporting universe are as follows:

- Host Disk Partitions
- Host Multipathing
- Host Volume Management
- HBA Target Port
- Host Processor
- HBA Port Performance Statistics
- Host CPU Utilization Statistics
- Host Disk Drive Performance Statistics
- Host Logical Volume Capacity Statistics
- Host Memory Utilization Statistics
- Host Unused Volume Group Capacity Statistics
- Host Unused Storage Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the Hosts Content Pack* document.

# HPE Storage Operations Manager Content Pack for Storage Systems

The HPE Storage Operations Manager Content Pack for Storage Systems provides detailed standard reports that display information about the storage systems.

The list of classes in the storage systems reporting universe are as follows:

- Storage System Disks
- Block System Extents Associated with Disks
- Block System Extents
- Block Backend Storage System
- Block System Volumes
- Block System SCSI Controllers
- Block System Processors
- Block System Fiber Channel Ports
- Block System Replication
- File System Extents Associated with Disks
- File System Extents
- File Network Interface

- File System Volumes
- File QTree
- File System Replication
- Storage Tiers
- File Shares
- Storage System Capacity Statistics
- Tier Element Map
- File Logical Volume Capacity Statistics
- Block Pool Capacity Statistics
- File Quota Capacity Statistics
- File System Node Capacity Statistics
- File Snapshot Capacity Statistics
- File Extent Capacity Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the Storage Systems Content Pack* document.

## HPE Storage Operations Manager Content Pack for HPE 3PAR Performance Statistics

The HPE Storage Operations Manager Content Pack for HPE 3PAR Performance Statistics provides information that can be used to view and analyze various performance metrics of HPE 3PAR devices.

The list of classes in the HPE 3PAR performance reporting universe are as follows:

- HPE 3PAR Storage System Performance Statistics
- HPE 3PAR Storage Volume Performance Statistics
- HPE 3PAR Controller Performance Statistics
- HPE 3PAR Disk Performance Statistics
- HPE 3PAR FC Port Performance Statistics
- HPE 3PAR AVG Storage System Volume Performance Statistics
- HPE 3PAR AVG Storage Pool Volume Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the HPE 3PAR Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics

The HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics provides information that can be used to view and analyze various performance metrics of HP StorageWorks Enterprise Virtual Arrays (EVA) devices.

The list of classes in the HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics performance reporting universe are as follows:

- EVA Storage System Performance Statistics
- EVA Storage System AVG Performance Statistics
- EVA Storage Volume Performance Statistics
- EVA Storage Controller Performance Statistics
- EVA Pool AVG Performance Statistics
- EVA FC Port Performance Statistics
- EVA Disk Drive Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the HP EVA Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for EMC CLARiiON and VNX Performance Statistics

The HPE Storage Operations Manager Content Pack for EMC CLARiiON and VNX Performance Statistics provides information that can be used to view and analyze various performance metrics of EMC CLARiiON and VNX devices.

The list of classes in the HPE Storage Operations Manager Content Pack for EMC CLARiiON and VNX Performance Statistics reporting universe are as follows:

- EMC CLARiiON\_VNX Storage System Performance Statistics
- EMC CLARiiON\_VNX Storage Volume Performance Statistics
- EMC CLARiiON\_VNX Storage Controller Performance Statistics
- EMC CLARiiON\_VNX Port Performance Statistics
- EMC CLARiiON\_VNX Disk Drive Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the EMC CLARiiON and VNX Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for EMC DMX Performance Statistics

The HPE Storage Operations Manager Content Pack for EMC DMX Performance Statistics provides information that can be used to view and analyze various performance metrics of EMC DMX devices.

The list of classes in the HPE Storage Operations Manager Content Pack for EMC DMX Performance Statistics performance reporting universe are as follows:

- EMC DMX Storage System Performance Statistics
- EMC DMX Storage Volume Performance Statistics
- EMC DMX Storage Front-end Controller Performance Statistics
- EMC DMX Front-end Port Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the EMC DMX Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for EMC VMAX Performance Statistics

The HPE Storage Operations Manager Content Pack for EMC VMAX Performance Statistics provides information that can be used to view and analyze various performance metrics of EMC VMAX devices.

The list of classes in the HPE Storage Operations Manager Content Pack for EMC VMAX Performance Statistics performance reporting universe are follows:

- EMC VMAX Storage System Performance Statistics
- EMC VMAX Storage Volume Performance Statistics
- EMC VMAX Storage Front-end Controller Performance Statistics
- EMC VMAX Front-end Port Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the EMC VMAX Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics

The HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics provides information that can be used to view and analyze various performance metrics of NetApp C-mode devices.

The list of classes in the HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics performance reporting universe are as follows:

- NetAppC Storage System Performance Statistics
- NetAppC LUN Performance Statistics
- NetAppC Disk Drive Performance Statistics
- NetAppC File System Performance Statistics
- NetAppC Aggregate Performance Statistics
- NetAppC vServer Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the NetApp C-Mode Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for NetApp 7-Mode Performance Statistics

The HPE Storage Operations Manager Content Pack for NetApp 7-Mode Performance Statistics provides information that can be used to view and analyze various performance metrics of NetApp 7-mode devices.

The list of classes in the HPE Storage Operations Manager Content Pack for NetApp 7-Mode Performance Statistics performance reporting universe are as follows:

- NetApp7 Storage System Performance Statistics
- NetApp7 LUN Performance Statistics

- NetApp7 Disk Drive Performance Statistics
- NetApp7 File System Performance Statistics
- NetApp7 Aggregate Performance Statistics
- NetApp7 IPPort Performance Statistics
- NetApp7 Q Tree Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the NetApp 7-Mode Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics

The HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics provides information that can be used to view and analyze various performance metrics of HPE XP and HDS devices.

The list of classes in the HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics performance reporting universe are as follows:

- HDS-XP Array Group Statistics
- HDS-XP Back-end Controller Statistics
- HDS-XP FC Port Performance Statistics
- HDS-XP Front-end Controller Statistics
- HDS-XP Storage Volume Statistics
- HDS-XP Storage System Statistics
- HDS-XP MPB Controller Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the HPE XP and HDS Performance Statistics Content Pack* document.

## HPE Storage Operations Manager Content Pack for IBM SVC Performance Statistics

The HPE Storage Operations Manager Content Pack for IBM SVC Performance Statistics provides information that can be used to view and analyze various performance metrics of IBM SVC cluster devices.

The list of classes in the HPE Storage Operations Manager Content Pack for IBM SVC Performance Statistics performance reporting universe are as follows:

- IBM SVC Cluster Performance Statistics
- IBM SVC Controller Performance Statistics
- IBM SVC Storage Disk Performance Statistics
- IBM SVC Storage Extent Performance Statistics
- IBM SVC Storage Pool Performance Statistics
- IBM SVC Storage Volume Performance Statistics

For more information, see the *HPE Storage Operations Manager Universe Reference for the IBM SVC Performance Statistics Content Pack* document.

# Prerequisites to use the HPE Storage Operations Manager Content Packs

Before you install an SOM content pack, HPE Operations Bridge Reporter (OBR) must be installed and configured. For the supported OBR version, see the *SOM Support Matrix*.

OBR must be installed on a separate server from the SOM management server. Before you install an SOM content pack, do the following:

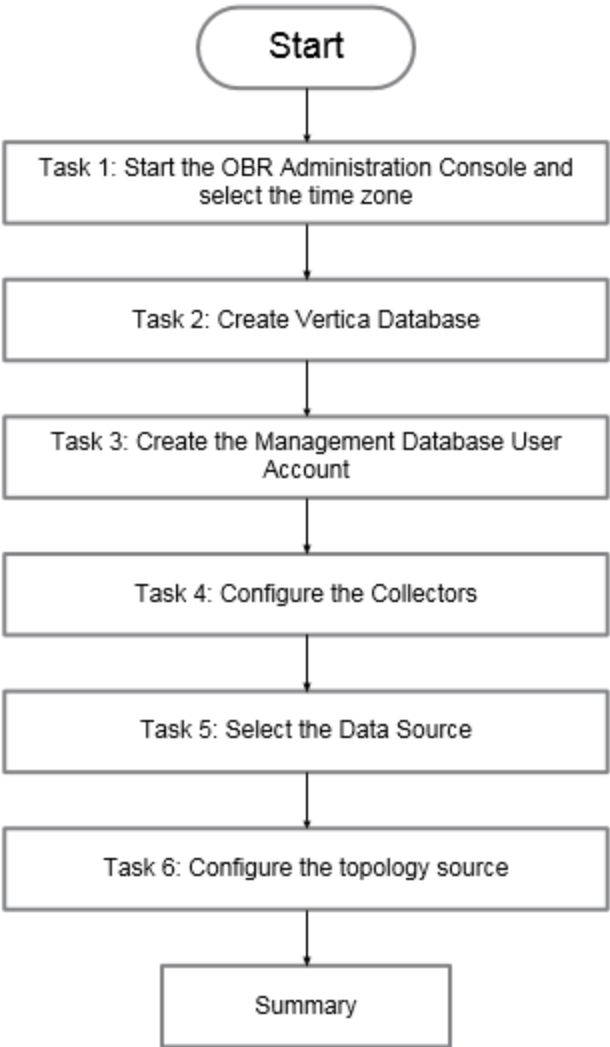
1. Install OBR using the instructions in the *HPE Operations Bridge Reporter Interactive Installation Guide*. The Installation Guide is available as a compressed file, `OBR_Interactive_Installation.zip`, in the `Documentation/en_US` directory, after you extract the `OBR.tar` installer file. To view the Installation Guide, open the `OBR_Interactive_Installation.htm` file after extracting the `OBR_Interactive_Installation.zip` file.
2. Post installation, configure OBR for SOM. For more information, see "[Post-Installation Configuration of HPE Operations Bridge Reporter \(OBR\)](#)" on page 15

# Chapter 2: Post-Installation Configuration of HPE Operations Bridge Reporter (OBR)

You must perform all the post-installation configuration tasks described in this chapter immediately after installing HPE Operations Bridge Reporter (OBR) 10.00 and before installing the SOM content packs through the Deployment Manager.

**Note:** Skip this chapter if OBR is already installed along with different Content Packs other than SOM.

The following flowchart gives you an overview of the post-install tasks for OBR with embedded Vertica database:



# Task 1: Launching the Administration Console

To launch the Administration Console, follow these steps:

1. Launch the Administration Console in a web browser using the following URL:

`https://<OBR_Server_FQDN>:21412`

2. Type **administrator** in the Login Name field and **1ShrAdmin** in the Password field , and then click **Log In** to continue. The Change Password page appears and it is mandatory to change the password when you log in for the first time.
  - a. Enter **1ShrAdmin** in the **Old Password** field.
  - b. Enter new password in the **New Password** field
  - c. Re-enter the new password in the **Confirm Password** field and then click **Log In**. The Home page appears.

**Note:** If you use any other user account to access the Administration Console, make sure that the user account has administrator privileges.

The following OBR Configuration Wizard appears only if you did not complete the post-install configuration tasks. The wizard supports session-state-persistence, which enables you to resume and continue a previously-interrupted configuration session.

The screenshot displays the OBR Configuration Wizard interface. On the left, there is a navigation sidebar with 'Administration Dashboard' and 'Home'. The main area is titled 'Configuration Wizard' and contains a progress bar with the following steps: 'Configure Parameter/s', 'Create Vertica Database', 'Create Management Database', 'Configure Collectors', 'Data Source Selection', 'Configure Topology Source', and 'Summary'. The 'Configure Parameter/s' step is currently selected and active, showing 'Step 1: In this step, you can configure parameter/s.' Below this, there is a 'Select Time Zone' section with two radio buttons: 'GMT' and 'Local'. The 'Local' radio button is selected. At the bottom right of the wizard, there is a 'Next->' button.

3. On the Configure Parameter/s page, select the time zone, that is, GMT or Local, under which you want OBR to operate.

Under Select HPE Operations Bridge Reporter Time Zone, select one of the following:



- **GMT** if you want OBR to follow the GMT timezone.
- **Local** if you want OBR to follow the local system timezone.

**Note:** The time zone that you select here applies to the OBR system and reports. However, the run-time information for processes such as collection and work flow streams is always based on local timezone irrespective of selection.

4. Click **Next**. The Create Vertica Database page opens.

## Task 2: Creating the Vertica Database

To create the database schema for Vertica database embedded with OBR, follow these:

1. On the Create Vertica Database page, type the required information. The following table describes the fields that appear under this section:

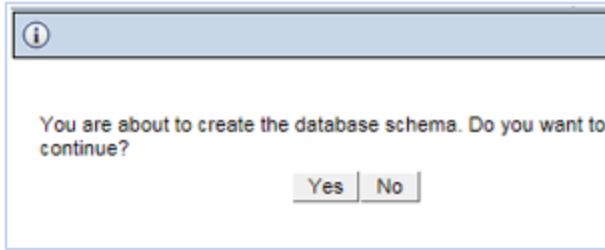
| Field                      | Description  |
|----------------------------|--|
| Host name                  | Name or IP address of the host where the Vertica database server is running .                |
| Port                       | Port number to query the database server. The default port is 5433.                          |
| Vertica Database User name | Name of the Vertica database user. The user must have DBA privileges.                        |
| Vertica Database Password  | Password of the Vertica Database user.   |
| Confirm Password           | Password confirmation of the Vertica Database user. Re-type the same password to confirm it. |

**Note:** By default, the administrator console credentials are displayed in the vertica database username and password fields. Clear these credentials, and then enter the vertica database credentials.

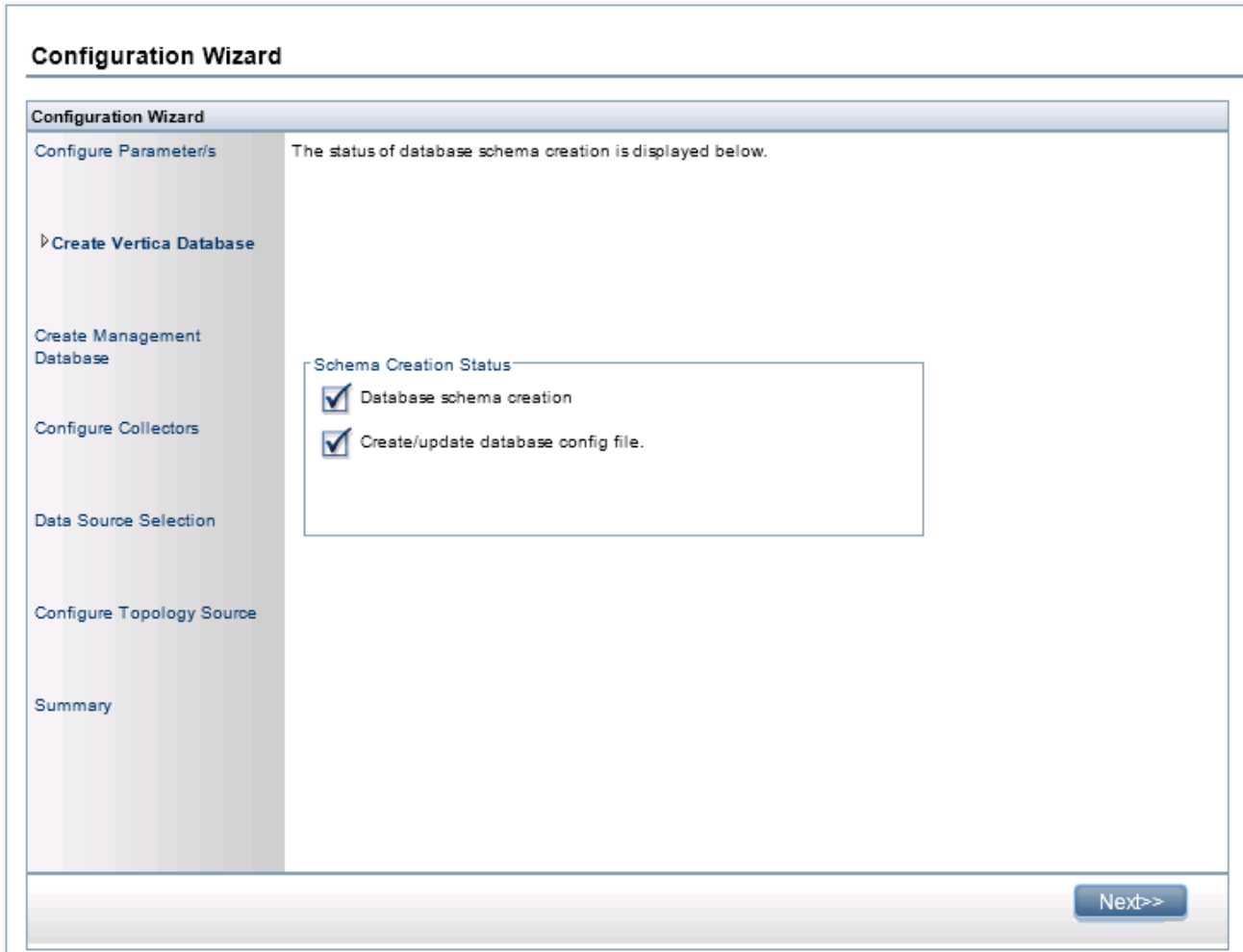
2. In the **Database File Location** field, do the following:
  - a. Type the location to store the database files.  
Example: /opt/myVerticadb.

