HP Storage Operations Manager

Software Version: 10.00
Linux® operating system

Storage Resource Management Reports Guide

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Software Release Date: March 2015

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Acknowledgements

This product includes software developed by the Apache Software Foundation.
(http://www.apache.org)

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(http://www.extreme.indiana.edu)

This product uses the j-Interop library to interoperate with COM servers.
(http://www.j-interop.org)

Documentation Updates

The title page of this document contains the following identifying information:

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Contents

Chapter 1: Introduction

The HP Storage Operations Manager (SOM) content packs for HP Service Health Reporter (SHR) 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.

HP Storage Operations Manager Content Packs

HP Storage Operations Manager provides the following content packs:

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 *HP Service Health 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.

HP Storage Operations Management Common Content Pack

The HP Storage Operations Management 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 listed as follows:

- Assets
- Node groups

For more information, see the *HP Storage Operations Management Common Content Pack Universe Reference.*

HP Storage Operations Management Content Pack for End-to-End Connectivity

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

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

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

For more information, see the *HP Storage Operations Management Content Pack for End-to-End Connectivity Universe Reference.*

HP Storage Operations Management Content Pack for Switches

The HP Storage Operations Management 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 objects in the switches reporting universe are listed as follows:

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

For more information, see the *HP Storage Operations Management Content Pack for Switches Universe Reference.*

HP Storage Operations Management Content Pack for Hosts

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

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

- Host Disk Partitions
- Host Multipathing
- Host Volume Management
- HBA Target Port
- Host Processor
- 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 *HP Storage Operations Management Content Pack for Hosts Universe Reference*.

HP Storage Operations Management Content Pack for Storage Systems

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

The list of objects in the storage systems reporting universe are listed 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 *HP Storage Operations Management Content Pack for Storage Systems Universe Reference.*

HP Storage Operations Management Content Pack for HP 3PAR Performance Statistics

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

The list of objects in the HP 3PAR performance reporting universe are listed as follows:

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

For more information, see the *HP Storage Operations Management Content Pack for HP 3PAR Performance Statistics Universe Reference.*

HP Storage Operations Management Content Pack for HP EVA Performance Statistics

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

The list of objects in the HP Storage Operations Management Content Pack for HP EVA Performance Statistics performance reporting universe are listed 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 *HP Storage Operations Management Content Pack for HP EVA Performance Statistics Universe Reference.*

HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics

The HP Storage Operations Management 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.

The list of objects in the HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics reporting universe are listed 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 *HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics Universe Reference.*

HP Storage Operations Management Content Pack for EMC DMX Performance Statistics

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

The list of objects in the HP Storage Operations Management Content Pack for EMC DMX Performance Statistics performance reporting universe are listed 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 *HP Storage Operations Management Content Pack for EMC DMX Performance Statistics Universe Reference.*

Prerequisites to using the HP Storage Operations Manager Content Packs

Before you install an SOM content pack, HP Service Health Reporter (SHR) must be installed and configured. For the supported SHR version, see the *SOM Support Matrix*.

SHR must be installed on a separate server from the SOM management server. Following are the prerequisites you need to perform before installing an SOM content pack:

1. Install SHR using the instructions in the *HP Service Health Reporter Interactive Installation Guide*.

   The Installation Guide is available as a compressed file, `SHR_9.40_Interactive_Installation.zip`, in the `Documentation/en_US` directory, after you extract the SHR `.tar` installer file.

   To view the Installation Guide, open the `SHR_Interactive_Installation.htm` file after extracting the `SHR_9.40_Interactive_Installation.zip` file.

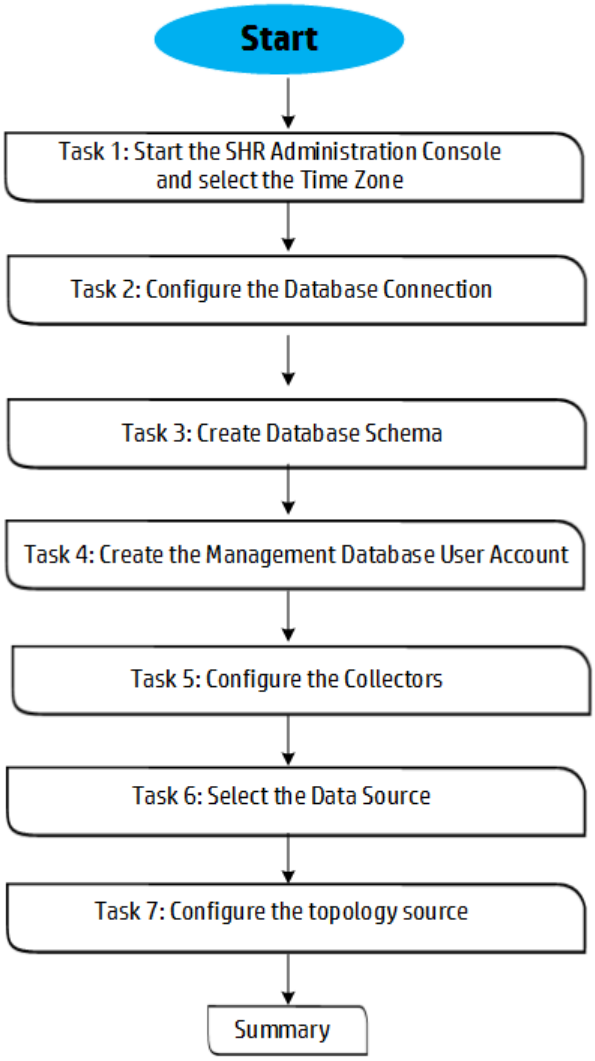
2. Post installation, SHR must be configured for SOM. Read the "Post-Installation Configuration of HP Service Health Reporter (SHR)" on page 13

Chapter 2: Post-Installation Configuration of HP Service Health Reporter (SHR)

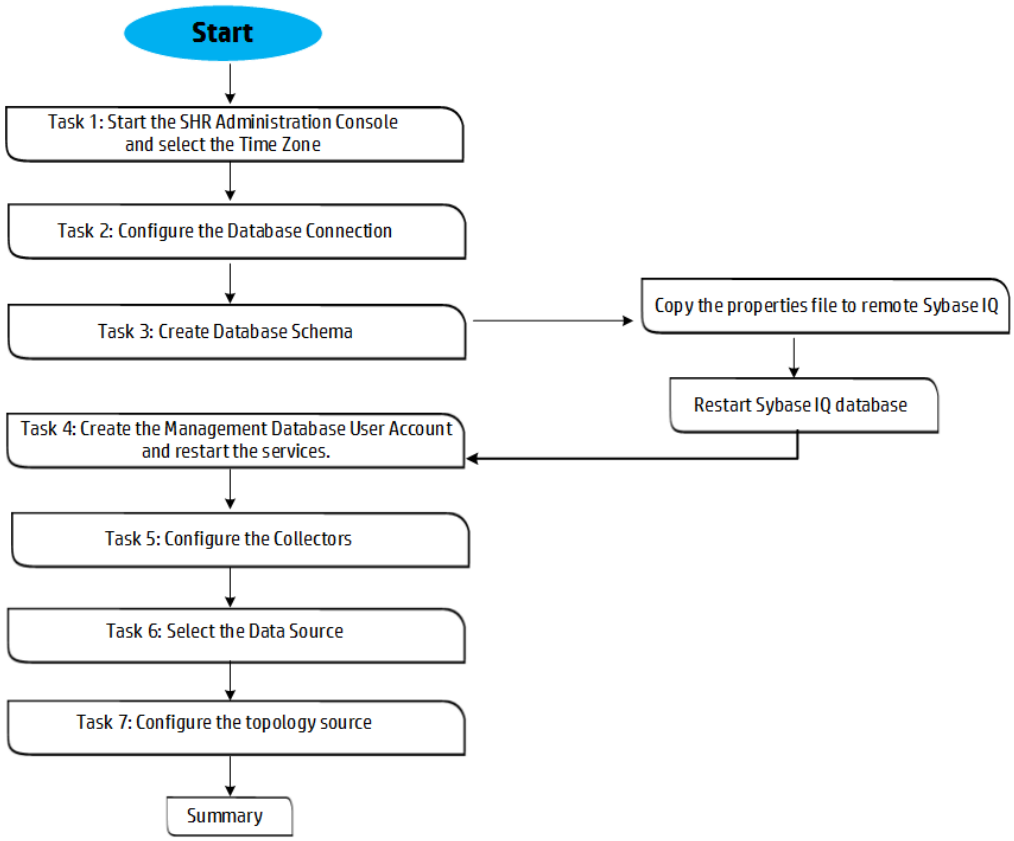
You must perform all the post-installation configuration tasks described in this chapter immediately after installing HP Service Health Reporter (SHR) 9.40 and before installing the SOM content packs through the Deployment Manager.

