HP Service Health Optimizer

for the Windows® operating system

Software Version: 9.20

Installation and Configuration Guide

Document Release Date: July 2013
Software Release Date: November 2012

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Contents

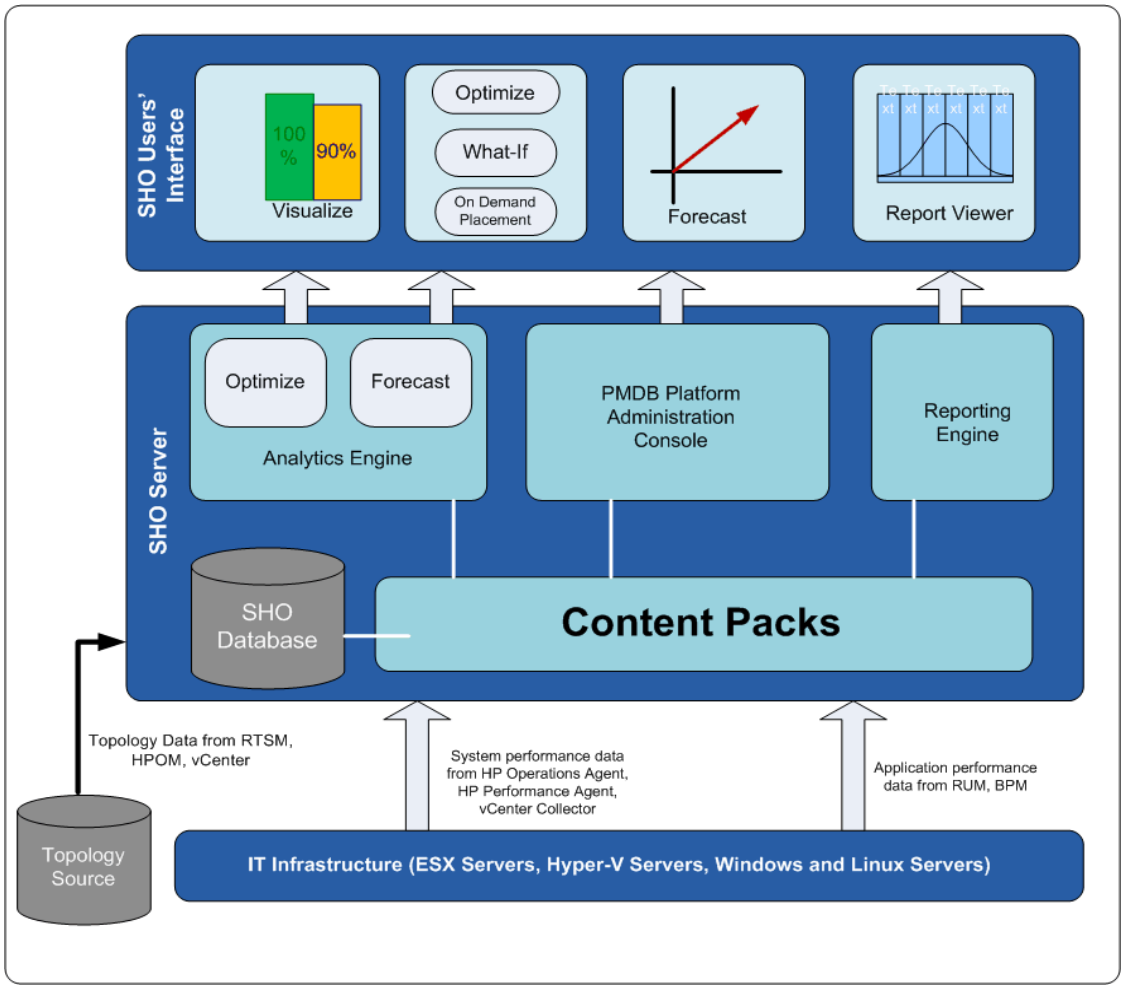
1 Introduction

HP Service Health Optimizer (SHO) is a business aware capacity management and planning tool for x86/x64 based virtualized environments. It enables you to assess the impact of the infrastructure on the different services running in your IT environment. Based on the historical IT resource usage trends and available capacity, SHO recommends ways to optimize your current server and storage resources without impacting the class of service.

Overview

SHO leverages the performance data that is collected by the different Content Packs. For the purpose of providing capacity planning and optimization recommendations in virtualized environments, SHO collects resource availability and capacity usage data from the PMDB Platform.

The following figure shows the high-level architecture of SHO, PMDB Platform, and the Content Packs.