**Caution:** Ensure that you have sufficient system resources to support the OBR data collection volume that you select. For information about the resource requirements for the selected volume, see the *HPE Operations Bridge Reporter Support Matrix*.

3. In the **Catalog File Location** field, do the following:
  - a. Type the location to store the catalog files.  
Example: /opt/mycatalog.
  - b. Click **Next**. A confirmation dialog box opens.



- c. Click **Yes**. If the database connection and schema creation is successful, a confirmation page opens with the schema creation status.



- d. Click **Next** to continue.
- e. If the database connection and schema creation fails, click the **Previous** button to check the values provided.

## Task 3: Creating the Management Database User Account

The management database refers to the Online Transaction Processing (OLTP) store used by OBR to store its run-time data such as data process job stream status, changed tables status, and datasource information.

On the Create Management Database page, provide the user details for the management database.

To create the management database user account, follow these steps:

1. Under **Enter Management Database User (DBA Privilege) and Password**, type the required information. The following table describes the fields that appear under this section:

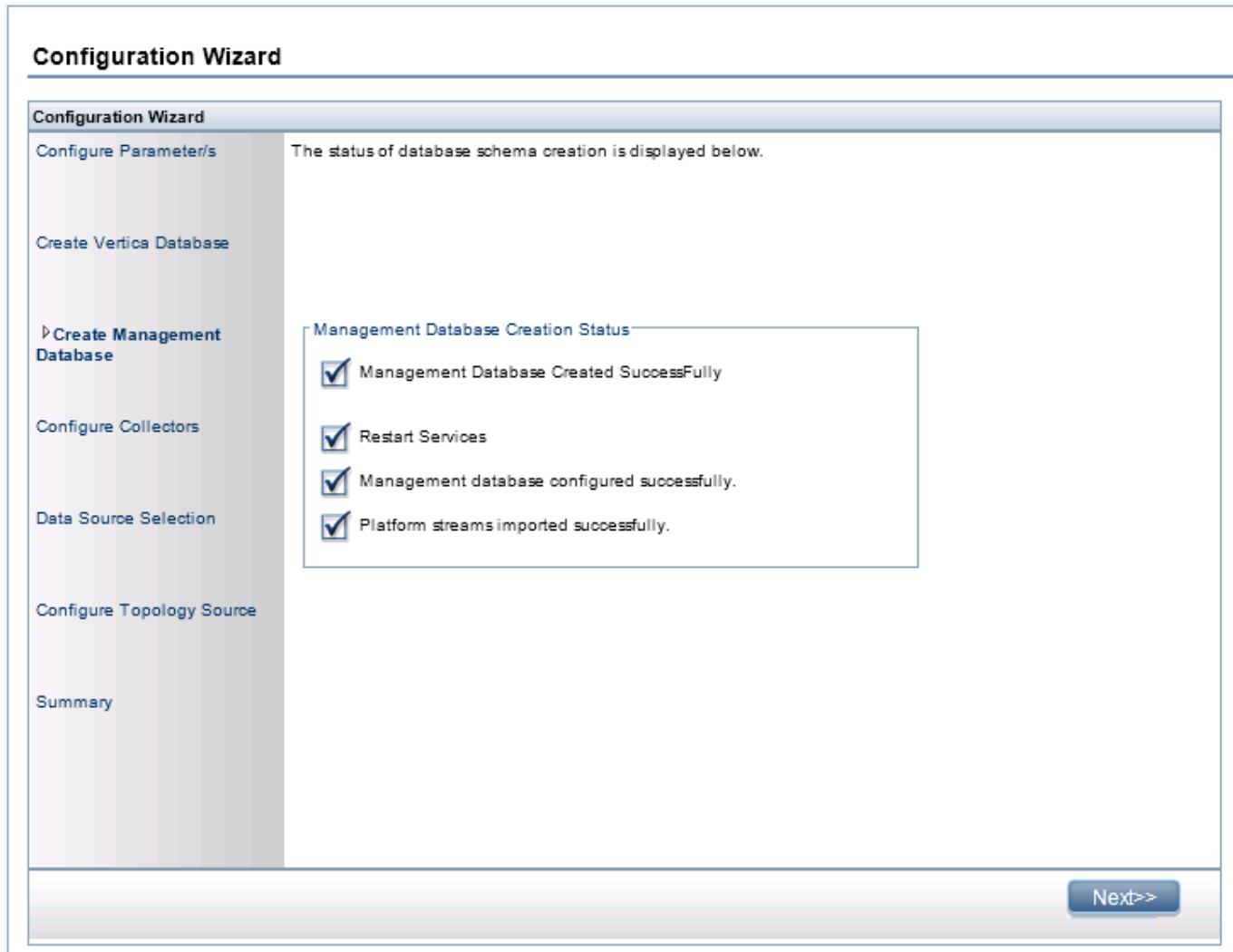
| Field                    | Description  |
|--------------------------|--|
| User name                | Name of the Postgres database administrator. The default value is postgres.      |
| New DBA Password         | Password of the Postgres database administrator. The default is PMDB92_admin@hp. |
| Confirm New DBA Password | Retype the same password to confirm it.  |

2. Under **Enter Management Database User Information**, type the required values if you want to change the password of the management database user. The following table describes the fields that appear under this section:

| Field                | Description  |
|----------------------|--|
| User name            | Name of the management database user. The default value is pmdb_admin. |
| New Password         | Password of the management database user.                              |
| Confirm New Password | Retype the same password to confirm it.                                |

3. Click **Next**. The Management Database Creation Status page appears.
4. Review the tasks completed as part of database connection and management database details and then

click **Next**. The Configure Collectors page opens.



## Task 4: Configuring the Collectors

On the Configure Collector page, skip taking any actions and click **Next**. The Data Source Selection page opens.

### Configuration Wizard

Configuration Wizard

Step 4: Configure Collectors

Configure Parameter/s

Create Vertica Database

Create Management Database

Configure Collectors

Data Source Selection

Configure Topology Source

Summary

#### Collector Summary

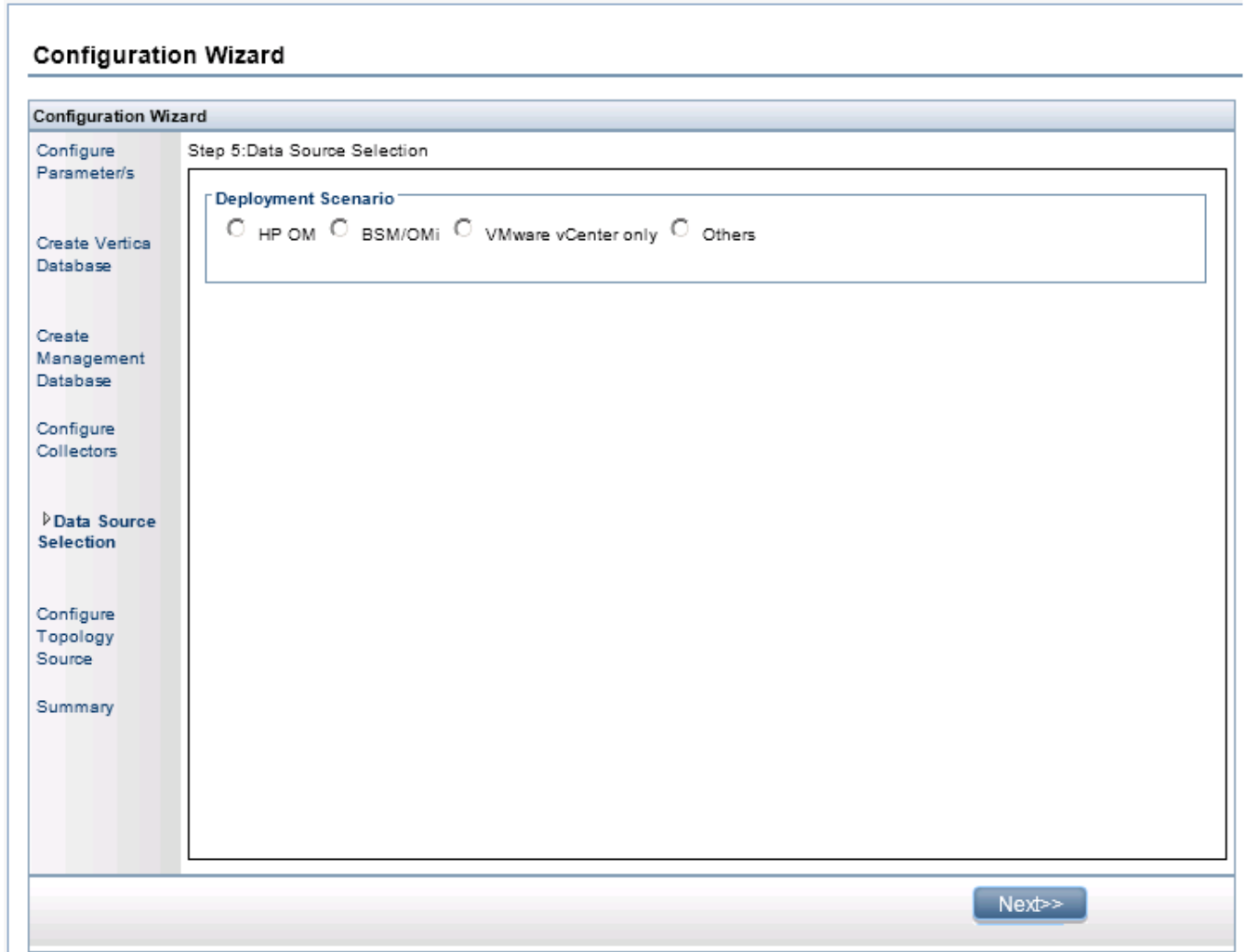
|                          | Name  | Enable                              | Connection | Install | Configuration |             |                           |
|--------------------------|-------|-------------------------------------|------------|---------|---------------|-------------|---------------------------|
|                          |       |                                     |            |         | Policy        | Data Source | Collector                 |
| <input type="checkbox"/> | local | <input checked="" type="checkbox"/> |            |         |               |             | <a href="#">Configure</a> |

Test Connection      Delete      Create New      Save

Next>>

## Task 5: Selecting the Data Source

On the Data Source Selection page, do not select any deployment scenario. Click **Next**, the Configure Topology Source page opens.



## Task 6: Configuring the Topology Source

On the Configure Topology Source page, skip taking any actions and click **Next** to continue. The Summary page opens.

### Configuration Wizard

Configuration Wizard

Configure Parameter/s

Create Vertica Database

Create Management Database

Configure Collectors

Data Source Selection

Configure Topology Source

Summary

Step 6: Configure the Topology Source(Note:The Topology Source once selected cannot be changed.)

Topology Source

RTSM  HP OM  VMware vCenter

| Host name                       | Connection Status | Configuration |
|---------------------------------|-------------------|---------------|
| Topology source not configured. |                   |               |

Test Connection

Create New Save

Next>>

## Task 7: Summary

On the Summary page, click **Finish** to complete the post-install configuration tasks.

### Configuration Wizard

---

**Configuration Wizard**

Configure Parameter/s      Step 7: Summary Page

Create Vertica Database       Database Connection  
Host name: corona.ind.hp.com  
Port: 5433

Create Management Database

Configure Collectors       Management Database  
Host name: corona.ind.hp.com  
Port: 21425

Data Source Selection

Configure Topology Source      Topology Source  
No Topology Source Configured.

▸ Summary

**Finish**



# Chapter 3: Installing SOM Content Packs

This section provides information about installing and uninstalling the SOM content packs on a SOM reporting server.

## Installation Package

The content packs are available in the folder, <contentpack> after you extract the SOM package to the local host server.

The following are the .rpm installer files for the SOM content packs:

| SOM Content Packs  | Installer File Names  |
|--|---|
| Common Content Pack  | HPSOMOBR-<version_number>-Linux2.6_64.rpm   |
| Content Pack for End-to-End Connectivity                     | For example, the installer file for HPE Storage Operations Manager 10.20 is as follows:<br><br>HPSOMOBR-10.20.001-Linux2.6_64.rpm |
| Content Pack for Switches                                    |   |
| Content Pack for Hosts                                       |   |
| Content Pack for Storage Systems                             |   |
| Content Pack for HPE 3PAR Performance Statistics             |   |
| Content Pack for HP EVA Performance Statistics               | HPSOMOBR_HP3PARPerf-<version_number>-Linux2.6_64.rpm  |
| Content Pack for HP EVA Performance Statistics               | HPSOMOBR_EVAPerf-<version_number>-Linux2.6_64.rpm   |
| Content Pack for HPE XP and HDS Performance Statistics       | HPSOMOBR_HDS-XPPerf-<version_number>-Linux2.6_64.rpm  |
| Content Pack for EMC CLARiiON and VNX Performance Statistics | HPSOMOBR_VNXPerf-<version_number>-Linux2.6_64.rpm   |
| Content Pack for EMC DMX Performance Statistics              | HPSOMOBR_EMCDMXPerf-<version_number>-Linux2.6_64.rpm  |
| Content Pack for EMC VMAX Performance Statistics             | HPSOMOBR_EMCMAXPerf-<version_number>-Linux2.6_64.rpm  |
| Content Pack for NetApp-C Mode Performance Statistics        | HPSOMOBR_NetAppCPerf-<version_number>-Linux2.6_64.rpm   |
| Content Pack for NetApp-7 Mode Performance Statistics        | HPSOMOBR_NetApp7Perf-<version_number>-Linux2.6_64.rpm   |
| Content Pack for IBM SVC Performance Statistics              | HPSOMOBR_IBMSVCPerf-<version_number>-Linux2.6_64.rpm  |

The installer file for a SOM content pack comprises the following components that must be deployed on the SOM reporting server after installation:

- Domain
- Extraction, Transformation, Loading (ETL)
- Reporting

## Installing SOM Content Packs

To install a SOM content pack on the SOM reporting server, follow these steps:

1. Identify the .rpm installer file listed in the table above and copy it to a temporary directory.
2. Run the following command:

```
rpm -ivh <installer_file_name> --replacefiles
```

**For example,**

To install the HPE Storage Operations Manager 10.20 content pack for Common, End-to-End Connectivity, Switches, Hosts, and Storage Systems, run the following command:

```
rpm -ivh -HPSOMOBR-10.20.001-Linux2.6_64.rpm --replacefiles
```

To install the HPE Storage Operations Manager 10.20 content pack for HP 3PAR performance statistics, run the following command:

```
rpm -ivh HPSOMOBR_HP3PARPerf-10.20.001-Linux2.6_64.rpm --replacefiles
```

3. Deploy the individual components of the content pack as described in ["Deploying the Components of the SOM Content Packs" on page 27](#)

## Uninstalling SOM Content Packs

To uninstall a SOM content pack from the SOM reporting server, run the following command:

```
rpm -e <content_pack_name>-<version_number>-Linux2.6_64.rpm
```

**For example,**

To uninstall the HPE Storage Operations Manager 10.20 content pack for Common, End-to-End Connectivity, Switches, Hosts, and Storage Systems, run the following command:

```
rpm -e HPSOMOBR-10.20.001-Linux2.6_64.rpm
```

To uninstall the HPE Storage Operations Manager 10.20 content pack for HP 3PAR performance statistics, run the following command:

```
rpm -e HPSOMOBR_HP3PARPerf-10.20.001-Linux2.6_64.rpm
```

# Chapter 4: Deploying the Components of the SOM Content Packs

The Deployment Manager utility in the Administration console can be used to deploy the SOM Content Pack components such as Domain, ETL, and Reporting.