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

The following flowchart gives you an overview of the post-install tasks for SHR with embedded Sybase IQ database.



The following flowchart gives you an overview of the post-install or post upgrade tasks for SHR with remote Sybase IQ database.



Task 1: Launching the Administration Console

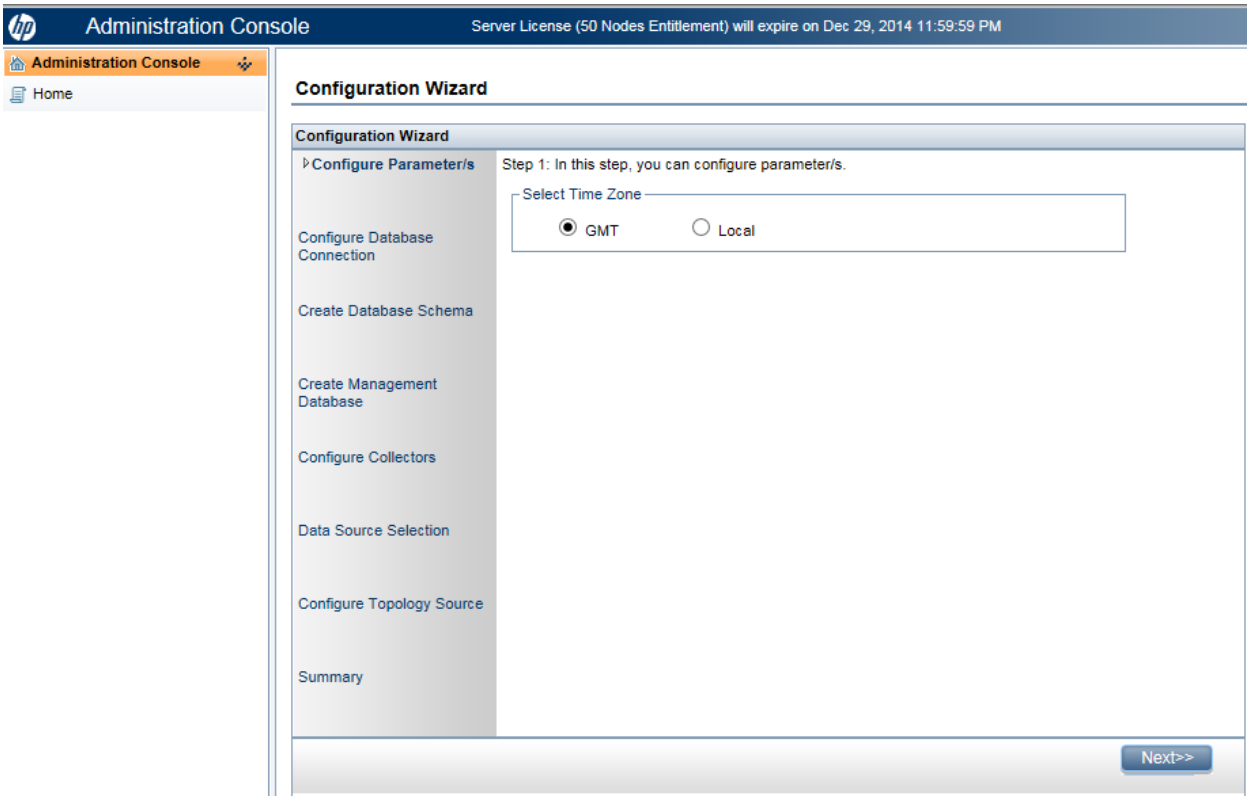
1. Launch the Administration Console in a web browser using the following URL:

   `http://<SHR_Server_FQDN>:21411`

2. Type **administrator** in the Login Name field and click **Log In** to continue. The Home page opens.

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

   The following SHR 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.



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

   Under Select HP Service Health Reporter Time Zone, perform any one of the following steps:

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

   > **Note:** The time zone that you select here applies to the SHR system and reports. However, the run-time information for processes like collection and workflow streams is always based on local timezone irrespective of selection.

4. Click **Next**. The Configure Database Connection page opens.

Task 2: Configure the Database Connection

On the Configure Database Connection page, provide the details of the database server where you want to create a database for SHR.

To configure a database connection, follow these steps:

1. On the Configure Database Connection page, select **Remote Database** if SHR is installed with remote Sybase IQ. Else, proceed to the next step.
2. Under **Enter Database Connection Parameter**, type the following values:

Field	Description
Host name	Name or IP address of the host where the Sybase IQ database server is running.
Port	Port number to query the database server. The default port is 21424 .
Server name	Name of the Sybase IQ server. Ensure that the Sybase IQ server name is unique across the subnet. The server name displayed in this field is only for informational purposes. You must not change the server name at any time.

3. Under **Enter Database User (DBA Privilege) and Password**, type the following values:

Field	Description
User name	Name of the Sybase IQ database user. The user must have DBA privileges. The default user name is **`dba`**.
Password	Password of the database user. The default password is **`sql`**. It is recommended that you change the default password before proceeding with the post-install configuration tasks. To change the password, see the documentation of SAP Sybase IQ available at the following URL: http://infocenter.sybase.com

4. Under **Enter Password For PMDB Database User**, type the following values:

Field	Description
Admin Password	Password of the PMDB database administrator.
Confirm Admin Password	Retype the same password to confirm it.

5. Click **Next**. The Create Database Schema page opens.

Task 3: Creating the Database Schema

On the Create Database Schema page, specify the database deployment size, that is, the number of nodes from which SHR will collect data. Based on your selection, SHR calculates and displays the recommended database size.

Creating Database Schema for Embedded Sybase

To create the database schema for Sybase IQ database embedded with SHR, follow these:

1. Under Select Deployment Size, select one of the following data volumes based on your requirements.

Field	Description
Small	This option enables SHR to support data collection from less than 8000 elements.
Medium Volume	This option enables SHR to support data collection from 8000 to 16000 elements.
Large	This option enables SHR to support data collection from more than 16000 elements.