SHO Components

SHO comprises 3 components:

SHO Server

SHO Server provides an application server and the necessary analytics required to view the current usage and remaining capacity of your infrastructure in relation to the business groups. It also analyzes the available optimization opportunities, enables to forecast and plan capacity, and recommends ways for optimal VM placement.

The SHO Server consists of the following sub-components:

- Executive Summary View
- Detailed View
- Scenario Manager

PMDB Platform

The PMDB Platform is a data store of SHO. This data store is a common repository of the health, performance, and availability data of the IT elements in your environment. The platform data store contains performance data that is processed, transformed, and aggregated in the data store, based on the metadata specifications in the content packs.

Content Packs

Content Packs enable the platform to collect, store, process, and display the data.

For more information about Content Packs components, see Content Pack Components on page 106.

Installation Media

The installation media for SHO includes the installation files for the following software:

- SHO Server
- SHO Database (Sybase IQ 15.40)

Documentation Set

In addition to this guide, the documentation for SHO consists of the following:

- **Release Notes:** Read the Release Notes before you start installing the product. Release notes specify the hardware and software prerequisites, installation location, known issues, and limitations of the product.
- **Online Help for Users**: Read the Online Help for Users to understand the steps that you can perform on the SHO's user interface. This help can be launched in context from the user interface screens.
- **Online Help for Administrators**: Read the Online Help for Administrators to understand the steps that you can perform using the Administration console. This help can be launched in context from the Administration Console's screens.

To download the latest documents, go to the following URL:

http://support.openview.hp.com/selfsolve/manuals

2 Installation Prerequisites

Hardware Requirements

You can install SHO and Sybase IQ on the same machine or on different machines. Make sure the machines have the following minimum hardware configuration.

Installing SHO and SHO database on the same machine

Components	**Minimum Required**
Processor Type	2 GHz or higher (x64-bit) Intel Xeon or equivalent
Number of Processors:	8
Physical Memory (RAM):	16 GB
Minimum free disk space for SHO and SHO database:	250 GB
Virtual Memory	32 GB (twice the physical memory)

Installing SHO and SHO database on the different machines

	Minimum Required	
Components	**SHO**	**SHO Database**
Processor Type	2 GHz or higher (x64-bit) Intel Xeon or equivalent	2 GHz or higher (x64-bit) Intel Xeon or equivalent
Number of Processors:	4	4
Physical Memory (RAM):	8 GB	8 GB
Minimum free disk space	100 GB	150 GB
Virtual Memory	16 GB (twice the physical memory)	16 GB (twice the physical memory)

Software Requirements

The following table lists the minimum software requirements.

Software	Version
Operating System	Microsoft Windows Server 2008 x64 Enterprise Edition with Service Pack 2. Microsoft Windows Server 2008 x64 R2 Enterprise Edition with Service Pack 1. Microsoft Windows Server 2003 x64 Enterprise Edition with Service Pack 2.
Web Browser	Internet Explorer 8.0, 9.0, 10.0
Flash Player	Adobe Flash player 11 *(To be installed only on systems where you want to view the SHO users' interface.)*
VMware vCenter	4.0, 4.1, 5.0, 5.1 Before configuring the topology source, you must set the user permissions and Statistics Level. For more information, see User Permissions and Statistics Level on page 55.
Microsoft .NET Framework	2.0 or later For steps to install Microsoft .NET Framework 2.0, see Installing Microsoft .NET Framework 2.0 on page 14.

Installing Microsoft .NET Framework 2.0

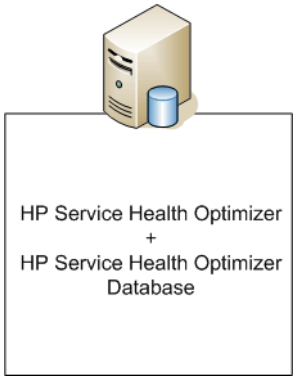
To install Microsoft .NET Framework 2.0:

1. Log on to the host system as administrator.
2. Type the following URL in the Address bar of a Web browser to open the Microsoft Download Center web site:
   `http://www.microsoft.com/downloads/details.aspx?FamilyID=B44A0000-ACF8-4FA1-AFFB-40E78D788B00&displaylang=en`
3. Click **Download** to download the .NET Framework version 2.0 (x64) redistributable package.
4. After the download completes, browse to the location where the file was downloaded, and then double-click the NetFx64.exe setup file. The Microsoft .NET Framework 2.0 (x64) Setup wizard opens.
5. On the Welcome to Microsoft .NET Framework 2.0 (x64) Setup page, click **Next**. The End-User License Agreement page opens.
6. After reviewing the license agreement, select the **I accept the terms of the License Agreement** check box and click **Install**. The Installing components page opens.
7. After the installation completes, the Setup Complete page opens. Click **Finish** to complete the installation.