To deploy the components, follow these steps:

1. Launch the OBR Administration Console using the following URL:  
`https://<OBR_Server_FQDN>:21412/BSMRApp`
2. Log on as an administrator.
  - Type **administrator** in the **Login Name** field.
  - Enter the password created in the [Launching the Administrator Console](#) task in *Chapter 2: Post-Installation Configuration of HPE Operations Bridge Reporter (OBR)*
  - Click **Log in** to continue.
3. The Home page opens, in the left pane click **Administration** and select **Deployment Manager**. The Deployment Manager page displays the entire list of components that can be installed for SOM.
4. From the **Content Pack Component Name** column, select the check boxes of the Domain, the ETL, and the Reporting components for the specific Content Pack that you want to deploy.

For example, to deploy HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics, select the SOM\_EVAPerfDomain, the SOM\_EVAPerfETL, and the SOM\_EVAPerfReporting components. The following screenshot illustrates the selection of the HPE Storage Operations Manager Content Pack for HP EVA Performance Statistics components:

|  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Storage Operations Manager | <input checked="" type="checkbox"/> HPE Storage Operations Manager | <input type="checkbox"/> SOM_EMCMAXPerfReporting         |
|  |  | <input checked="" type="checkbox"/> SOM_EVAPerfDomain    |
|  |  | <input checked="" type="checkbox"/> SOM_EVAPerfETL       |
|  |  | <input checked="" type="checkbox"/> SOM_EVAPerfReporting |
|  |  | <input type="checkbox"/> SOM_HostDomain                  |
|  |  | <input type="checkbox"/> SOM_HostETL                     |
|  |  | <input type="checkbox"/> SOM_HostReporting               |

**Note:**

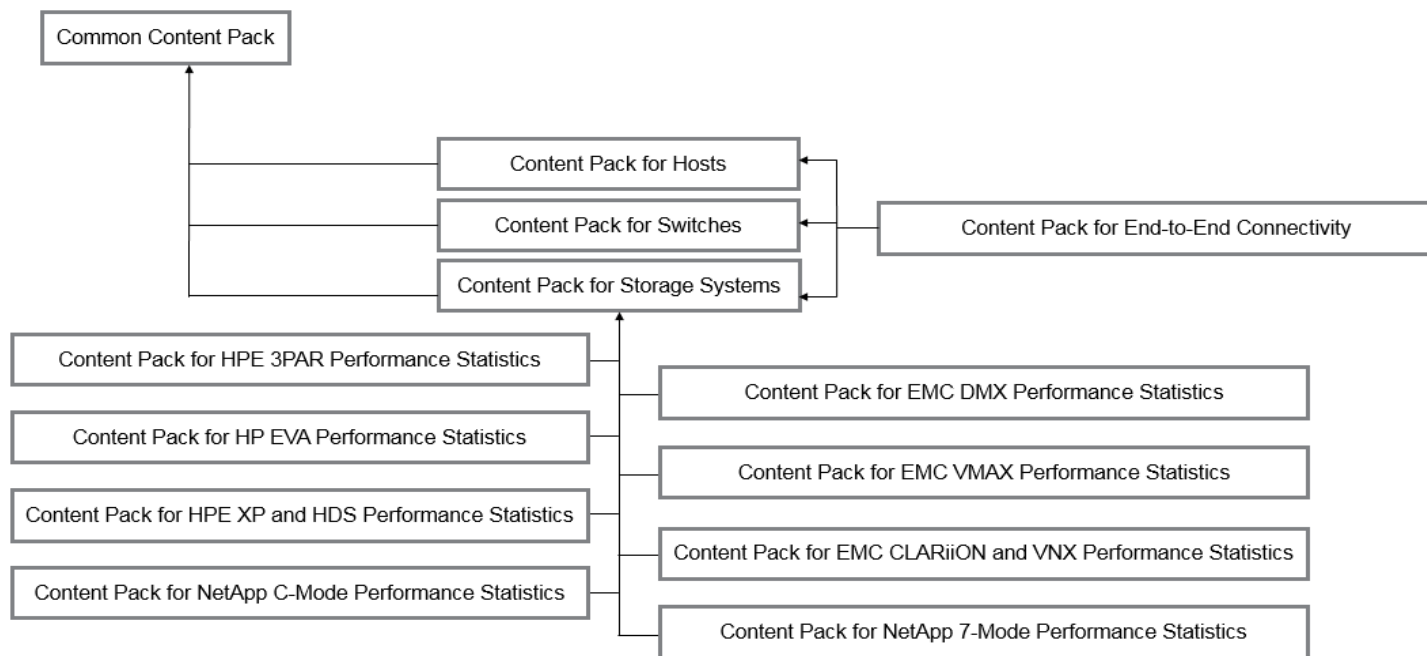
- When you select the components from the SOM Content Pack Component Name column, **Storage Operations Manager** and **HP Storage Operations Manager** are automatically selected from the Data Source Application and Content columns respectively.

- The Default Core Domain Content Pack is automatically selected and deployed the first time you deploy a SOM Content Pack.

5. Click the **Install/Upgrade** button to install the components. The **Status** column displays the progress of the installation. The Deployment Manager page refreshes automatically to display the updated status.

After the installation completes, the **Status** column displays the status as **Installation Successful** for each selected component of the SOM Content Pack.

The following figure illustrates the deployment dependencies of the HPE Storage Operations Manager content packs:



## Removing the Components of the SOM Content Packs

To remove the components of the SOM Content Packs, follow this step:

- On the Deployment Manager page, click the  icon in the **Remove** column beside each component.

The **Status** column displays the progress of the uninstallation. The Deployment Manager page refreshes automatically to display the updated status.

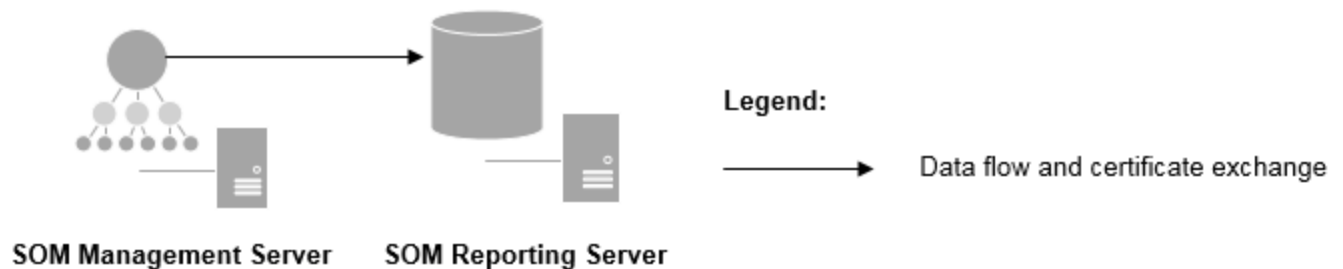
After the uninstallation completes, the **Status** column displays the status as **Uninstallation Successful** for each component of the Content Pack.

**Note:** Uninstalling the Storage System Content Pack removes the Connectivity Reporting Content Pack.

**Note:** Do not remove the SOM content pack RPMs without uninstalling the content pack.

# Chapter 5: Connecting the SOM Management Server and the SOM Reporting Server

The content in this chapter applies to the following architecture with the SOM reporting server as the certificate authority:



**Note:** If the Operations agent is or will be installed on the SOM management server, see ["Connect the SOM Management Server, the SOM Reporting Server, and the HPE OMi Server"](#) on page 33.

To connect an SOM management server with an SOM reporting server, complete all of the following tasks:

"Task 1: Connect the SOM Management Server to the SOM Reporting Server" below

"Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server" on the next page

"Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards" on page 32

## Task 1: Connect the SOM Management Server to the SOM Reporting Server

To configure the SOM management server to use the SOM reporting server as its certificate authority, follow these steps:

1. On the SOM management server, start the OVC service by running the following command:
  - *Windows:* `%OvInstallDir%\bin\win64\ovc -start`
  - *Linux:* `/opt/OV/bin/ovc -start`

2. On the SOM management server, delete any existing certificates and request a new certificate from the SOM reporting server by running the following command:

```
somdatatransfercertconfig.ovpl -certserver <OBR_server>
```

Replace *<OBR\_server>* with the IP address or fully qualified domain name of the SOM reporting server.

3. On the SOM management server, copy the `somobrgrantcertrequest.ovpl` command from the following location to a known location on the SOM reporting server:

- *Windows:* %OvInstallDir%\bin
- *Linux:* /opt/OV/bin

4. On the SOM reporting server, set the execute permission for the copied files by running the following command:

```
chmod +x somobrgrantcertrequest.ovpl
```

5. From the known location on the SOM reporting server, grant a signed certificate to the requesting SOM management server by running the following command:

```
somobrgrantcertrequest.ovpl -reqserver <SOM_server>
```

Replace *<SOM\_server>* with the IP address or fully qualified domain name of the SOM management server.

**Note:** Perl script runs by default.

## Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server

To configure data transfer from the SOM management server to the SOM reporting server, follow these steps:

1. On the SOM management server, configure data transfer from the SOM management server to the SOM reporting server by running the following command:

```
somdatatransfercertconfig.ovpl -remoteserver <OBR_server> -remotefolder  
/opt/HP/BSM/PMDB/extract
```

Replace *<OBR\_server>* with the IP address or fully qualified domain name of the local SOM reporting server.

`/opt/HP/BSM/PMDB/extract` is the location on the SOM reporting server that will receive the SOM data. This location is not configurable.

2. On the SOM reporting server, configure the SOM reporting server to use the SOM management server as a data source by running the following command (copied to the SOM reporting server in Task 1):

```
somobrgrantcertrequest.ovpl -datasource <SOM_server>
```

Replace *<SOM\_server>* with the IP address or fully qualified domain name of the SOM management server.

**Note:** To send data from multiple SOM management servers to the reporting server, replace `<SOM_server>` with a whitespace separated list of SOM management servers. For example:  
`somobrgrantcertrequest.ovpl -datasource 10.226.151.10 10.226.153.10 10.226.153.25`

The value of the `-datasource` parameter overwrites the current OBR configuration. Always specify *all* SOM management servers that connect to this reporting server when running this command.

3. Verify data transfer from the SOM management server to the SOM reporting server.
  - a. On the SOM management server, send a test data file to all configured reporting servers by running the following command:  
**`somdatatransfercertconfig.ovpl -testtransfer`**
  - b. On the SOM reporting server, change to the `/opt/HP/BSM/PMDB/extract` directory, and then verify that the `test_transfer_from_<SOM_server>.txt` file is present in the directory.

## Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards

SOM analytics dashboards display information obtained from the SOM reporting server database.

To support the data gathering from OBR for the analytics dashboards:

- Port 5433 must be open on the SOM reporting server.
- SOM must be connected to the SOM reporting server database that processes the capacity utilization data exported from the SOM management server.

To configure the SOM Reporting Server to pull data for the analytics dashboard, run the following command:

```
somdatatransfercertconfig.ovpl -shrdbconfig <OBR_database_hostname> <OBR_database_port number> <OBR_database_username> <OBR_database_password>
```

Replace `<OBR_database_hostname>` with the IP address or fully qualified domain name of the database server used by the SOM reporting server.

Replace `<OBR_database_port number>` with the port for connecting to the database used by the SOM reporting server. The default port number is 5433.

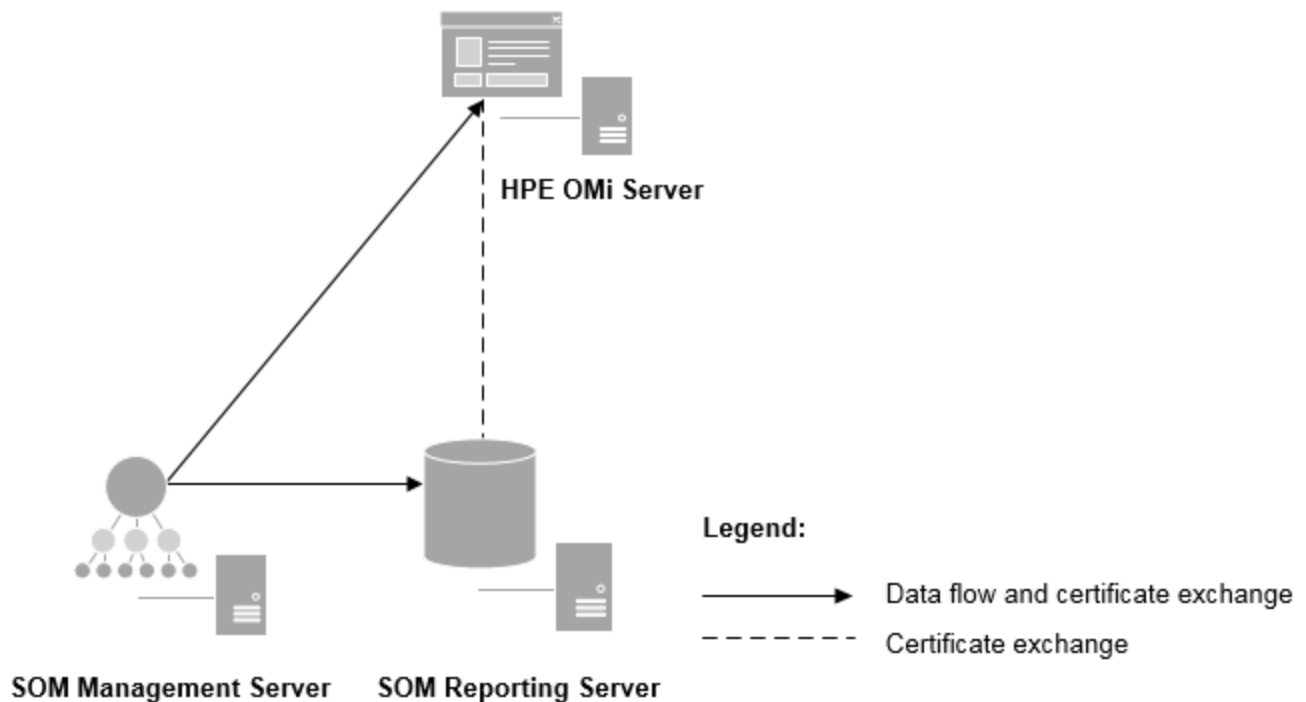
Replace `<OBR_database_username>` with the user name for accessing the database used by the SOM reporting server.

Replace `<OBR_database_password>` with the password for the specified user name as configured post installation of the SOM reporting server.



# Chapter 6: Connect the SOM Management Server, the SOM Reporting Server, and the HPE OMi Server

The content in this chapter applies to the following architecture with HPE OMi as the certificate authority:



**Note:** Make sure to install the HPE Operations agent on the SOM management server and SOM reporting server.

HPE Operations Bridge Reporter (OBR) and HPE Operations Manager (HPE OMi) can each act as a certificate authority for SOM and the Operations agent. This section describes how to configure the OMi server to be the primary certificate authority for SOM, the Operations agent, and OBR (the SOM reporting server).

If OBR is integrated with any other server, it is recommended that you contact Support.

To connect an SOM management server with an SOM reporting server and an OMi server, complete all of the following tasks:

[Task 1: Establish Connection](#)

[Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server](#)

[Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards](#)

# Task 1: Establish Connections

You can follow one of the following two methods:

**Tip:** Method 1 deletes all HPE Operations agent certificates from the SOM management server and SOM reporting server. If you want to preserve all agent certificates, follow [Method 2](#) instead.

## Method 1: Establish connections by using SOM scripts

1. Connect the SOM management server to the HPE OMi server.

To configure the SOM management server to use the OMi server as its certificate authority, follow these steps:

- a. On the SOM management server, delete any existing certificates configured on the SOM management server and request a new certificate by running the following command:  
**somdatatransfercertconfig.ovpl -certserver <OMi\_server>**  
Replace <OMi\_server> with the IP address or fully qualified domain name of the OMi server.
- b. On the OMi server, grant the certificate request.
- c. Activate the Operations agent for the OMi server.
- d. On the OMi server, add the SOM management server node, and then accept its certificate request.
- e. To verify the communication from the OMi server to the SOM management server, send a test message from the Operations agent.