2. Under Recommended IQ Configuration, type the following values:

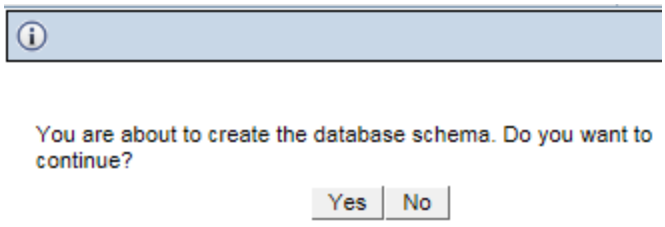
Field	Description
IQ Main Cache (MB)	The recommended size of the main buffer cache for the Sybase IQ main store. This value is set by default.
IQ Temporary Cache (MB)	The recommended size of the temporary buffer size for the Sybase IQ temporary store. This value is set by default.
IQ DBSpace Size (MB)	The recommended size for the IQ_System_Main dbspace, which stores the main database files. This size can be modified.
IQ Temporary DBSpace Size (MB)	The recommended size for the IQ_System_Temp dbspace, which stores the temporary database files. This size can be modified.

3. In the Database File Location field, type the location where the database files will be stored.

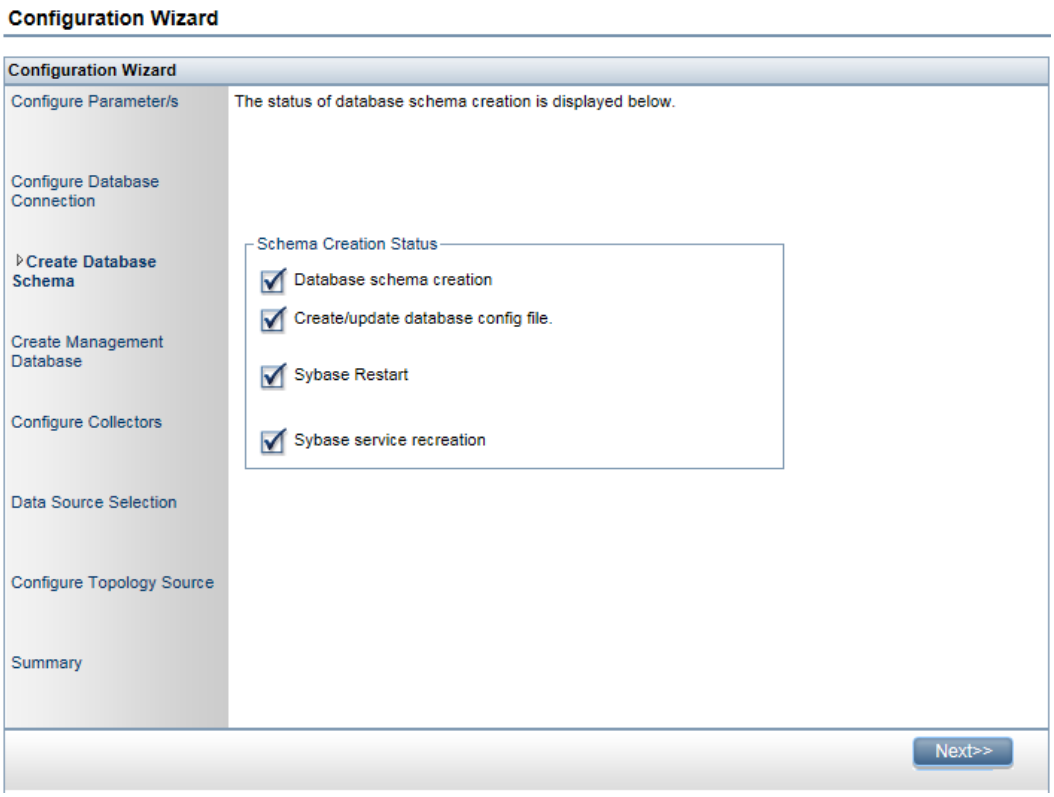
   Example, for Linux `/opt/HP/BSM/Sybase/db`.

   Caution: Ensure that you have sufficient system resources to support the SHR data collection volume that you select. For information about the resource requirements for the selected volume, see the *HP Service Health Reporter Support Matrix*.

   a. Click **Next**. A confirmation dialog box opens.

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



c. Click **Next** to continue.

d. If the database connection and schema creation fails, click the **Previous** button to check the values provided.

Task 4: Creating the Management Database User Account

The management database refers to the Online Transaction Processing (OLTP) store used by SHR 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:

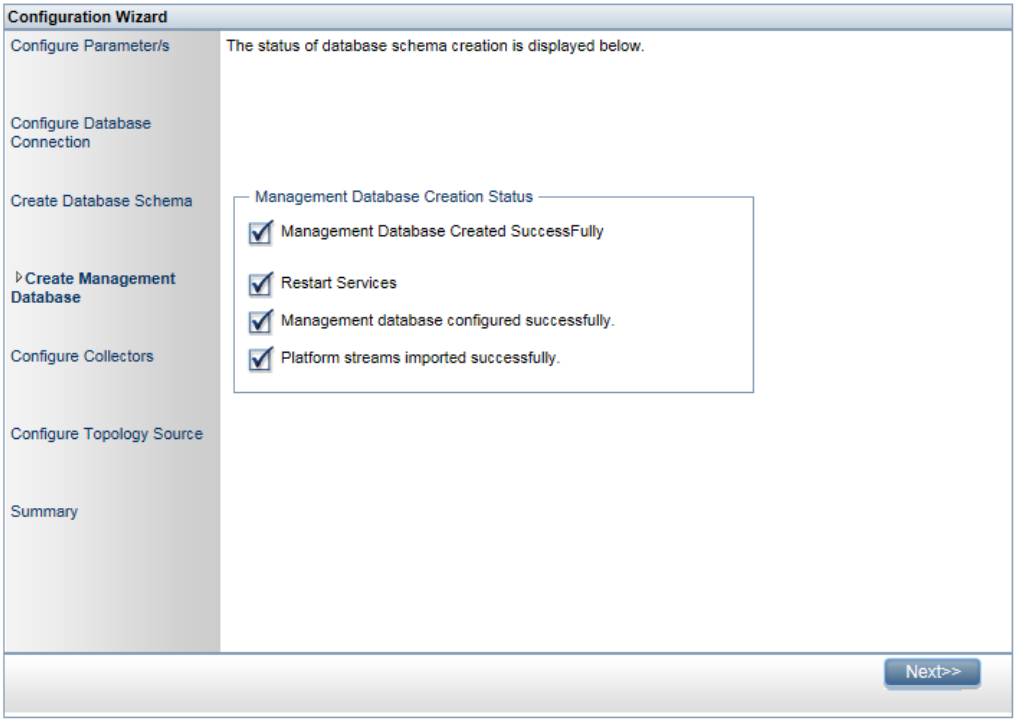
1. Under Enter Management Database User (DBA Privilege) and Password, type the following values:

Field	Description
User name	Name of the PostgreSQL database administrator. The default value is *postgres*.
Password	Password of the PostgreSQL database administrator. The default is *PMDB92_admin@hp*.

2. Under Enter SHR Management Database User Information, type the following values if you want to change the password of the management database user:

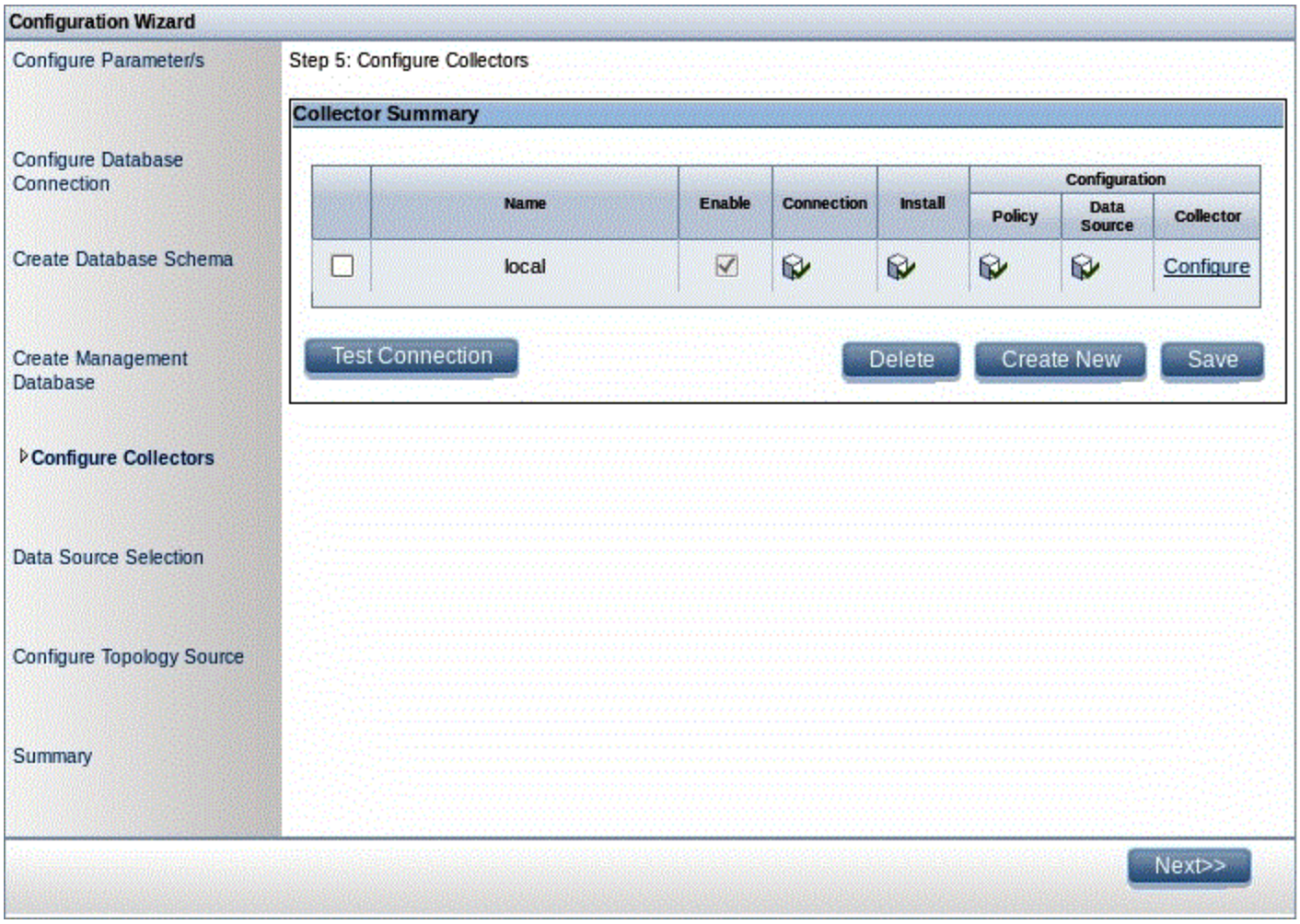
Field	Description
User name	Name of the management database user. The default value is *pmdb_admin*.
New Password	Password of the management database user.
Confirm New Password	Retype the same password to confirm it.

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.



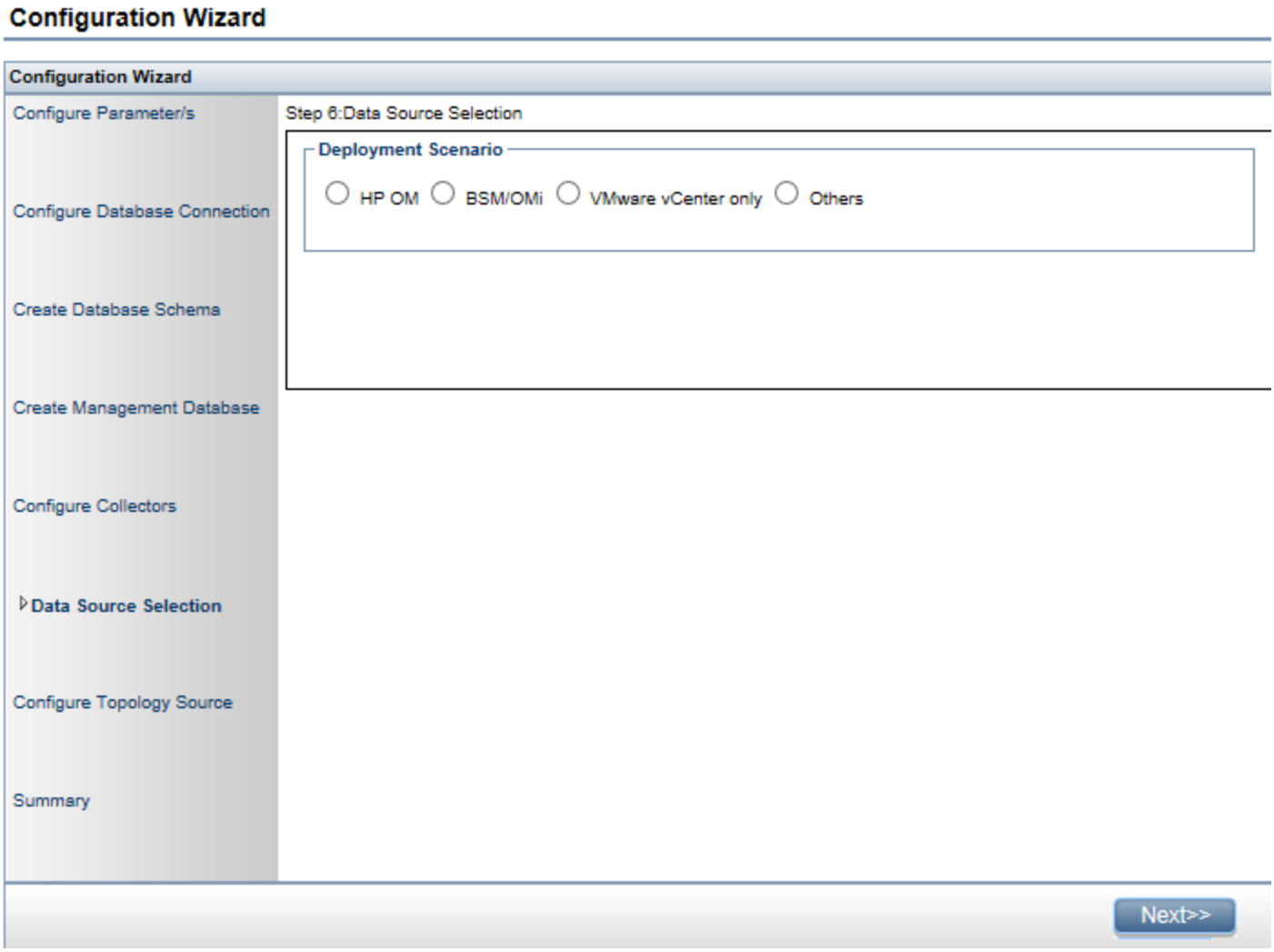
Task 5: Configuring the Collectors Installed on Remote Systems