For example:

```
opcmsg s=critical o=test msg_g=OpC a=test msg_t="test"
```

2. Connect the SOM reporting server to the HPE OMi server.

To configure the SOM reporting server to use the OMi server as its certificate authority, follow these steps:

- a. On the SOM management server, copy the `somobrgrantcertrequest.ovpl` command from the following location to a known location:
  - *Windows:* %OvInstallDir%\bin
  - *Linux:* /opt/OV/binon the SOM reporting server.
- b. From the known location on the SOM reporting server, delete any existing certificates configured on the SOM reporting server and request a new certificate by running the following command:  
**somobrgrantcertrequest.ovpl -certserver <OMi\_server>**  
Replace <OMi\_server> with the IP address or fully qualified domain name of the OMi server.
- c. On the OMi server, grant the certificate request.
- d. Activate the Operations agent for the OMi server.
- e. On the OMi server, add the SOM reporting server node, and then accept its certificate request.
- f. To verify the communication from the OMi server to the SOM reporting server, send a test message from the Operations agent.

For example:

```
opcmsg s=critical o=test msg_g=OpC a=test msg_t="test"
```

## Method 2: Establish connections manually

**Note:** Make sure that you have already performed the steps in the *Release Notes* under the *Installing SOM on an HPOM-Managed or OMi-Managed Node* section.

1. Export certificates on the OMi management server.
  - a. Log on to the OMi management server as root or administrator.
  - b. Run the following command to export all agent certificates:  
*On Windows:* `%OvInstallDir%\bin\win64\ovcert -exporttrusted -file C:\temp\cert_omi`  
*On Linux:* `/opt/OV/bin/ovcert -exporttrusted -file /tmp/cert_omi`  
All agent certificates on the OMi management server are exported to the cert\_omi file.
2. Import the certificates to the SOM reporting server.
  - a. Transfer the exported certificate to the SOM reporting server and place the file in a temporary directory (for example, C:\temp on Windows; /tmp on Linux).
  - b. Log on to the SOM reporting server as root or administrator.
  - c. Run the following command to import the certificates that were exported from OMi in [step 1](#):
    - o *On Windows:*
      - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_omi`
      - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_omi -ovrg server`
    - o *On Linux:*
      - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_omi`
      - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_omi -ovrg server`
3. Export OBR certificates.

Run the following command to export all the agent certificates for OBR:

*On Windows:* `%OvInstallDir%\bin\win64\ovcert -exporttrusted -file C:\temp\cert_obr`  
*On Linux:* `/opt/OV/bin/ovcert -exporttrusted -file /tmp/cert_obr`  
All agent certificates on the SOM reporting server are exported to the cert\_obr file.
4. Transfer the OBR certificates to the OMi management server and import.
  - a. Transfer the exported certificate (the cert\_obr file) to the OMi management server and place the file in a temporary directory (for example, C:\temp on Windows; /tmp on Linux).
  - b. Log on to the OMi management server as root or administrator.
  - c. Run the following command to import the certificates that were exported from OBR in [step 3](#):
    - o *On Windows:*
      - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_obr`
      - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_obr -ovrg server`
    - o *On Linux:*
      - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_obr`
      - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_obr -ovrg server`
5. Transfer the OBR certificates to the SOM management server and import (certificates obtained in [step 3](#))

- a. Transfer the exported certificate (the `cert_obr` file) to the SOM management server and place the file in a temporary directory (for example, `C:\temp` on Windows; `/tmp` on Linux).
- b. Log on to the SOM management server as root or administrator.
- c. Run the following command to import the certificates that were exported:
  - o *On Windows:*
    - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_obr`
    - `%OvInstallDir%\bin\win64\ovcert -importtrusted -file C:\temp\cert_obr -ovrg server`
  - o *On Linux:*
    - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_obr`
    - `/opt/OV/bin/ovcert -importtrusted -file /tmp/cert_obr -ovrg server`

## Task 2: Configure Data Transfer from the SOM Management Server to the SOM Reporting Server

To configure data transfer from the SOM management server to the SOM reporting server, follow these steps:

1. On the SOM management server, start the OVC service by running the following command:
  - *Windows:* `%OvInstallDir%\bin\win64\ovc -start`
  - *Linux:* `/opt/OV/bin/ovc -start`
2. On the SOM management server, configure data transfer from the SOM management server to the SOM reporting server by running the following command:
 

```
somdatatransfercertconfig.ovpl -remoteserver <OBR_server> -remotefolder /opt/HP/BSM/PMDB/extract
```

Replace `<OBR_server>` with the IP address or fully qualified domain name of the local SOM reporting server.

`/opt/HP/BSM/PMDB/extract` is the location on the SOM reporting server that will receive the SOM data. This location is not configurable.
3. On the SOM reporting server, configure the SOM reporting server to use the SOM management server as a data source by running the following command (copied to the SOM reporting server in Task 2):
 

```
somobrgrantcertrequest.ovpl -datasource <SOM_server>
```

Replace `<SOM_server>` with the IP address or fully qualified domain name of the SOM management server.

**Note:** To send data from multiple SOM management servers to the reporting server, replace `<SOM_server>` with a whitespace separated list of SOM management servers. For example:  
`somobrgrantcertrequest.ovpl -datasource 10.226.151.10 10.226.153.10 10.226.153.25`

The value of the `-datasource` parameter overwrites the current OBR configuration. Always specify *all* SOM management servers that connect to this reporting server when running this command.

4. Verify data transfer from the SOM management server to the SOM reporting server.
  - a. On the SOM management server, send a test data file to all configured reporting servers by running the following command:  
**somdatatransfercertconfig.ovpl -testtransfer**
  - b. On the SOM reporting server, change to the /opt/HP/BSM/PMDB/extract directory, and then verify that the test\_transfer\_from\_<SOM\_server>.txt file is present in the directory.

## Task 3: Configure the SOM Reporting Server to Populate the Analytics Dashboards

SOM analytics dashboards display information obtained from the SOM Reporting Server database.

To support the data gathering from OBR for the analytics dashboards:

- Port 5433 must be open on the SOM reporting server.
- SOM must be connected to the SOM reporting server database that processes the capacity utilization data exported from the SOM management server.

To configure the SOM Reporting Server to pull data for the analytics dashboard, run the following command:

```
somdatatransfercertconfig.ovpl -shrdconfig <OBR_database_hostname> <OBR_database_port number> <OBR_database_username> <OBR_database_password>
```

Replace <OBR\_database\_hostname> with the IP address or fully qualified domain name of the database server used by the SOM reporting server.

Replace <OBR\_database\_port number> with the port for connecting to the database used by the SOM reporting server. The default port number is 5433.

Replace <OBR\_database\_username> with the user name for accessing the database used by the SOM reporting server.

Replace <OBR\_database\_password> with the password for the specified user name as configured post installation of the SOM reporting server.

# Chapter 7: Certificates for HPE OBR

This chapter provides information about Client Authentication certificate for HPEOBR and recommends the use of SSL.

## Use Secured Socket layer (SSL) Certificate

The Secure Sockets Layer (SSL) is a networking protocol that manages server authentication, client authentication and encrypted communication between servers and clients. The SSL secures communication by encrypting data and provides authentication. Without SSL encryption, the information that travels over network is vulnerable to attacks, such as Man In The Middle (MITM). Setting up the SSL certificate to enable secure connection between two systems communicating over the network is critical.

**Note:** We highly recommend the use of Certificate Authority (CA) signed certificate. To configure HPE OBR to use the CA signed certificate, see *Generating a Certificate Authority Signed Certificate* section in *HPE Operations Bridge Reporter Interactive Installation Guide*.

We do not recommend the use of self-signed certificate when setting up the SSL connection.

## Client Authentication Certificate for HPE OBR

HPE OBR provides certificate based client authentication. HPE OBR verifies the identity by validating the certificate and authorizes the user using SAP BusinessObjects. HPE OBR.

HPE OBR uses SAP BusinessObjects for authentication and authorization. SAP BusinessObjects user accounts are managed by SAP BusinessObjects Central Management console. You must be a SAP BusinessObjects administrator to access HPE OBR Administration console. By default, HPE OBR uses username/password based authentication mechanism. You can also configure HPE OBR to use client certificate based authentication by following the steps in "[Task 4: Configure Certificate-based Authentication](#)" on page 43 for Administration Console and "[Task 5: Configure Certificate-based Authentication](#)" on page 47 for SAP BusinessObjects BI Launch Pad. HPE OBR verifies the identity of the user by validating the certificate and authorizes the user using SAP BusinessObjects.

## Prerequisites of Certificate Based Authentication

Before you configure certificate based authentication, complete all of the following tasks:

1. "[Task 1: Create a Keystore File Containing HPE OBR Server Certificate and Private Key](#)" on the next page.
2. "[Task 2: Create a Keystore File Containing the Certifying Authority \(CA\) Certificates](#)" on the next page.
3. "[Task 3: Determine If Certificate Revocation Check Should Be Enabled](#)" on page 40.

4. ["Task 4: Determine the Proxy Server Address If There Is a Proxy Between the HPE OBR Server and Internet" on the next page.](#)
5. ["Task 5: Determine the Username Extraction Mechanism" on the next page.](#)
6. ["Task 6: Import Certificate and Configure Browser" on page 41.](#)

## Task 1: Create a Keystore File Containing HPE OBR Server Certificate and Private Key

The keystore file is password protected. HPE OBR enables you to configure keystore location and password using keystorepath and keystorepasswd properties. Keystorepath should be specified in the properties files in ["Task 4: Configure Certificate-based Authentication" on page 43](#) for Administration Console and ["Task 5: Configure Certificate-based Authentication" on page 47](#) for SAP BusinessObjects BI Launch Pad. Keystoretype property enables you to specify the type of the keystore, supported values are **JKS** and **PKCS12**. The certificate alias in the keystore is specified using the keyalias property as shown in the following table:

| Property Name  | Example  |
|----------------|--|
| Keystorepath   | \certs\serverkeystore.jks (Linux)<br>C:\certs\serverkeystore.jks (Windows) |
| Keystorepasswd | changeit   |
| Keyalias       | shserver   |
| Keystoretype   | JKS  |

## Task 2: Create a Keystore File Containing the Certifying Authority (CA) Certificates

You must create a keystore file containing the CA certificates trusted by the HPE OBR server. This file is password protected. HPE OBR enables you to configure truststore by setting the truststorepath, truststorepasswd, and truststoretype properties to values as shown in the following table. The truststorepath should be specified in the properties files in ["Task 4: Configure Certificate-based Authentication" on page 43](#) for Administration Console and ["Task 5: Configure Certificate-based Authentication" on page 47](#) for SAP BusinessObjects BI Launch Pad.

| Field            | Value  |
|------------------|--|
| truststorepath   | \certrelated\Trustkeystore (Linux)<br>C:\certrelated\Trustkeystore (Windows) |
| truststorepasswd | changeit   |
| truststoretype   | JKS  |

## Task 3: Determine If Certificate Revocation Check Should Be Enabled

You should set `com.sun.net.ssl.checkRevocation` to true, to enable certificate revocation check. HPE OBR supports two methods of checking for revoked certificates.

- Certificate Revocation List (CRL) - A CRL contains information about revoked certificates and is downloaded from the CA. HPE OBR extracts the CRL distribution point URL from the certificate. You should set `com.sun.security.enableCRLDP` to true to enable this check.
- Online Certificate Status Protocol (OCSP) - OCSP is a protocol for checking revocation of a single certificate using an online service called an OCSP responder. You should set `ocsp.enable` to true to enable revocation check using OCSP protocol. HPE OBR extracts the OCSP URL from the certificate for validating the certificate. If you want to configure a local OCSP responder service, HPE OBR enables you to configure it using `ocsp.responderURL` property.

For details on how to enable certificate revocation, CRL and OCSP on HPE OBR Administration Console, see ["Task 4: Configure Certificate-based Authentication" on page 43](#).

For details on how to enable certificate revocation, CRL and OCSP on SAP BusinessObjects BI Launch Pad, see ["Task 5: Configure Certificate-based Authentication" on page 47](#).

## Task 4: Determine the Proxy Server Address If There Is a Proxy Between the HPE OBR Server and Internet

In case of a proxy server, you must set it to enable HPE OBR server to download the CRL. You can configure the proxy server as:

| Field                        | Description                     |
|------------------------------|---------------------------------|
| <code>http.proxyHost</code>  | set the http proxy Hostname     |
| <code>http.proxyPort</code>  | set the http proxy Port number  |
| <code>https.proxyHost</code> | set the https proxy Hostname    |
| <code>https.proxyPort</code> | set the https proxy Port number |

## Task 5: Determine the Username Extraction Mechanism

The username extraction mechanism depends on the format of your certificate. The username extracted from the certificate should match the usernames configured in SAP BusinessObjects. HPE OBR enables you to extract username using SubjectDN and Subject Alternative Name (SAN) mechanisms.

To configure the username extraction mechanism, set the following properties in `server.xml` as shown given in the below table:

| Properties         | Value                                    |
|--------------------|--|
| <code>field</code> | SubjectDN                                |
| <code>entry</code> | set to CN to indicate CN as the username |



| Properties | Value  |
|------------|--|
|            | or<br>set to OU to indicate OU as the username |

For example,

```
<Realm className="com.hp.bto.bsmr.SHRSecureAuth.auth.SHRRealm" field="SubjectDN"
entry="CN" Type="" oid="" pattern="" useSubjectDNonMatchFail="true"/>
```

To extract username from SubjectDN, set the following values to the properties:

- The entry property enables you to specify the entry that should be considered as username in SubjectDN.
- You can also use a pattern to extract username from SubjectDN instead of using entry parameter. To configure a pattern to extract username from SubjectDN, use pattern parameter. For example, if the pattern is configured as EMAILADDRESS=(.+@) and if abc@hp.com is the value of emailaddress field, then abc is extracted as the username.

To extract username from Subject Alternative Name (SAN), set the property field to the value SAN. You can configure rcf822Name or otherName part of the SAN username using the property Type.

- To configure rcf822Name, set the value of the property Type to rcf822Name.
- To configure otherName set the value of the property Type to otherName and set the value of object identifier (OID) to OID.

By default, HPE OBR extracts username from CN of SubjectDN.

You can configure HPE OBR to allow a user to log on using smart card only. To enable smart card logon, you must set the property smartcard.enable to true. The location of the file server.xml is given in the table below:

| For Configuring                   | Path   |
|-----------------------------------|--|
| Administration console            | \$PMDB_HOME/adminserver/conf (for Linux)<br>%PMDB_HOME%\adminserver\conf (for Windows) |
| SAP BusinessObjects BI Launch Pad | \$PMDB_HOME/BOWebServer/conf (for Linux)<br>%PMDB_HOME%\BOWebServer\conf (for Windows) |

## Task 6: Import Certificate and Configure Browser

To import the certificate and configure your browser, follow these steps:

1. Import the certificate that has been issued by the root CA to the HPE OBR server. Import it to your web browser. For details, see the web browser help.
2. Configure your web browser to accept the protocol TLSv1, here v1 indicates the version.

**Note:** For High Availability, configure both servers.

HPE OBR enables you to configure certificate based authentication for Administration Console and SAP BusinessObjects BI Launch Pad.

## Configure Username Extraction Method

Username extraction can be configured by editing the `server.xml` file, for details, see "[Task 5: Determine the Username Extraction Mechanism](#)" on page 40.

## Configure HPE OBR Administration Console

Before you proceed, ensure that the post-install configuration of HPE OBR is successful. To configure HPE OBR Administration Console for Certificate Based Authentication, complete these tasks:

1. "[Task 1: Configure Trusted Authentication](#)" below.
2. "[Task 2: Stop the HPE\\_PMDB\\_Platform\\_Administrator Service](#)" below.
3. "[Task 3: Configure the config.prp File](#)" on the next page.
4. "[Task 4: Configure Certificate-based Authentication](#)" on the next page.
5. "[Task 5: Configure Username Extraction](#)" on page 44.
6. "[Task 6: Start the HPE\\_PMDB\\_Platform\\_Administrator Service](#)" on page 44.
7. "[Task 7: Verify Certificate-based Authentication](#)" on page 45.