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



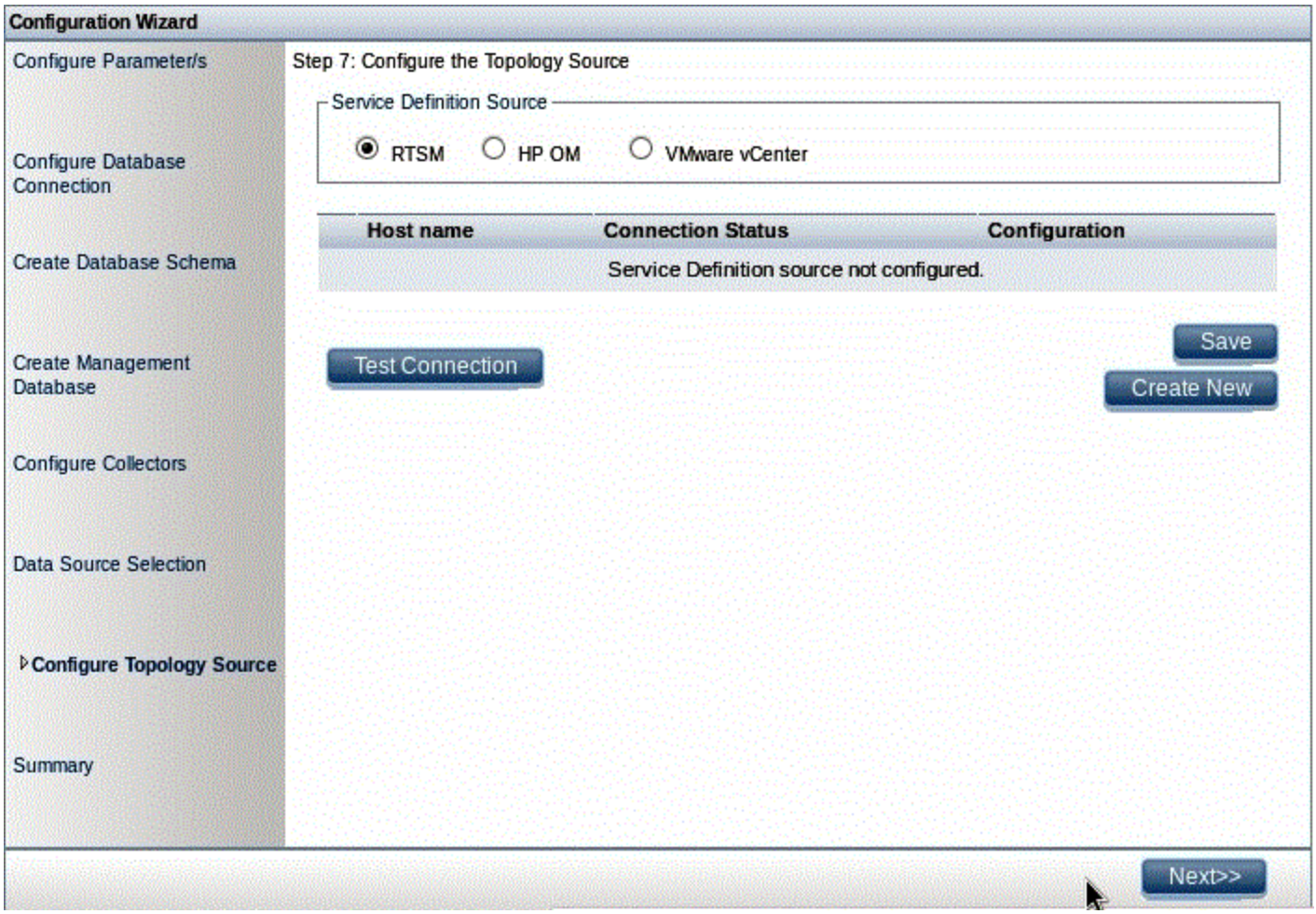
Task 6: Selecting the Data Source

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



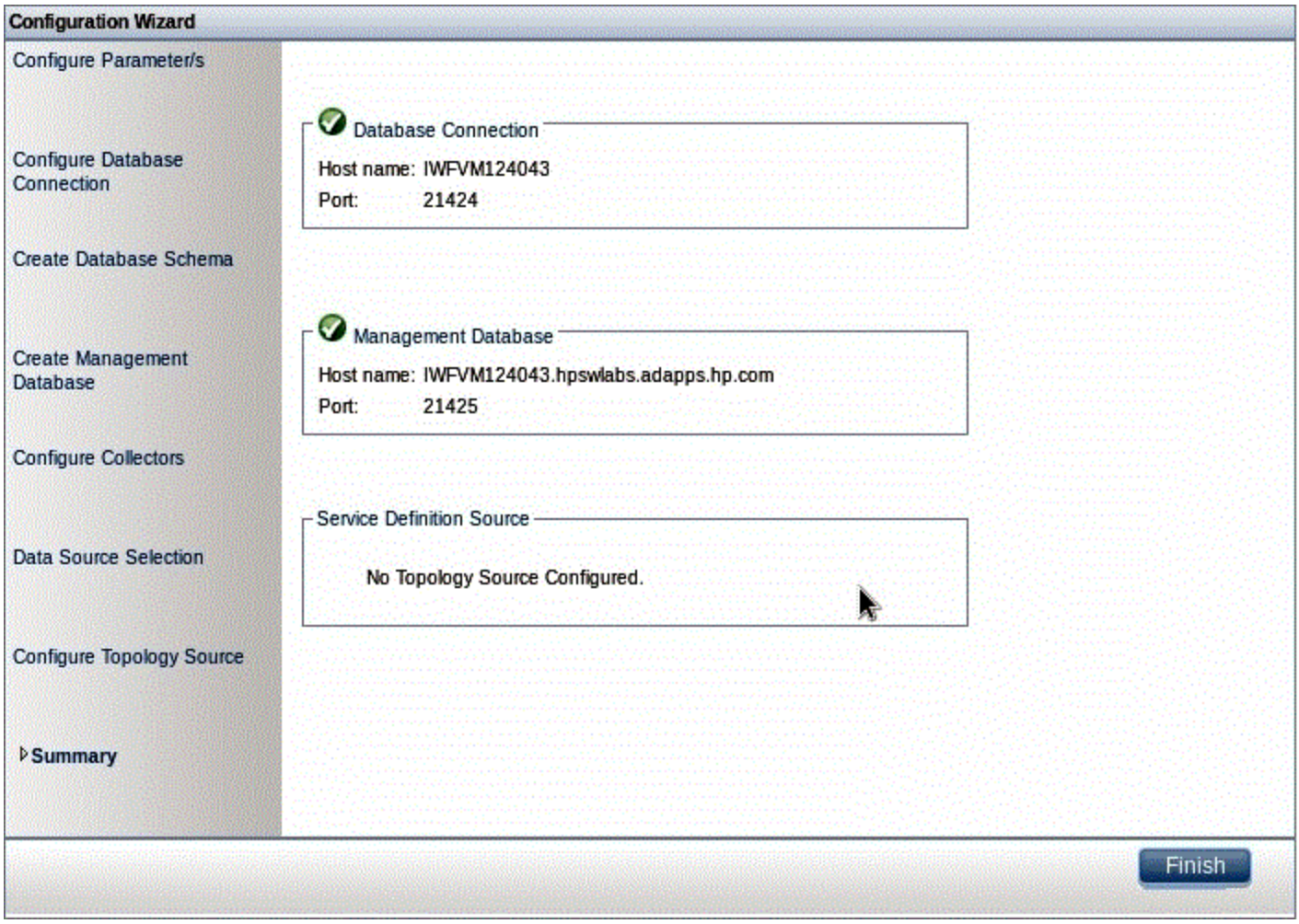
Task 7: Configuring the Topology Source

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



Task 8: Summary

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



Task 9: Installation of the SHR Hotfix for SOM

You must apply an SHR hotfix as part of enabling SOM as a data source to SHR.

Obtain the SOM-specific SHR hotfix from Support, and then follow the provided installation instructions.

Chapter 3: Installing SOM Content Packs

This section provides information about installing and uninstalling SOM content packs on SOM reporting servers.

Installation Package

The installation package of SOM content packs contains a `.rpm` installer file for Linux machines. Go to the location where you have copied and extracted HP Storage Operations Manager `.tar` file and open the **contentpack** folder. It contains the following `.rpm` installer file for SOM content packs:

HPSOMSHR-<version_number>-Linux2.6_64.rpm

For example, the installer file for HP Storage Operations Manager 10.00 is as follows:

HPSOMSHR-10.00.000-Linux2.6_64.rpm

The installer file for the SOM content pack consists of three components. These following components must be deployed on the SOM reporting server after installation:

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

Installing SOM Content Packs

You can install the SOM content packs on the SOM reporting server. Follow the steps to install the SOM content packs:

1. Copy the `.rpm` installer file mentioned above to a temporary directory.
2. Run the following command:

```
rpm -ivh HPSOMSHR-<version_number>-Linux2.6_64.rpm
```

For example, to install HP Storage Operations Manager 10.00, run the following command:

```
rpm -ivh -HPSOMSHR-10.00.000-Linux2.6_64.rpm
```

3. Deploy the individual components of the content pack as described in "Deploying the Components of the SOM Content Packs" on page 29

Uninstalling SOM Content Packs

You can uninstall the SOM content packs from the SOM reporting server. Follow the steps to uninstall the SOM content packs :

1. Run the following command to uninstall the content pack:

```
rpm -e HPSOMSHR-<version_number>-1.x86_64
```

For example, to uninstall HP Storage Operations Manager 10.00, run the following command:

```
rpm -e HPSOMSHR-10.00.000-1.x86_64
```

Chapter 4: Deploying the Components of the SOM Content Packs

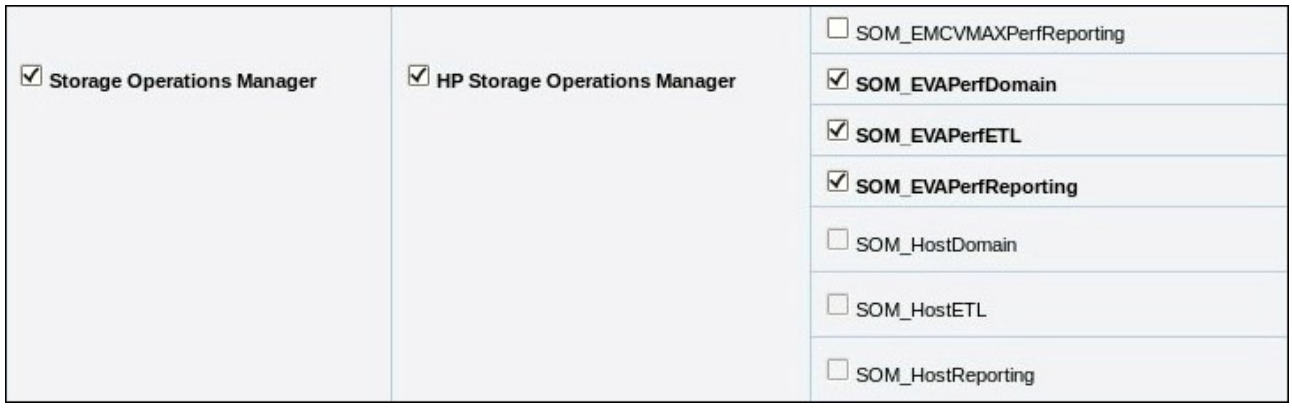
The Deployment Manager utility in the Administration console can be used to deploy the SOM Content Pack components such as Domain, ETL, and Reporting.

To deploy the components follow the steps:

1. Launch the SHR Administration Console using one of the following options:
   - Launch the following URL:

     http://<*SHR_Server_FQDN*>:21411/BSMRApp
2. Login as an administrator,
   - Type **administrator** in the **Login Name**.
   - Leave **Password** as blank.
   - Click on **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 you want to deploy.

   For example, to deploy HP Storage Operations Management Content Pack for HP EVA Performance Statistics you have to select the SOM_EVAPerfDomain, the SOM_EVAPerfETL, and the SOM_EVAPerfReporting components. The following screenshot illustrates the selection of the HP Storage Operations Management Content Pack for HP EVA Performance Statistics components:



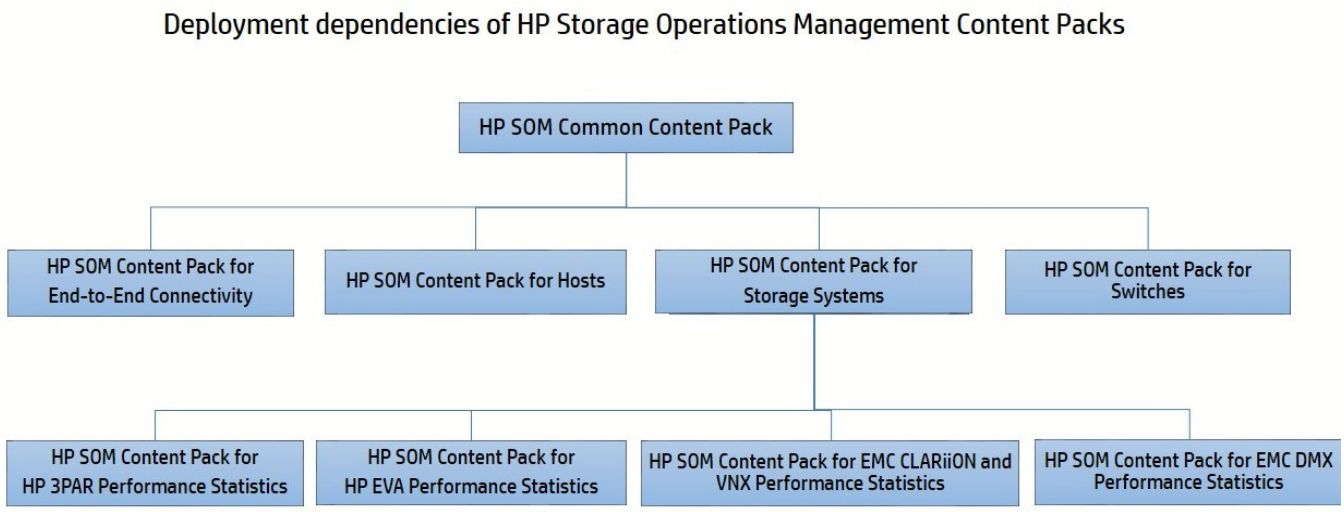
Note:

- 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 HP Storage Operations Manager Content Packs.