### Task 1: Configure Trusted Authentication

Shared secret is used to establish trusted authentication. You must enter the shared secret in character format only.

1. Type `https://<OBR_Server_FQDN>:21412/BSMRApp` on the web browser to log on to the Administration Console of HPE OBR.  
where, `<OBR_Server_FQDN>` is the fully qualified domain name (FQDN) of the system where OBR is installed.
2. Go to **Administration > Security > BO Trusted Authentication**.
3. Select the **Enabled** check box.
4. Type the **Shared Secret**.
5. Click **Save**.

After successful configuration, the following message is displayed:

BO Trusted Authentication Configuration saved successfully.

### Task 2: Stop the HPE\_PMDB\_Platform\_Administrator Service

To stop the **HPE\_PMDB\_Platform\_Administration** service, follow these steps:

- **On Windows**
  - a. Click **Start > Run**. The Run dialog box appears.
  - b. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
  - c. On the right pane, right-click **HPE\_PMDB\_Platform\_Administrator** and then click **Stop**.
- **On Linux**

- a. Go to `/etc/init.d` and run the following command:  

```
service HPE_PMDB_Platform_Administrator stop
```

## Task 3: Configure the config.prp File

In the file `config.prp`, located at `%PMDB_HOME%\data` folder (for Windows) and `$PMDB_HOME/data` (for Linux) set the given value to the following fields:

| Field                         | Value   |
|-------------------------------|---|
| <code>shr.loginMethod</code>  | <code>certbased</code>  |
| <code>shr.auth.classes</code> | <code>com.hp.bto.bsmr.security.auth.BOTrustedAuthenticator</code> |

## Task 4: Configure Certificate-based Authentication

Specify following parameters in `adminserverclientauth.prp` file located at `$PMDB_HOME/data` (for Linux) and `%PMDB_HOME%\data` folder (for Windows) . Edit the following fields and set the values according to the given description:

| Field  | Description   |
|--|---|
| <code>truststorepath</code>                  | Full path of the truststore file, which is to use to validate client certificates.        |
| <code>truststorepasswd</code>                | The password to access the truststore.  |
| <code>truststoretype</code>                  | The type of keystore used for the truststore.   |
| <code>keystorepath</code>                    | Full path of the keystore file where you have stored the server certificate to be loaded. |
| <code>keystorepasswd</code>                  | The password used to access the server certificate from the specified keystore file.      |
| <code>keystoretype</code>                    | The type of keystore file to be used for the server certificate.                          |
| <code>keyAlias</code>                        | The alias used to for the server certificate in the keystore.                             |
| <code>smartcard.enable</code>                | Set to true to enable smart card logon, else set it to false.                             |
| <code>http.proxyHost</code>                  | HTTP proxy Host name.   |
| <code>http.proxyPort</code>                  | HTTP proxy Port number.   |
| <code>https.proxyHost</code>                 | HTTPS proxy Host name.  |
| <code>https.proxyPort</code>                 | HTTPS proxy Port number.  |
| <code>com.sun.net.ssl.checkRevocation</code> | Set it as true to enable revocation, else set it to false                                 |
| <code>com.sun.security.enableCRLDP</code>    | Set it to true to enable CRL revocation, else set it to false.                            |

| Field             | Description   |
|-------------------|---|
| cr1File           | Enter the CRL file path.  |
| ocsp.enable       | Set it to true to enable OSCP based revocation, else set it to false. |
| ocsp.responderURL | Set to true to enable smart card logon, else set it to false.         |

**Note:** You must set the OSCP based revocation to false, when the CRL based revocation is set to true and vice versa.

After setting the properties value, do the following steps:

- **On Windows**

- a. Go to the %PMDB\_HOME%\bin folder.
- b. Run the following command:  

```
perl adminserverclientauth.pl -authType clientcert -configFile <config file location>
```

where, <config file location> indicates the full path of adminseverauth.prp file  
For example, %PMDB\_HOME%\data\adminserverclientauth.prp.

- **On Linux**

- a. Go to \$PMDB\_HOME/bin folder.
- b. Run the following command:  

```
perl adminserverclientauth.pl -authType clientcert -configFile <config file location>
```

where, <config file location> indicates the full path of adminseverauth.prp file  
For example, \$PMDB\_HOME/data/adminserverclientauth.prp.

## Task 5: Configure Username Extraction

Ensure that CN entry in the SubjectDN field is extracted as username by HPE OBR. In case you need different username extraction mechanism, modify the server.xml file as described in "[Task 5: Determine the Username Extraction Mechanism](#)" on page 40.

## Task 6: Start the HPE\_PMDB\_Platform\_Administrator Service

To start the **HPE\_PMDB\_Platform\_Administration** service, follow these steps:

- **On Windows**

- a. Click **Start > Run**. The Run dialog box appears.
- b. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
- c. On the right pane, right-click **HPE\_PMDB\_Platform\_Administrator** and then click **Start**.

- **On Linux**

- a. Go to `/etc/init.d` and run the following command:  

```
service HPE_PMDB_Platform_Administrator start
```

## Task 7: Verify Certificate-based Authentication

To verify the certificate-based authentication, do the following steps:

1. Type `https://<OBR_Server_FQDN>:21412/BSMRAApp` on the web browser to log on to the Administration Console of HPEOBR.  
where, <OBR\_Server\_FQDN> is the fully qualified domain name (FQDN) of the system where OBR is installed.
2. Click **Log on with a digital certificate** to log on to the Administration Console with a digital certificate..

## Configure SAP BusinessObjects BI Launch Pad

To configure SAP BusinessObjects BI launch pad, complete these tasks:

**Note:** In a custom installation of HPE OBR with a remote SAP BusinessObjects system, copy the `SHRTrustedPrinciple.conf` file from `<Install_Dir>/PMDB/adminServer/conf` to `<Install_Dir>/PMDB/BOWebServer/conf` on the system where SAP BusinessObjects is installed.

1. "[Task 1: Configure Trusted Authentication](#)" below.
2. "[Task 2: Stop the SAP BusinessObjects WebServer Service](#)" on the next page.
3. "[Task 3: Stop the HPE\\_PMDB\\_Platform\\_Administrator Service](#)" on the next page.
4. "[Task 4: Configure the config.prp File](#)" on page 47.
5. "[Task 5: Configure Certificate-based Authentication](#)" on page 47.
6. "[Task 6: Start the SAP BusinessObjects WebServer Service](#)" on page 48.
7. "[Task 7: Start the HPE\\_PMDB\\_Platform\\_Administrator Service](#)" on page 49.
8. "[Task 8: Verify Certificate-based Authentication](#)" on page 49.

## Task 1: Configure Trusted Authentication

1. Log on to CMC. The **System Configuration Wizard** is displayed.
2. Click **Close** to close the wizard. The **Central Management Console** page is displayed.

**Note:** Note: If you do not want the **System Configuration Wizard** to appear each time you log on to CMC, click the check box **Don't show this wizard when cms is started**.

3. Select **Authentication** and double-click **Enterprise**. The **Enterprise** window is displayed.
4. Under **Trusted Authentication**, follow these steps:
  - a. Select **Trusted Authentication is enabled**.
  - b. Click **New Shared Secret**. The message is displayed that the shared secret key is generated and ready for download.
  - c. Click **Download Shared Secret**. The File Download dialog box appears.

**Note:** The shared secret is used by the client and the CMS to establish trust. You must first

configure the server and then configure the client for Trusted Authentication.

- d. Click **Save**, and save the `TrustedPrincipal.conf` file to one of the following directories:
  - o **On Windows:**  
`<SAP_INSTALLDIR>\SAP BusinessObjects Enterprise XI 4.0\win64_x64`
  - o **On Linux:**  
`<SAP_INSTALLDIR>/sap_bobj/enterprise_xi40/linux_x86e`
- e. Give 777 permission to the `TrustedPrincipal.conf` file:
  - o **On Windows:**
    - A. Go to the location where you have saved the `TrustedPrincipal.conf` file.
    - B. Right-click the file and click **Properties**. The **TrustedPrincipal.confProperties** window is displayed.
    - C. Click **Security**, select **Administrator** from **Group or usernames** and then click **Edit** to change the permissions.
    - D. Check **Read**, **Write** and **Read & execute** options and then click **OK**.
  - o **On Linux:**
    - A. Go to the location where you have saved the `TrustedPrincipal.conf` file.
    - B. Run the following command to give complete permission:  

```
chmod 777 TrustedPrincipal.conf
```
5. Click **Update**.
6. Click **Log Off** to exit the **Central Management Console**.

## Task 2: Stop the SAP BusinessObjects WebServer Service

To stop the **SAP BusinessObjects WebServer** service, follow these steps:

**Note:** In a custom installation of HPE OBR, perform this tasks on the system where SAP BusinessObjects is installed.

- **On Windows**
  - a. Log on to the host system as administrator.
  - b. Click **Start > Run**. The Run dialog box appears.
  - c. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
  - d. On the right pane, right-click **SAP BusinessObjects WebServer** and then click **Stop**.
- **On Linux**
  - a. Go to `/opt/HP/BSM/PMDB/B0WebServer/bin` and run the following command:  

```
./shutdown.sh
```

## Task 3: Stop the HPE\_PMDB\_Platform\_Administrator Service

To stop the **HPE\_PMDB\_Platform\_Administration** service, follow these steps:

- **On Windows**
  - a. Click **Start > Run**. The Run dialog box appears.
  - b. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
  - c. On the right pane, right-click **HPE\_PMDB\_Platform\_Administrator** and then click **Stop**.
- **On Linux**
  - a. Go to `/etc/init.d` and run the following command:  

```
service HPE_PMDB_Platform_Administrator stop
```

## Task 4: Configure the config.prp File

In the file `config.prp`, located at `%PMDB_HOME%\data` folder (for Windows) and `$PMDB_HOME/data` (for Linux) set the given value to the following fields:

| Field                    | Value              |
|--------------------------|--------------------|
| <code>bo.protocol</code> | <code>https</code> |

## Task 5: Configure Certificate-based Authentication

Specify following parameters in `B0c1ientauth.prp` file located at `$PMDB_HOME/data` (for Linux) and `%PMDB_HOME%\data` folder (for Windows) . Edit the following fields and set the values according to the given description:

**Note:** In a custom installation of HPEOBR, perform this tasks on the system where SAP BusinessObjects is installed.

| Field                         | Description   |
|-------------------------------|---|
| <code>truststorepath</code>   | Full path of the truststore file, which is to use to validate client certificates.        |
| <code>truststorepasswd</code> | The password to access the truststore.  |
| <code>truststoretype</code>   | The type of keystore used for the truststore.   |
| <code>keystorepath</code>     | Full path of the keystore file where you have stored the server certificate to be loaded. |
| <code>keystorepasswd</code>   | The password used to access the server certificate from the specified keystore file.      |
| <code>keystoretype</code>     | The type of keystore file to be used for the server certificate.                          |
| <code>keyAlias</code>         | The alias used to for the server certificate in the keystore.                             |
| <code>smartcard.enable</code> | Set to true to enable smart card logon, else set it to false.                             |
| <code>http.proxyHost</code>   | HTTP proxy Host name.   |

| Field                           | Description   |
|---------------------------------|---|
| http.proxyPort                  | HTTP proxy Port number.   |
| https.proxyHost                 | HTTPS proxy Host name.  |
| https.proxyPort                 | HTTPS proxy Port number.  |
| com.sun.net.ssl.checkRevocation | Set it as true to enable revocation, else set it to false             |
| com.sun.security.enableCRLDP    | Set it to true to enable CRL revocation, else set it to false.        |
| crlFile                         | Enter the CRL file path.  |
| ocsp.enable                     | Set it to true to enable OSCP based revocation, else set it to false. |
| ocsp.responderURL               | Set the OCSP responder URL.   |

**Note:** You must set the OSCP based revocation to false, when the CRL based revocation is set to true and vice versa.

After setting the properties value, do the following steps:

- **On Windows**

- a. Go to the %PMDB\_HOME%\bin folder.
- b. Run the following command:  

```
perl B0clientauth.pl -authType clientcert -configFile <config file location>
```

where, <config file location> indicates the full path of B0clientauth.prp file  
For example, %PMDB\_HOME%\data\B0clientauth.prp.

- **On Linux**

- a. Go to \$PMDB\_HOME/bin folder.
- b. Run the following command:  

```
perl B0clientauth.pl -authType clientcert -configFile <config file location>
```

where, <config file location> indicates the full path of B0clientauth.prp file  
For example, \$PMDB\_HOME/data/B0clientauth.prp.

## Task 6: Start the SAP BusinessObjects WebServer Service

To start the **SAP BusinessObjects WebServer** service, follow these steps:

**Note:** In a custom installation of HPE OBR, perform this tasks on the system where SAP BusinessObjects is installed.

- **On Windows**

- a. Log on to the host system as administrator.
- b. Click **Start > Run**. The Run dialog box appears.



- c. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
  - d. On the right pane, right-click **SAP BusinessObjects WebServer** and then click **Start**.
- **On Linux**
    - a. Go to `/opt/HP/BSM/PMDB/BOWebServer/bin` and run the following command:  
`./startup.sh`

## Task 7: Start the HPE\_PMDB\_Platform\_Administrator Service

To start the **HPE\_PMDB\_Platform\_Administration** service, follow these steps:

- **On Windows**
  - a. Click **Start > Run**. The Run dialog box appears.
  - b. Type `services.msc` in the Open field, and then press **Enter**. The Services window appears.
  - c. On the right pane, right-click **HPE\_PMDB\_Platform\_Administrator** and then click **Start**.
- **On Linux**
  - a. Go to `/etc/init.d` and run the following command:  
`service HPE_PMDB_Platform_Administrator start`

## Task 8: Verify Certificate-based Authentication

To verify the certificate-based authentication, do the following steps:

1. Type `https://<OBR_Server_FQDN>:8443/BI` on the web browser to log on to the BI launch pad of HPEOBR.  
where, `<OBR_Server_FQDN>` is the fully qualified domain name (FQDN) of the system where OBR is installed.
2. Click **Log on with a digital certificate** to log on to the BI launch pad with a digital certificate.

# Chapter 8: Verifying Data Collection

You can check the status of a stream for a component of the Content Pack in the Administration console to verify if data collection is successful.

To verify data collection, follow these steps:

1. Launch the OBR Administration Console by using the following URL:  
[https://<OBR\\_Server\\_FQDN>:21412/BSMRAApp](https://<OBR_Server_FQDN>:21412/BSMRAApp)
2. Log on as an administrator,
  - Type **administrator** in the **Login Name** field.
  - Enter the password created in the [Launching the Administrator Console](#) task in *Chapter 2: Post-Installation Configuration of HPE Operations Bridge Reporter (OBR)*
  - Click **Log in** to continue.
3. In the left pane, click **Internal Monitoring > Data Process Status**. The Data Process Status page appears in the right pane.

For the installed Content Packs, all SOM workflow streams must either be running or completed successfully, but not in the waiting state.

You can click the number in the **Number of Streams** column for a component of the Content Pack to display the status of the individual workflow streams that are running for the selected component.

**Note:** SOM workflow stream names have SOM as a prefix in the name. For example, SOM\_StorageSystemDomain@NASShare

If data collection is successful, the **Step Status** column displays **SUCCESS** as the status for each stream.