Removing the Components of the SOM Content Packs

Follow the steps to remove the components of the SOM Content Packs:

1. In the Deployment Manager page, click on the icon in the **Remove** column beside each component to uninstall the specific component.
2. 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: Uninstallation of Storage System Content Pack will remove Connectivity Reporting Content Pack.

Chapter 5: Configuring Connections Between the SOM Management Server and the SOM Reporting Server

Note: If the HP Operations agent is or will be installed on the SOM management server, see "Configuring Connections Between the SOM Management Server and the SOM Reporting Server with HPOM as the Certificate Authority" on page 36.

To transfer files between SOM management server and SOM reporting server, you must configure certificates on the server where SOM is installed. The SOM reporting server acts as the Certificate Authority (CA) and generates the certificates for the requesting SOM management server. On receiving request from the SOM management server, the SOM reporting server grants the certificates and exports them to the requesting SOM management server.

To generate and configure certificates you must perform the following tasks both on the SOM management server and SOM reporting server.

"Task 1: Request Certificate from SOM Management server to SOM Reporting server" below

"Task 2: Grant Certificate to the SOM management server" on the next page

"Task 3: Perform a Test File Transfer to Verify the Certification Configuration" on page 34

"Task 4: Verify That the Test File is Present " on page 34

Task 1: Request Certificate from SOM Management server to SOM Reporting server

(***Steps to be performed on the SOM management server***)

To request for certificates, perform the following steps on the server where SOM is installed:

1. Start the OVC service with the ovc-start command.
   `<SOM_Install_dir>/opt/OV/bin/ovc -start`

2. Delete any existing certificates configured on the SOM server and request for a new certificate using the somdatatransfercertconfig.ovpl script.
   For example,

   ```
   somdatatransfercertconfig.ovpl -certserver <SHR IP or SHR FQDN>
   ```

   where `certserver` is the SOM reporting server to which the SOM management server must transfer the data.

3. Specify the SOM reporting server and the folder on the SOM reporting server to which SOM management server will transfer the data.
   For example,

   ```
   somdatatransfercertconfig.ovpl –remoteserver <SHR IP or SHR FQDN> -remotefolder /opt/HP/BSM/PMDB/extract
   ```

   where *<SHR IP or SHR FQDN>* is the SOM reporting server and `/opt/HP/BSM/PMDB/extract` is the folder on the SOM reporting server where the data will be transferred.

4. Restart the SOM jboss server using the following commands:

   ```
   ovstop –c somjboss

   ovstart –c somjboss

   ovstatus –c somjboss
   ```

Task 2: Grant Certificate to the SOM management server

(***Steps to be performed on the SOM reporting server***)

To grant certificates, perform the following steps on the SOM management server where SHR is installed:

1. Copy the script `somshrgrantcertrequest.ovpl` from the following location on the SOM server `<SOM_installation_folder>/bin` to the installed directory folder on the SOM reporting server.

2. Grant a signed certificate to the requesting SOM management server using the following command:
   `./somshrgrantcertrequest.ovpl -reqserver <SOM_FQDN>`

   where `<SOM_FQDN>` is the requesting SOM server.

   Note: Perl script runs by default.

3. Configure the data source server to enable the destination SOM reporting server to receive data that is transferred from the SOM server using the following command:
   `./somshrgrantcertrequest.ovpl -datasource <SOM_FQDN>`

   where `<SOM_FQDN>` is the SOM server.

   Note: To integrate more than one SOM server to the SOM reporting server, run the command `./somshrgrantcertrequest.ovpl -datasource <SOM1_FQDN> <SOM2_FQDN> <SOM3_FQDN>` and so on.

Task 3: Perform a Test File Transfer to Verify the Certification Configuration

(***On the SOM management server***)

Run the following command to send a test file to a folder, for example `/opt/HP/BSM/PMDB/collect` on the SOM reporting server.

```
/opt/OV/bin>./somdatatransfercertconfig.ovpl -testtransfer
```

This will transfer the `test_transfer_from_<SOM_SERVER_NAME>.txt` to the configured folder, for example `/opt/HP/BSM/PMDB/collect` on the SOM reporting server.

Task 4: Verify That the Test File is Present

(***On the SOM reporting server***)

Verify that the test file is physically present in the configured folder on the SOM reporting server. To do this, navigate to the directory that you configured for file transfer, for example `/opt/HP/BSM/PMDB/collect` and verify that the file is present in the directory.

Chapter 6: Configuring Connections Between the SOM Management Server and the SOM Reporting Server with HPOM as the Certificate Authority

If the HP Operations agent is or will be installed on the SOM management server, read this section. The steps in this section take the place of those in "Configuring Connections Between the SOM Management Server and the SOM Reporting Server" on page 32.

HP Service Health Reporter (SHR) and HP Operations Manager (HPOM) can each act as a certificate authority for SOM and the HP Operations agent. This section describes how to configure the HPOM server to be the primary certificate authority for SOM, the HP Operations agent, and SHR (the SOM reporting server).

Task 1: Connect the SOM management server to the HPOM server

1. On the SOM management server, install the HP Operations agent.

   The certificate request from the HP Operations agent does not automatically reach the HPOM server.

2. Configure SOM to use the HP OM server as its certificate authority.

   a. On the SOM management server, run the following command:

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

   b. On the HPOM server, grant the certificate request.

3. To verify communication between the SOM management server and the HPOM server, send a test message from the HP Operations agent.

   For example:

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

Task 2: Connect the SHR server to the HPOM server

1. On the SHR server, install the HP Operations agent.

   The certificate request from the HP Operations agent does not automatically reach the HPOM server.

2. On the SHR server, list the certificates installed by running the following command:

   ```
   ovcert -list
   ```

   Expected output is of the following form:

   ```
   Keystore Content
   Certificates:
       8af446b2-7d86-755f-10fb-fde7b4412ff7 (*)
   Trusted Certificates:
        CA_8af446b2-7d86-755f-10fb-fde7b4412ff7_2048
   Keystore Content (OVRG: server)
   Certificates:
       8af446b2-7d86-755f-10fb-fde7b4412ff7 (*)
   Trusted Certificates:
        CA_8af446b2-7d86-755f-10fb-fde7b4412ff7_2048
   ```

3. On the SHR server, remove the existing certificates from the certificates list.

   a. Copy the certificate key without the (*) from the Certificates section of the `ovcert -list` output.

      For example: `8af446b2-7d86-755f-10fb-fde7b4412ff7`

   b. Run the following command:

      ```
      ovcert -remove <certificate_key_copied_in_the_previous_step>
      ```

      For example:

      ```
      ovcert -remove 8af446b2-7d86-755f-10fb-fde7b4412ff7
      ```

   c. Copy the certificate key from the Trusted Certificates section of the `ovcert -list` output.