## Data Process Status

|                             |                   | Stream Status Details |         |       |       |
|-----------------------------|-------------------|-----------------------|---------|-------|-------|
| Content Pack Component name | Number of Streams | OK                    | Warning | Error | Total |
| PMDB_Platform               | 8                 | 8                     | 0       | 0     | 8     |
| Core_Domain                 | 1                 | 1                     | 0       | 0     | 1     |
| SOM_ConnectivityDomain      | 4                 | 4                     | 0       | 0     | 4     |
| SOM_StorageSystemDomain     | 23                | 23                    | 0       | 0     | 23    |
| SOM_StorageSystemETL        | 23                | 23                    | 0       | 0     | 23    |
| SOM_ConnectivityETL         | 3                 | 3                     | 0       | 0     | 3     |

| Stream Detail for Content Pack Component : SOM_StorageSystemDomain |                              |             |                      |
|--|------------------------------|-------------|----------------------|
| Stream Name  | Step Status(Completed/Total) | Step Status | Start Time           |
| SOM_StorageSystemDomain@StorageSystemCapacityFact                  | 4/4                          | SUCCESS     | 01-Dec-2015 09:44:31 |
| SOM_StorageSystemDomain@NASSystemNodeCapacityFact                  | 3/3                          | SUCCESS     | 01-Dec-2015 09:41:12 |
| SOM_StorageSystemDomain@NASShare                                   | 2/2                          | SUCCESS     | 01-Dec-2015 09:41:20 |
| SOM_StorageSystemDomain@StoragePort                                | 2/2                          | SUCCESS     | 01-Dec-2015 09:43:12 |
| SOM_StorageSystemDomain@NASProcessor                               | 2/2                          | SUCCESS     | 01-Dec-2015 09:41:21 |
| SOM_StorageSystemDomain@NASLogicalVolumeCapacityFact               | 3/3                          | SUCCESS     | 01-Dec-2015 09:41:30 |

For more information about troubleshooting problems related to data collection, see the *Troubleshooting Data Collection Problems* chapter in the *HPE Operations Bridge Reporter Troubleshooting Guide*.

# Chapter 9: Generating CSV Files for Elements Discovered by SOM

As part of element data collection, SOM generates CSV files that contain data about discovered elements. You can manually generate CSV files for elements that are discovered before configuring the data transfer from the SOM management server to the SOM reporting server.

To manually generate and export the csv files to the SOM reporting server, run the following command:

```
sominventorydataexportondemand.ovpl -category <category>
```

Where *<category>* refers to the type of discovered element. Following are the categories of element types:

- Host: exports all host instances and their sub-components.
- Switch: exports all switch instances and their sub-components.
- StorageSystem: exports all storage system instances and their sub-components.
- Fabric: exports all fabric instances and their sub-components.
- Inferredhost: exports all inferred and created hosts instances, and their sub-components.

For more information about the `sominventorydataexportondemand.ovpl -category <category>`, see the *HPE Storage Operations Manager CLI Reference Page*.


# Chapter 10: Running and Designing Reports

The SOM content packs provide detailed reports of current and historical information about hosts, storage systems, switches, and connectivity in the storage network. SOM also provides content packs for reporting on the performance of various storage devices.

## Access the Standard Reports

You can access the standard reports by launching the HPE OBR Launch pad. To launch the OBR Launch pad, follow these steps:

1. Go to **https://<machine-name>:8443/BOE/BI**  
The Launch pad login page opens.
2. Enter user credentials and click **Log On** to continue.  
The Home page appears.
3. Click **Document**.
4. Click **Folders**.
5. Expand **Public Folders > Storage Operations Manager**.
6. Select the category for which you wish to generate reports.  
The list of reports is displayed in the right pane.
7. Double-click on any report in the list of reports.  
The reports opens in the new tab.

To view a help for a report, click the  icon on the report.

## Standard Reports

The SOM Content Packs for connectivity, switches, hosts, and storage systems include standard reports as listed in this section.

### **HPE Storage Operations Manager Content Pack for End-to-End Connectivity**

- Host Connectivity
- Host Volume Dependency
- Presented Storage Summary
- NAS Dependency

For more information about the reports of HPE Storage Operations Manager Content Pack for End-to-End Connectivity, see *Reports Delivered in the HPE Storage Operations Manager Content Pack for End-to-End Connectivity* in HPE Operations Bridge Reporter Online Help for Users.

### **HPE Storage Operations Manager Content Pack for Switches**

- Switch Port Input and Output Performance
- Virtual Switch Port Utilization

For more information about the reports of HPE Storage Operations Manager Content Pack for Switches, see *Reports Delivered in the HPE Storage Operations Manager Content Pack for Switches* in HPE Operations Bridge Reporter Online Help for Users.

#### **HPE Storage Operations Manager Content Pack for Hosts**

- Host Capacity Utilization
- Host CPU and Memory Utilization
- Host Multipathing
- Host Reclamation Capacity
- Host Volume Manager Volumes

For more information about the reports of HPE Storage Operations Manager Content Pack for Hosts, see *Reports Delivered in the HPE Storage Operations Manager Content Pack for Hosts* in HPE Operations Bridge Reporter Online Help for Users.

#### **HPE Storage Operations Manager Content Pack for Storage Systems**

- Block System Capacity
- Block System Pool Capacity
- File System Capacity
- Storage System Historical and Forecasted Capacity
- Thin Volumes Capacity
- Top 25 Thin Volumes

For more information about the reports of HPE Storage Operations Manager Content Pack for Storage Systems, see *Reports Delivered in the HPE Storage Operations Manager Content Pack for Storage Systems* in HPE Operations Bridge Reporter Online Help for Users.

#### **HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics**

- Array Group Performance Graphs
- Array Group Performance Table
- Processor Performance Graphs
- Processor Performance Table

For more information about the reports of HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics, see *Reports Delivered in the HPE Storage Operations Manager Content Pack for HPE XP and HDS Performance Statistics* in HPE Operations Bridge Reporter Online Help for Users.

## Customized Reports





The generic information about the content packs for HPE Storage Operations Manager are as follows:

- **DATETIME:** Consists of objects related to date, time, month, year, and so on. You can drill down to year > quarter > month > day and vice versa. Drill down option is available for the following content packs:

- HPE Storage Operations Manager Content Pack for End-to-End Connectivity
- HPE Storage Operations Manager Content Pack for Switches
- HPE Storage Operations Manager Content Pack for Hosts
- HPE Storage Operations Manager Content Pack for Storage Systems
- **Raw**: Consists of the metrics collected by HPE Storage Operations Manager.
- **Hourly**: Consists of the same metrics aggregated from Raw. It has different types of aggregation such as maximum, minimum, average, and sum.
- **Daily**: Consists of the same metrics aggregated from Hourly. It has different types of aggregation such as maximum, minimum, average, and sum.
- **Hourly OLAP**: Consists of the same data as Hourly but aggregations are faster generating quicker reports due to online analytical processing.
- **Daily OLAP**: Consists of the same data as Daily but aggregations are faster generating quicker reports due to online analytical processing.

Raw data that is collected from SOM is rolled up and displayed in the hourly and daily tables. The hourly and daily data is rolled up into pre-aggregated hourly and daily OLAP tables.

You can create the custom reports for the reporting universe by launching the HPE OBR Launch pad. To launch the OBR Launch pad, follow these steps:

1. Go to **http://<machine-name>:8443/BOE/BI**. The HPE OBR BI Launch pad login page appears.
2. Enter user credentials and click **Log On** to continue. The home page appears.
3. On the home page, in the **My Applications** panel, click **Web Intelligence** (  ). The Web Intelligence page appears.
4. On the Web Intelligence page, click **New** (  ). The Create a Document window appears.
5. Select **Universe** (  ) and then click **OK**. The Universe window appears.
6. Select a universe from the list, and then click **Select**. The **Query Panel** appears.  
The Universe outline pane shows the dimensions and measures available in each object of the selected universe.
7. On the Universe outline pane, expand the universe, and drag the required items to the Result Object/Filters field.
8. Click **Run Query** (  ) to run the report. The generated report appears.

For examples about creating reports, see "[Creating Custom Reports](#)" on page 56.

For more information, see the *Universe Reference* documents for SOM content packs available at the following location on SOM reporting server:

**\$PMDB\_HOME/Documentation/SOM**

# Chapter 11: Creating Custom Reports

This section provides general background information and specific task instructions to successfully create realistic reports in a complex HPE SOM environment.

This chapter describes how to select correct objects and classes to be included in a report, and avoid common problems in selecting objects.

This section includes the following custom reports:

- "Create a Custom Report for End-to-End Connectivity" below
- "Create a Custom Report to Display the Storage Allocated to a Host, Mounted on a Host, and Used by a Host" on the next page
- "Create a Custom Report to Display the NAS Information and Details of a Client Host" on page 60
- "Create a Custom Report to Display the High-Level List of All Managed Hosts" on page 63
- "Create a Custom Report to Display all the Managed Hosts without Cluster Hosts" on page 64
- "Create a Custom Report to Display the Storage Tier Information, Hosts, and Storage Volumes" on page 70
- "Create a Custom Report to Display the Connected Hosts and the External Storage Capacity" on page 66
- "Create a Custom Report to Display the Performance for the Top HPE EVA Arrays" on page 67

## Create a Custom Report for End-to-End Connectivity

The following example illustrates the process of creating an end-to-end connectivity report that provides the path between the connected hosts and storage systems in your storage environment.


### Before You Begin

To enable data collection, ensure that the following requirements are met:



- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

### Procedure

To create this report, follow these steps:

1. Go to **http://<OBR-server-name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).



- The **Web Intelligence** page appears.
- Click  (**New**).
- The **Create a Document** window appears.
- Select  (**Universe**), and then click **OK**.
- The **Universe** window appears.
- From the list of universes, click **SOM\_ConnectivityReporting Universe.unx**, and then click **Select**.
- The **Query Panel** appears.
- The **Universe outline** pane shows the dimensions and measures available for each object in the selected universe.
- From the **Universe outline** pane, expand the **SOM\_ConnectivityReporting\_Core** and **Supplemental** classes, and drag the following items to the **Result Objects** pane:

| Subclass                         | Result Objects  |
|----------------------------------|---|
| Host Switch Connectivity         | SOM CMS, Host Name, HBA Card Name, HBA Port name, Switch Name, Switch Port Name |
| Storage Switch Connectivity      | SOM CMS, Storage System Name, Switch Name, Switch Port Name                     |
| Host Path Connectivity           | Logical Volume Name   |
| Presented Storage Connectivity   | Storage Volume Name   |
| Supplemental > Presented Storage | Volume Capacity (GiB)   |

- Click  (**Run Query**) to generate the report.

## Create a Custom Report to Display the Storage Allocated to a Host, Mounted on a Host, and Used by a Host

The following example illustrates the process of creating a custom report that displays the following:

- Total amount of storage allocated to a specific host
- The amount of allocated storage that is mounted
- The used and free size of the mounted volumes




### Before You Begin

To enable data collection, ensure that the following requirements are met:



- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

## Procedure

To create this report, follow these steps:



1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.  
The **Universe** window appears.
6. From the list of universes, click **SOM\_ConnectivityReporting Universe.unx**, and then click **Select**.  
The **Query Panel** appears.  
The **Universe outline** pane displays the dimensions and measures available for each object in the selected universe.
7. From the **Universe outline** pane, expand the **SOM\_ConnectivityReporting\_Core** and the **Supplemental** classes, and drag the following items to the **Result Objects** pane:

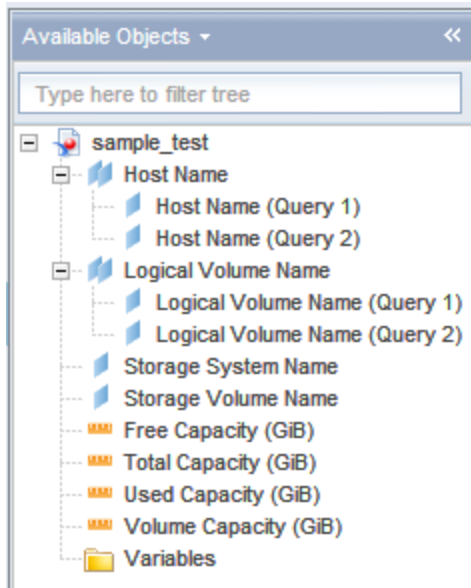
| Subclass                         | Result Objects                           |
|----------------------------------|--|
| Host Path Connectivity           | Host Name, Logical Volume Name           |
| Presented Storage Connectivity   | Storage System Name, Storage Volume Name |
| Supplemental > Presented Storage | Volume Capacity (GiB)                    |

8. Click  (**Run Query**) to generate the report.
9. From the Reports panel, click  (**Edit**).  
The **Query Panel** appears.
10. To add a new query to the report, click **Add Query > From Universe**.  
The **Add Query** window appears.
11. From the list of universes, select **SOM\_HostReporting Universe.unx** and then click **OK**.  
The **Query Panel** appears.
12. From the **Universe outline** pane, expand the **SOM\_HostReporting\_Core > Host Logical Volume Capacity Statistics** class, and drag the following items to the panes on the right:

| Subclass   | Result Objects                                  |
|--|---|
| Host Logical Volume(Host Logical Volume Capacity Statistics) | Host Name, Logical Volume Name                  |
| Raw Host Logical Volume Capacity Statistics                  | Total Capacity (GiB), Used Capacity (GiB), Free |

| Subclass                                    | Result Objects         |
|---|------------------------|
|   | capacity (GiB),        |
| Subclass                                    | Query Filters          |
| Raw Host Logical Volume Capacity Statistics | Latest Collection Time |

- Click  (**Run Queries**) to generate the report.  
The **Add Query** message window appears
- Select the "**Include the result objects in the document without generating a table**" option, and then click **OK**. This option adds the new query to the existing report.  
The new report appears.
- From the **Available Objects** pane, expand **New Document**. To select both the objects, select **Host Name (Query 1)**, and then hold down the Shift key while you select **Host name (Query 2)**. Right-click the selection and then select  (**Merge**).  
Both the objects are merged under **Host Name**.
- Repeat the same procedure to merge the **Logical Volume Name (Query 1)** and **Logical Volume Name (Query 2)**.  
Both the objects are merged under **Logical Volume Name**.  
The following image is an example of the merged objects in the **Available Objects** pane:



- From the **Available Objects** pane, select and drag the **Total Capacity (GiB)**, **Free Capacity (GiB)**, and **Used Capacity (GiB)** objects to the report table to add the **Total Capacity (GiB)**, **Free Capacity (GiB)**, and **Used Capacity (GiB)** columns to the table.  
The following report is an example of the storage allocated to a host, mounted on the host, and used by the host:

| Storage System Name    | Storage Volume Name | Host Name           | Volume Capacity (GiB) | Logical Volume Name                       | Total Capacity (GiB) | Used Capacity (GiB) | Free Capacity (GiB) |
|------------------------|---------------------|---------------------|-----------------------|---|----------------------|---------------------|---------------------|
| 000298701330 (VMAX10K) | 00392 (thin)        | cube.ind.hp.com     | 100                   | Shared_on_VMAX_1                          | 99.75                | 0.96                | 98.79               |
| 000298701330 (VMAX10K) | 00392 (thin)        | sidewalk.ind.hp.com | 100                   | Shared_on_VMAX_1                          | 99.75                | 0.96                | 98.79               |
| 000298701330 (VMAX10K) | 00393 (thin)        | cube.ind.hp.com     | 20                    | Shared_VMAX_2_notallsize_used             | 9.75                 | 0.87                | 8.88                |
| 000298701330 (VMAX10K) | 00393 (thin)        | sidewalk.ind.hp.com | 20                    | Shared_VMAX_2_notallsize_used             | 9.75                 | 0.87                | 8.88                |
| 000298701330 (VMAX10K) | 00394 (thin)        | cube.ind.hp.com     | 25                    | Shared_on_VMAX_twovols                    | 49.5                 | 0.96                | 48.54               |
| 000298701330 (VMAX10K) | 00394 (thin)        | sidewalk.ind.hp.com | 25                    | Shared_on_VMAX_twovols                    | 49.5                 | 0.96                | 48.54               |
| 000298701330 (VMAX10K) | 00395 (thin)        | cube.ind.hp.com     | 25                    | Shared_on_VMAX_twovols                    | 49.5                 | 0.96                | 48.54               |
| 000298701330 (VMAX10K) | 00395 (thin)        | sidewalk.ind.hp.com | 25                    | Shared_on_VMAX_twovols                    | 49.5                 | 0.96                | 48.54               |
| 000298701330 (VMAX10K) | 00396 (thin)        | cube.ind.hp.com     | 28                    | Shared_VMAX_Challenger_two_vols_22GB_28GB | 49.5                 | 0.95                | 48.55               |
| 000298701330 (VMAX10K) | 00396 (thin)        | sidewalk.ind.hp.com | 28                    | Shared_VMAX_Challenger_two_vols_22GB_28GB | 49.5                 | 0.95                | 48.55               |

## Create a Custom Report to Display the NAS Information and Details of a Client Host

The following example illustrates the process of creating a custom report to display the NAS information and details of a client host.