      For example: `CA_8af446b2-7d86-755f-10fb-fde7b4412ff7_2048`

d. Run the following command:

```
ovcert -remove <certificate_key_copied_in_the_previous_step>
```

For example:

```
ovcert -remove CA_8af446b2-7d86-755f-10fb-fde7b4412ff7_2048
```

4. Activate the HP Operations agent against the HPOM server.
5. On the HPOM server, add the SHR node, and then accept its certificate request.

Task 3: Connect the SOM management server to the SHR server

1. On the SOM management server, configure the
   a. Start the OVC service by running the following command:

```
<SomInstallDir>/opt/OV/bin/ovc -start
```

   b. Specify the SOM reporting server and the folder on the SOM reporting server to which SOM management server will transfer the data.

   For example:

```
somdatatransfercertconfig.ovpl –remoteserver <SHR IP or SHR FQDN> -remotefolder /opt/HP/BSM/PMDB/extract
```

   where *<SHR IP or SHR FQDN>* is the SOM reporting server and `/opt/HP/BSM/PMDB/extract` is the folder on the SOM reporting server to receive the transferred data.

   c. Restart the SOM jboss server by running the following commands:

```
ovstop –c somjboss
ovstart –c somjboss
ovstatus –c somjboss
```

2. Configure the SOM reporting server to use the SOM management server as a data source.
   a. Copy the script `somshrgrantcertrequest.ovpl` from the following location on the SOM management server `<SomInstallDir>/bin` to the installed directory folder on the SOM reporting server.

b. Configure the data source server to enable the destination SOM reporting server to receive data that is transferred from the SOM server by running the following command:

```
somshrgrantcertrequest.ovpl -datasource <SOM_FQDN>
```

where *<SOM_FQDN>* is the SOM management server.

Note: To integrate more than one SOM server to the SOM reporting server, run the command `./somshrgrantcertrequest.ovpl -datasource <SOM1_FQDN> <SOM2_FQDN> <SOM3_FQDN>` and so on.

3. Verify communication between the SOM management server and the SHR server.

a. On the SOM management server, send a test message by running the following command:

```
somdatatransfercertconfig.ovpl –testtransfer
```

b. On the SOM reporting server, change to the directory that you configured for file transfer, for example `/opt/HP/BSM/PMDB/collect` and verify that the `test_transfer_from_<SOM_SERVER_NAME>.txt` file is present in the directory.

Chapter 7: 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:

1. Launch the SHR Administration Console using one of the following options:
   - Launch the following URL:

     http://<*SHR_Server_FQDN*>:21411/BSMRApp
2. Login as an administrator,
   - Type **administrator** in the **Login Name**.
   - Leave **Password** as blank.
   - Click on **Log in** to continue.
3. In the left pane, click **Internal Monitoring** > **Data Processing** . The Data Processing page appears in the right pane.

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

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

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

For more information about troubleshooting problems related to data collection, see the *Troubleshooting Data Collection Problems* chapter in the *HP Service Health Reporter Troubleshooting Guide*.

Chapter 8: 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.

Standard Reports

The SOM Content Packs for hosts, switches and connectivity also includes standard reports as listed in the table below.

To access the standard reports, launch the HP SHR InfoView.

1. Go to **http://*<machine-name>*:8080/InfoViewApp**

   The InfoView login page opens.

2. Type **administrator** in **User Name** and click **Log On** to continue.

   The Home page opens.

3. Click **Document List**.

4. Expand **Public Folders** > **Storage Operations Manager**.

5. Select the category for which you wish to generate reports.

   The list of reports is displayed in the right pane.

Following are the list of reports for all SOM Content Packs:

HP Storage Operations Management Content Pack for End-to-End Connectivity

- Host Connectivity
- Presented Storage Summary

For more information about the reports of HP Storage Operations Management Content Pack for End-to-End Connectivity, see *Reports Delivered in the HP Storage Operations Management Content Pack for End-to-End Connectivity* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for Switches

- Switch Port Input and Output Performance
- Switch Port Utilization

For more information about the reports of HP Storage Operations Management Content Pack for Switches, see *Reports Delivered in the HP Storage Operations Management Content Pack for Switches* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for Hosts

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

For more information about the reports of HP Storage Operations Management Content Pack for Hosts, see *Reports Delivered in the HP Storage Operations Management Content Pack for Hosts* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management 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 HP Storage Operations Management Content Pack for Storage Systems, see *Reports Delivered in the HP Storage Operations Management Content Pack for Storage Systems* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for HP 3PAR Performance Statistics

- HP 3PAR Controller Performance Metrics
- HP 3PAR Storage Systems Performance Metrics
- HP 3PAR Volume Performance Metrics

For more information about the reports of HP Storage Operations Management Content Pack for HP 3PAR Performance Statistics, see *Reports Delivered in the HP Storage Operations Management Content Pack for HP 3PAR Performance Statistics* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for HP EVA Performance Statistics

- HP EVA Controller Performance Metrics
- HP EVA Storage Systems Performance Metrics
- HP EVA Volume Performance Metrics

For more information about the reports of HP Storage Operations Management Content Pack for HP EVA Performance Statistics, see *Reports Delivered in the HP Storage Operations Management Content Pack for HP EVA Performance Statistics* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics

- EMC CLARiiON and VNX Controller Performance Metrics
- EMC CLARiiON and VNX Storage Systems Performance Metrics
- EMC CLARiiON and VNX Volume Performance Metrics

For more information about the reports of HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics, see *Reports Delivered in the HP Storage Operations Management Content Pack for EMC CLARiiON and VNX Performance Statistics* in HP Service Health Reporter Online Help for Users.

HP Storage Operations Management Content Pack for EMC DMX Performance Statistics

- EMC DMX Controller Performance Metrics
- EMC DMX Array Performance Metrics

For more information about the reports of HP Storage Operations Management Content Pack for EMC DMX Performance Statistics, see *Reports Delivered in the HP Storage Operations Management*

Content Pack for EMC DMX Performance Statistics in HP Service Health Reporter Online Help for Users.

Customized Reports

Following includes the generic information about the content packs for HP Storage Operations Manager:

- **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:
  - HP Storage Operations Management Content Pack for End-to-End Connectivity
  - HP Storage Operations Management Content Pack for Switches
  - HP Storage Operations Management Content Pack for Hosts
  - HP Storage Operations Management Content Pack for Storage Systems
- **Raw**: Consists of the metrics collected by HP 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.

To access the Web Intelligence reports, launch the HP SHR InfoView.

1. Go to **http://*<machine-name>*:8080/InfoViewApp**

   The InfoView login page opens.

2. Type **administrator** in **User Name** and click **Log On** to continue.

   The Home page opens.

3. Click **Document List**.

4. Click **New** > **Web Intelligence Document**.

5. Select the Reporting Universe.

   The New Web Intelligence Document window opens. The data tab shows the objects – dimensions and measures – available in each object of the selected universe.

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 9: Known Issues

- In the standard reports for SOM Content Packs, the Top 25 Thin Volumes report of HP Storage Operations Management 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 "Use Custom Range" option is selected for Date Range.
- Drill-down reports cannot be viewed in PDF format.
- In some of the SHR Web reports, the coordinates of the Y-axis get repeated.
- SHR 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.

We appreciate your 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 Storage Resource Management Reports Guide, March 2015 (Storage Operations Manager 10.00)

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@hp.com.