### Before You Begin

To enable data collection, ensure that the following requirements are met:

- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

### Procedure

To create this report, follow these steps:


1. Go to [https://<OBR\\_Server\\_Name>:8443/BOE/BI](https://<OBR_Server_Name>:8443/BOE/BI).  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.  
The **Universe** window appears.
6. From the list of universes, click **SOM\_ConnectivityReporting Universe.unx**, and then click **Select**.

The **Query Panel** appears.

The **Universe outline** pane displays the dimensions and measures available for each object in the selected universe.


- From the **Universe outline** pane, expand the **SOM\_ConnectivityReporting\_Core** class, and drag the following item to the **Result Objects** pane:

| Subclass                | Result Objects  |
|-------------------------|---|
| NAS Client Connectivity | Client Host Name, File System Name, Client Logical Volume Name, Client Volume Size in Bytes |


- Click  (**Run Query**) to generate the report.
- From the report table, select any row in the column **Client Volume Size in Bytes**, click **Edit Formula...**, specify the following formula, and click **OK**:  

$$=[\text{Client Volume Size in Bytes}]/1024/1024/1024$$

This formula converts the volume size from bytes to Gigabytes (GiB).  
 To rename the column heading, select the column heading **Client Volume Size in Bytes** and rename it in the formula bar to **Client Volume Size in GiB**.

- From the Reports panel, click  (**Edit**).  
The **Query Panel** appears.
- To add a new query to the report, click **Add Query > From Universe**.  
The **Add Query** window appears.
- From the list of universes, select **SOM\_HostReporting Universe.unx** and then click **OK**.  
The **Query Panel** appears.
- From the **Universe outline** pane, expand the **SOM\_HostReporting\_Core > Host Logical Volume Capacity Statistics** class, and drag the following items to the panes on the right:

| Subclass   | Result Objects   |
|--|--|
| Host Logical Volume(Host Logical Volume Capacity Statistics) | Host Name, Logical Volume Name                                 |
| Raw Host Logical Volume Capacity Statistics                  | Total Capacity (GiB), Used Capacity (GiB), Free Capacity (GiB) |
| Subclass   | Query Filters  |
| Raw Host Logical Volume Capacity Statistics                  | Latest Collection Time filter                                  |

- Click  (**Run Queries**) to generate the report.  
The **Add Query** message window appears
- Select the "**Include the result objects in the document without generating a table**" option, and then click **OK**. This option adds the new query to the existing report.  
The new report appears.
- From the **Available Objects** pane, expand **New Document**. To select both the objects, select **Client**

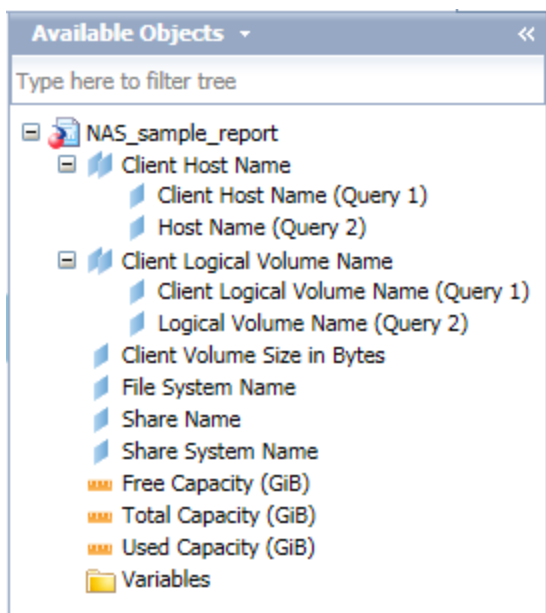
**Host Name**, and then hold down the Shift key while you select **Host name**. Right-click the selection and then select **(Merge)**.

Both the objects are merged under **Client Host Name**.

- Repeat the same procedure to merge the **Client Logical Volume Name** and **Logical Volume Name**.

Both the objects are merged under **Client Logical Volume Name**.

The following image is an example of the merged objects in the **Available Objects** pane:



- From the **Available Objects** pane, click and drag the **Used Capacity (GiB)** and **Free Capacity (GiB)** objects to the report table to add the **Used Capacity (GiB)** and **Free Capacity (GiB)** columns to the table.

The following report is an example of the NAS information and details of a client host:

| Client Host Name     | File System Name     | Client Logical Volume Name | Client Volume Size in GiB | Used Capacity (GiB) | Free Capacity (GiB) |
|----------------------|----------------------|----------------------------|---------------------------|---------------------|---------------------|
| 0                    | 0                    | 0                          | 0                         |                     |                     |
| argenta.hpeswlab.net | SENetAppC            | /mnt/NAC1                  | 0.95                      | 0.95                | 0                   |
| argenta.hpeswlab.net | SENetAppC            | /mnt/NAC2                  | 0.95                      | 0.34                | 0.61                |
| argenta.hpeswlab.net | SENetAppC            | /SENetAppC/vol1            | 0.95                      | 0                   | 0.95                |
| argenta.hpeswlab.net | SENetAppC            | /SENetAppC/vol2            | 0.95                      | 0                   | 0.95                |
| argenta.hpeswlab.net | SENetAppC            | /SENetAppC/vol3            | 0.95                      | 0                   | 0.95                |
| argenta.hpeswlab.net | yugo                 | /Yugo_NFS1                 | 1.03                      | 0.94                | 0.09                |
| argenta.hpeswlab.net | yugo                 | /Yugo_NFS2                 | 0.09                      | 0                   | 0.09                |
| cube.ind.hp.com      | vnx-5300-cs0-File-AI | VNX_Filer_1                | 0                         | 0                   | 0                   |
| sedl043.hpeswlab.net | SENetAppC            | /mnt/nfsshare              | 2.85                      | 2.85                | 0                   |
| tiguan.hpeswlab.net  | SENetAppC            | /mnt/NAC_mp3               | 1.9                       | 1.9                 | 0                   |
| tiguan.hpeswlab.net  | SENetAppC            | /mnt/NAC_mp4               | 1.9                       | 0                   | 1.9                 |
| tiguan.hpeswlab.net  | SENetAppC            | /SENetAppC/vol1            | 0.95                      | 0                   | 0.95                |

# Create a Custom Report to Display the High-Level List of All Managed Hosts

The following example illustrates the process of creating a custom report to display the high-level list of all the managed hosts.




## Before You Begin

To enable data collection, ensure that the following requirements are met:


- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

## Procedure

To create this report, follow these steps:

1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.  
The **Universe** window appears.
6. From the list of universes, click **SOM\_HostReporting Universe.unx**, and then click **Select**.  
The **Query Panel** appears.  
The **Universe outline** pane shows the dimensions and measures available for each object in the selected universe.
7. From the **Universe outline** pane, expand the **SOM\_HostReporting\_Core > Host Logical Volume Capacity Statistics** class, and drag the following items to the **Result Objects** pane:

| Subclass   | Result Objects   |
|--|--|
| Host Logical Volume(Host Logical Volume Capacity Statistics)             | Host Name, Operating System Name   |
| Host Logical Volume(Host Logical Volume Capacity Statistics) > Host Name | Model, IP Address, Vendor, Serial Number, CIME Version, Total Physical Memory (GiB), DNS Name, # of Processors |

8. Click  (**Run Query**) to generate the following report:

| Host Name    | Operating System Name  | Model   | IP Address  | Vendor | Serial Number | CIME Version   | Total Physical Memory | DNS Name     | # of Processors |
|--------------|------------------------|---------|-------------|--------|---------------|----------------|-----------------------|--------------|-----------------|
| 0            | 0                      | 0       | 0           | 0      | 0             | 0              | 1                     | 0            | 1               |
| 15.218.125.  |                        |         | 15.218.125. |        |               |                |                       | sedl096.ind  |                 |
| 15.218.125.  |                        |         | 15.218.125. |        |               |                |                       | sebl020.ind  |                 |
| acclaim      |                        |         | 15.218.121. |        |               |                |                       | acclaim.ind. |                 |
| acclaim.ind. | ESX Server             | ProLian | 15.218.121. | HP     |               | Not Applicable | 32                    | acclaim.ind. | 4               |
| acclaim_p1   |                        |         |             |        |               |                |                       |              |                 |
| acclaim_p1.  |                        |         |             |        |               |                |                       |              |                 |
| AEROX-W2     | Windows Server(R) 2008 | ProLian | 15.218.120. | HP     | 2UX61100KL    | Not Applicable | 9.94                  | aerox.ind.hj | 0               |
| agila_new    | Windows Server 2008 R2 | VMware  |             | VMware |               |                | 12                    |              | 0               |
| akadia.ind.h | ESX Server             | ProLian | 15.218.120. | HP     |               | Not Applicable | 64                    | akadia.ind.h | 16              |
| Akhilesh_ca  | Windows Server 2008 R2 | VMware  | 15.218.120. | VMware |               |                | 16                    | canyon.ind.  | 4               |
| Akhilesh_ov  | Windows Server 2008 R2 | VMware  | 15.218.120. | VMware |               |                | 15.89                 | ovevasw1.ir  | 4               |
| Akki_localV  | Windows Server 2008 R2 | VMware  |             | VMware |               |                | 4                     |              | 0               |
| Akki_VM      | Windows Server 2008 R2 | VMware  |             | VMware |               |                | 4                     |              | 0               |

## Create a Custom Report to Display all the Managed Hosts without Cluster Hosts

The following example illustrates the process of creating a custom report to display all managed hosts without cluster hosts.




### Before You Begin

To enable data collection, ensure that the following requirements are met:

- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

### Procedure

To create this report, follow these steps:

1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.



The **Universe** window appears.


- From the list of universes, click **SOM\_HostReporting Universe.unx**, and then click **Select**.

The **Query Panel** appears.


The **Universe outline** pane shows the dimensions and measures available for each object in the selected universe.

- From the **Universe outline** pane, expand the **SOM\_HostReporting\_Core > Host Logical Volume Capacity Statistics** class, and drag the following items to the panes on the right:

| Subclass   | Result Objects                      |
|--|-------------------------------------|
| Host Logical Volume(Host Logical Volume Capacity Statistics)             | Host Name                           |
| Host Logical Volume(Host Logical Volume Capacity Statistics) > Host Name | Model, IP Address, Vendor, DNS Name |
| Subclass   | Query Filters                       |
| Host Logical Volume(Host Logical Volume Capacity Statistics) > Host Name | Is Cluster?                         |

- From the **Is Cluster?** query filter list, select the **Equal to** comparison operator. Click  (**Define Filter type**), and then select **Value(s) from list**.

From the **List of Values** window, double-click **false**, and then click **OK**.

- Click  (**Run Query**) to generate the following report:

| Host Name      | Vendor       | IP Address    | Model         | DNS Name       | Is Cluster? |
|----------------|--------------|---------------|---------------|----------------|-------------|
| 0              | 0            | 0             | 0             | 0              | 0           |
| 15.218.125.21  |              | 15.218.125.21 |               | sedl096.ind.hp | false       |
| 15.218.125.71  |              | 15.218.125.71 |               | sebl020.ind.hp | false       |
| acclaim        |              | 15.218.121.14 |               | acclaim.ind.hp | false       |
| acclaim.ind.hp | HP           | 15.218.121.14 | ProLiant BL46 | acclaim.ind.hp | false       |
| acclaim_p1     |              |               |               |                | false       |
| acclaim_p1_5   |              |               |               |                | false       |
| AEROX-W2K      | HP           | 15.218.120.21 | ProLiant DL38 | aerox.ind.hp.c | false       |
| agila_new      | VMware, Inc. |               | VMware Virtu  |                | false       |
| akadia.ind.hp  | HP           | 15.218.120.11 | ProLiant DL58 | akadia.ind.hp  | false       |

# Create a Custom Report to Display the Connected Hosts and the External Storage Capacity

The following example illustrates the process of creating a custom report to display the connected hosts—through switch and LUN masking—and the allocated external storage capacity.




## Before You Begin

To enable data collection, ensure that the following requirements are met:


- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

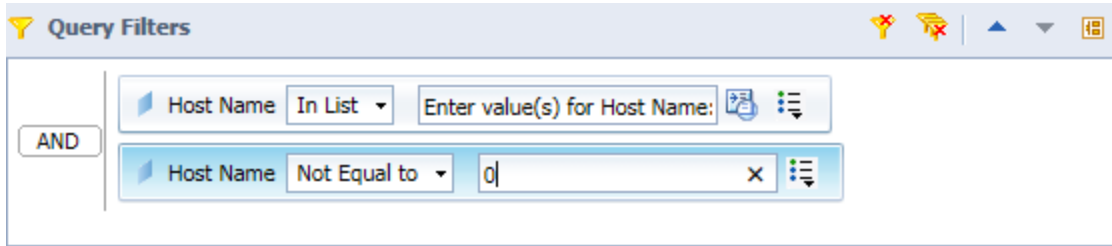
## Procedure


To create this report, follow these steps:


1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.  
The **Universe** window appears.
6. From the list of universes, click **SOM\_ConnectivityReporting Universe.unx**, and then click **Select**.  
The **Query Panel** appears.  
The **Universe outline** pane shows the dimensions and measures available for each object in the selected universe.
7. From the **Universe outline** pane, expand the **SOM\_ConnectivityReporting\_Core** and the **Supplemental** classes, and drag the following items to the **Result Objects** pane:

| Subclass                         | Result Objects                           |
|----------------------------------|--|
| Presented Storage Connectivity   | Storage System Name, Storage Volume Name |
| Supplemental > Presented Storage | Host Name, Volume Capacity (GiB)         |
| Subclass                         | Query Filters                            |
| Supplemental > Presented Storage | Host Name                                |

- From the **Host Name** query filter list, select the **In List** operator. Click  (**Define Filter type**) and select **Prompt** from the menu.
- From the **Result Objects** pane, drag the **Host name** object to the **Query Filters** pane. In the second query filter list, select the **Not Equal to** comparison operator, and specify the constant value as zero.



- Click  (**Run Query**) to generate the report.  
The **Prompts** window appears.
- In the **Prompts** window, select the Host names to add into the report and then click **OK**.

To see the list of Host names, click  (**Refresh Values**).

The **Prompts** window allows you to select the hosts for which the report is generated.

The following report is an example of the the hosts connected through switch and LUN masking with allocated external storage capacity:

| Host Name    | Storage System Name      | Storage Volume Name     | Volume Capacity (GiB) |
|--------------|--------------------------|-------------------------|-----------------------|
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:06:EE#          | 10                    |
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:06:EF#          | 10                    |
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:09:04           | 3.13                  |
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:09:6C           | 10                    |
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:09:6D           | 10                    |
| 15.213.64.26 | XP24000@15.213.66.4      | LDEV 00:09:6E           | 10                    |
| 15.213.9.10  | APM00120901261 (VNX5300) | SHR_CHO_LUN1_512 (thin) | 512                   |
| 15.213.9.5   | 000298701330 (VMAX10K)   | 00134 (thin)            | 16                    |
| 15.218.125.1 | XP24000@15.218.125.1     | LDEV 00:00:04           | 2                     |

## Create a Custom Report to Display the Performance for the Top HPE EVA Arrays

The following example illustrates the process of creating a custom report that displays the performance statistics for the top performing HPE EVA arrays.




### Before You Begin

To enable data collection, ensure that the following requirements are met:


- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.


## Procedure

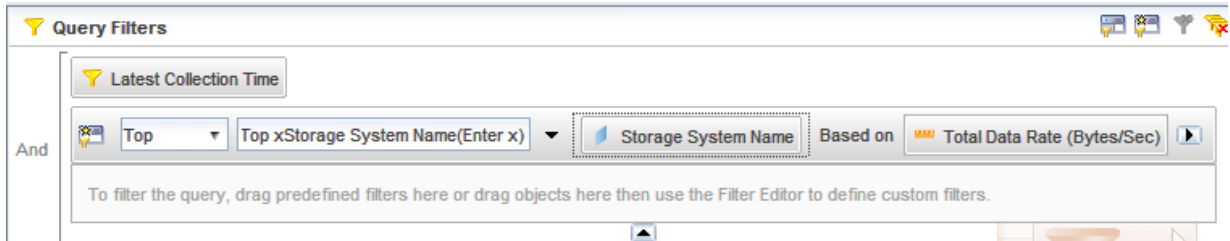
To create this report, follow these steps:



1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click  (**New**).  
The **Create a Document** window appears.
5. Select  (**Universe**), and then click **OK**.  
The **Universe** window appears.
6. From the list of universes, click **SOM\_EVAPerfReporting Universe.unx**, and then click **Select**.  
The **Query Panel** appears.  
The **Universe outline** pane displays the dimensions and measures available for each object in the selected universe.
7. From the **Universe outline** pane, expand the **SOM\_EVAPerfReporting\_Core** and the **Supplemental** classes, and drag the following items to the **Result Objects** pane:

| Subclass   | Result Objects                                   |
|--|--|
| EVA Storage System Performance Statistics > EVA Storage System Statistics(EVA Storage System Performance Statistics) | Storage System Name                              |
| EVA Storage System Performance Statistics > DATETIME(EVA Storage System Performance Statistics)                      | Full Date  |
| EVA Storage System Performance Statistics > Raw EVA Storage System Performance Statistics                            | Total I/O (Req/Sec), Total Data Rate (Bytes/Sec) |
| Subclass   | Query Filters                                    |
| EVA Storage System Performance Statistics > Raw EVA Storage System Performance Statistics                            | Latest Collection Time                           |

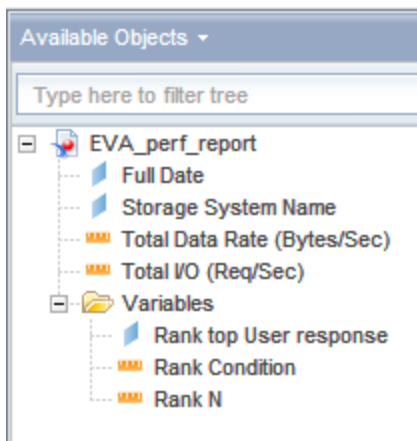
8. In the **Result Objects** pane, select the Storage System Name object, and then click  (**Add a database ranking**) in the **Query Filters** pane.  
The ranking dialog box appears in the **Query Filters** pane.

9. In the ranking dialog box, do the following:
  - a. Select Top from the menu to rank the top performing arrays.
  - b. Click the drop down arrow (▼) next to the box displaying the number of records to be ranked, and then select  (**Prompt**) from the menu.
  - c. Drag the Total Data Rate (Bytes/Sec) object from the **Result Objects** pane to the box "Drop a measure here" next to **Based on**.





10. Click  (**Run Query**) to generate the report.  
The **Prompts** window appears.
11. In the **Prompts** window, specify the number of records to be ranked and click **OK**.  
The Prompts window allows the user to select the number of records to be ranked.
12. From the **Available Objects** pane, right-click the **Variables** folder and then select  (**New Variable**) to create a new variable.
13. Create these variables using the following formulas:

| Variable Name          | Formula   | Qualification |
|------------------------|---|---------------|
| Rank top User response | =ToNumber(UserResponse("Top xStorage System Name (Enter x)")) | Dimension     |
| Rank N                 | =Rank([Total Data Rate (Bytes/Sec)];[Storage System Name])    | Measure       |
| Rank Condition         | =If [Rank N] <=[Rank top User response] Then 1 Else 0         | Measure       |



These variables help in ranking of the top performing EVA arrays.

14. Select the table in the report pane. In the Design mode, click the **Analysis** tab. In the **Analysis** tab, click the **Filters** tab. In the **Filters** tab, click **Filter > Add Filter**.
15. In the **Report Filter** window, click  (**Add Filter**).
16. In the **Available Objects** window, select the Rank Condition object. Click **OK**.
17. In the Rank Condition dialog box, select **Equal to** comparison operator from the menu. In the **Type a value** box, specify the value as "1" and click  to select the value. Click **Apply** to set the filter.
18. Select the **Total Data Rate** column in the table, click the **Analysis** tab, and then click the **Display** tab. Click **Sort > Descending**.

OBR arranges the records in the table in the descending order of total data rate.

The following is an example of top ten performance of HPE EVA arrays:

| Storage Syst | Full Date | Total Data Rate (Bytes/Sec) | Total I/O (Req/Sec) |
|--------------|-----------|-----------------------------|---------------------|
| CHALLENGE    | 9/6/16    | 78,013,017.02               | 872.93              |
| CHALLENGE    | 9/16/16   | 72,671,709.93               | 838.02              |
| CHALLENGE    | 8/26/16   | 43,183,388.74               | 238.13              |

## Create a Custom Report to Display the Storage Tier Information, Hosts, and Storage Volumes

The following example illustrates the process of creating a custom report that displays the storage tier information, hosts, and storage volumes for each storage pool.


### Before You Begin

To enable data collection, ensure that the following requirements are met:

- Port 5433 is open on the SOM reporting server.
- Lcore is configured to push data from the SOM server to the SOM reporting server.
- SOM discovers the relevant devices.

### Procedure

To create this report, follow these steps:

1. Go to **https://<OBR\_Server\_Name>:8443/BOE/BI**.  
The HPE OBR BI launch pad page appears.
2. Type the user credentials, and click **Log On**.  
The home page appears.
3. From the **My Applications** panel on the right, click  (**Web Intelligence**).  
The **Web Intelligence** page appears.
4. Click

 **(New)**.

The **Create a Document** window appears.

5. Select  **(Universe)**, and then click **OK**.

The **Universe** window appears.

6. From the list of universes, click **SOM\_ConnectivityReporting Universe.unx**, and then click **Select**.


The **Query Panel** appears.

The **Universe outline** pane displays the dimensions and measures available for each object in the selected universe.

7. From the **Universe outline** pane, expand the **SOM\_ConnectivityReporting\_Core** and the **Supplemental** classes, and drag the following items to the **Result Objects** pane:


| Subclass                         | Result Objects                           |
|----------------------------------|--|
| Presented Storage Connectivity   | Storage System Name, Storage Volume Name |
| Supplemental > Presented Storage | Host Name, HBA Port Name, HBA Port WWN   |
| Subclass                         | Query Filters                            |
| Supplemental > Presented Storage | Host Name                                |

8. From the **Host Name** query filter list, select the **In List** operator. Click  **(Define Filter type)** and select **Prompt** from the menu.

9. Click  **(Run Query)** to generate the report.

The **Prompts** window appears.

10. In the **Prompts** window, select the Host names to add into the report and then click **OK**.

To see the list of Host names, click  **(Refresh Values)**.

The **Prompts** window allows you to select the hosts for which the report is generated.

11. From the Reports panel, click  **(Edit)**.

The **Query Panel** appears.

12. To add a new query to the report, click **Add Query > From Universe**.

The **Add Query** window appears.

13. From the list of universes, select **SOM\_StorageSystemReporting Universe.unx** and then click **OK**.


The **Query Panel** appears.

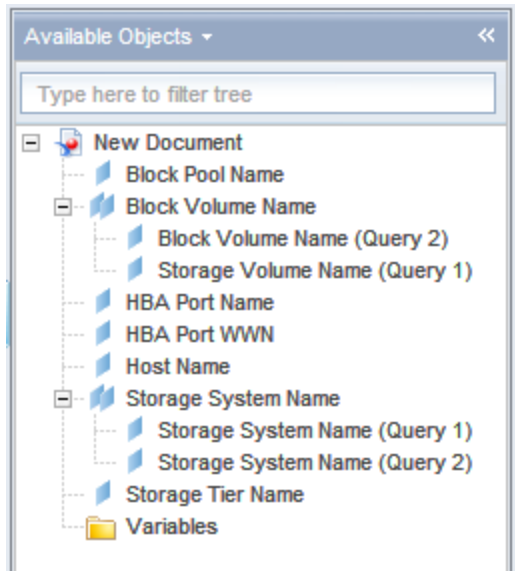
14. From the **Universe outline** pane, expand the **SOM\_StorageSystemReporting\_Core** class, and drag the following items to the panes on the right:


| Subclass         | Result Objects   |
|------------------|--|
| Tier Element Map | Storage System Name, Block Pool Name, Block Volume Name, Storage Tier name |

15. Click  **(Run Queries)** to generate the report.

The **Prompts** window appears.

16. In the **Prompts** window, select the Host names to add into the report and then click **OK**.  
The **Add Query** message window appears
17. Select the "**Include the result objects in the document without generating a table**" option, and then click **OK**. This option adds the new query to the existing report.  
The new report appears.
18. From the **Available Objects** pane, expand **New Document**. To select both the objects, select **Block Volume Name**, and then hold down the Ctrl key while you select **Storage Volume Name**. Right-click the selection and then select  (**Merge**).  
Both the objects are merged under **Block Volume Name**.
19. Repeat the same procedure to merge the **Storage System Name (Query 1)** and **Storage System Name (Query 2)**.  
Both the objects are merged under **Storage System Name**.  
The following image is an example of the merged objects in the **Available Objects** pane:

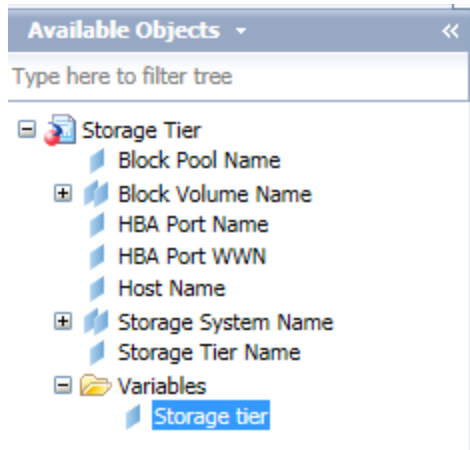


20. From the **Available Objects** pane, right-click the **Variables** folder and then select  (**New Variable**).  
The **Create Variable** window appears.
21. In the **Create Variable** window, specify the name of the variable in the **Name** box as "Storage tier", select **Dimension** in the **Qualification** menu, specify the following formula in the **Formula** box, and then click **OK**:  

```
=[Storage Tier Name] In ([Storage Volume Name];[Query 1].[Storage System Name])
```

  
OBR creates a new variable Storage tier under the **Variables** folder.





- From the **Available Objects** pane, drag the Storage tier variable to the report table to add the Storage tier column to the table.

The following report is an example of the Storage Tier Information, Hosts, and Storage Volumes:

| Storage System Name          | Storage Volume Name | Host Name | HBA Port Name    | HBA Port WWN     | Storage tier |
|------------------------------|---------------------|-----------|------------------|------------------|--------------|
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |
| DAS_Vplex_c1(FNM00122300173) | C1_Vol1_VMAX        | SEBL001   | Adapter 0 Port 0 | 50014380011cfe54 | Tier_2       |

# Chapter 12: Remove a Configured SOM Reporting Server from the SOM Management Server

The SOM management server transfers data to all configured SOM reporting server. To quit sending data from the SOM management server to any decommissioned SOM reporting server, remove that SOM reporting server from the SOM management server.

To remove a configured SOM reporting server from the SOM management server, run the following command on the SOM management server:

```
somdatatransfercertconfig.ovpl -removeremoteserver OBR_server
```

Replace *<OBR\_server>* with the IP address or fully qualified domain name of the SOM reporting server.

The above command does not remove the existing data from the SOM reporting server, it stops sending any new data to it.

# Chapter 13: Known Issues

- NAS Dependency Report shows incorrect data.
- Custom reports for SOM content packs show multiple value errors for reports.  
**Workaround:** In **Display** of table properties, select the **Yes** check-box for **Avoid duplicate row aggregation**.
- Standard reports for SOM content packs show both local and external unused storage disks.
- Standard reports for SOM content packs show same element repeatedly with different UUIDs when an element is discovered, data is collected to SOM reporting server; and then the same element is deleted and rediscovered.
- Standard reports for SOM content packs show random period range when **Use Custom Range** option is selected for **Select Date Range** prompt.  
**Workaround:** At the **Select Date Range** prompt, if you choose **Use Custom Range** option, provide the **Enter Start Date** and **Enter Stop Date** values to customize the period range of your report.
- Standard reports for SOM content packs show a breakage in the line graph if there are null values for any metric.
- Standard reports for SOM content packs do not show performance or capacity data for elements where data collection has not happened or is not possible.
- In the standard reports for SOM content packs, the Top 25 Thin Volumes report of HPE Storage Operations Manager Content Pack for Storage Systems is not showing 25 unique thin volumes.
- Switch Port input and output performance report shows some random report period range when the **Use Custom Range** option is selected for Date Range.
- Drill-down reports cannot be viewed in PDF format.
- In some of the OBR Web reports, the coordinates of the Y-axis get repeated.
- OBR shows multiple records of an element that is managed in multiple CMS with a custom name set in one CMS. To override viewing duplicate data, set a common custom name (Properties page) to the element in all the CMS where the element is managed.
- In the SOM Host Reporting Universe, the OLAP statistics consider all the volumes of a Host. The custom report that is generated sums up individual volume capacities and hence displays incorrect OLAP statistics for Hosts with ZFS volumes. You can refer to the standard report and exclude the ZFS volumes at the host or CMS level.
- In the SOM Host Reporting Universe, the Host Capacity Report, does not display capacity details of host clusters that do not have OS details.
- In the SOM Host Reporting Universe, the Host capacity list of objects address the file systems only and hence data for raw volumes is not shown.
- The standard report for Switch Port Utilization might not load in HTML view if you are using Firefox. If you encounter this problem, you can view the page using a different web browser.
- On importing the BIAR files, the custom reports for SOM content packs show an error message that some objects are missing in the universe.  
**Workaround:** Go to **Data Access** tab and click **Edit**; the Query Panel opens. Remove all the objects from the query panel and add the same objects back to the query.

- OBR inserts '0' as a default record in each table in the standard or custom reports for any SOM content packs. Users can ignore this if it listed as a part of prompts.
- To view the relationship between the parent and child incidents in custom reports for SOM content packs, select all the child events from the **Supplemental** folder along with Correlation Nature, Correlated Children UUID, and Correlated Parents UUID.
- In SOM Host Multipathing report, the values for the all filters are displayed as 0.  
**Workaround Note:** Click **Refresh List** to populate values in the filters.
- OBR displays the following error when you execute a custom or a standard report for SOM content packs:  
An internal error occurred while calling `getsessioninfosEX API`.  
**Workaround Note:** This is an issue specific to BO. Log off and then log on again to BI Launch Pad or restart the BO services to resolve this issue.
- In the SOM Host Reporting Universe, the Host disk drive custom report, does not show any data when the disk drive name with the following pattern is applied as a filter:  
`\\.\PHYSICALDRIVE0`  
**Workaround Note:** This issue is because the BO eliminates the `\\` string in the disk drive name applied in filter. Do not use **equal to** or **Inlist** condition, use **Match Pattern** condition in Query filters.
- In standard or custom reports for SOM content packs, OBR displays information for the columns where you can drill down/up or use reset dependencies string only in English (it is not locale-specific).
- In standard or custom reports for SOM content packs, OBR displays the date/time on X-axis only in English only (it is not locale-specific).
- In the SOM Storage System Universe, the Block Pool Capacity Statistics report, displays an additional pool for storage devices. All extra pools shown in the reports are primordial pools. However, users can filter the pools to meet their requirements.
- When multiple SOM servers are integrated to a single OBR, the reports might display the same element for multiple SOM servers. This could result in an incorrect aggregated capacity in the report.  
**Workaround Note:** In the report, include the SOM server name and the element UUID, so that the report displays the values collected by each SOM server.  
OR  
Delete the element from one of the SOM server.
- If the node group object is used while creating reports in the HPE Storage Operations Manager Content Pack for NetApp C-Mode Performance Statistics reporting universe, OBR does not display the File Logical Volume details for nodes and vservers.
- In the custom reports for SOM content packs, the OBR displays the shares of vfilers as the shares of the Physical node.  
Example: If a physical node has two vfilers, the OBR displays the shares of both the physical node and vfilers in the physical node shares.
- Users are unable to generate the reports when the Server Memory Full pop-up message appears while generating the reports in OBR.  
**Workaround Note:** Increase the default memory settings on BO.
- Unable to launch the OBR BO.  
**Workaround Note:** Users cannot launch the OBR BO when the tomcat service is not running. Start the tomcat service, and then launch the OBR BO.
- OBR installation in GUI mode is not supported.

# Send Documentation Feedback

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on Reports Guide (Storage Operations Manager 10.20)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to [storage-management-doc-feedback@hpe.com](mailto:storage-management-doc-feedback@hpe.com).

We appreciate your feedback!