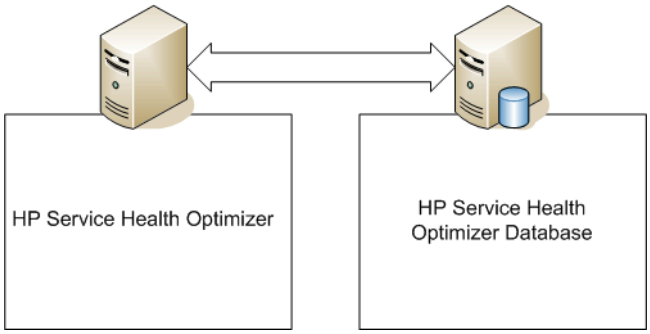
3 Installation Setups

You can use any of the following setups to install SHO.

- Install SHO server and SHO database on the same system.
  You can implement this setup if the overall setup to be deployed is very small.
  You can also use this setup for a Proof-of-Concepts implementation.



- Install SHO server on one system and SHO database on a different system.



If HP Service Health Reporter (SHR) is pre-installed, you must install SHO server and SHO Content Pack on the system where SHR is installed.

4 Deployment Scenarios

The topology service definition provides the topology of entities, such as VMs, VM hosts, and physical hosts, for which you collect the performance data. After you install SHO you must connect to a topology service definition. For more information, see Task 9: Configure the Topology Source on page 43.

SHO provides support for the following topology service definitions:

- VMware vCenter
- BSM Run-time Service Model (RTSM)
- HP Operations Manager (HPOM)

At one time, SHO can connect to only one of the topology service definitions — VMware vCenter, RTSM, or HPOM — and not to multiple topology definitions.

SHO supports the following deployment scenarios:

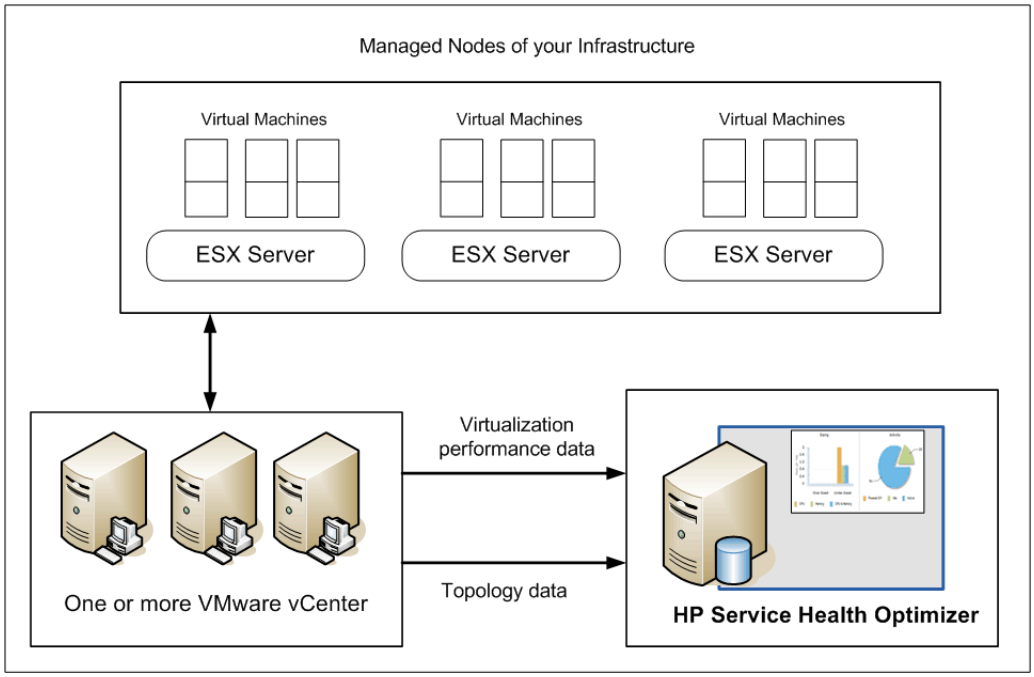
- VMware vCenter Deployment
- BSM Service and Operations Bridge Deployment
- BSM Application Performance Management Deployment
- HP Operations Manager Deployment

The following figure shows a comparison of the types of performance metrics that you collect in each of the deployment scenarios.

	VMware vCenter	**BSM Service and Operations Bridge**	**BSM Application Performance Management**	**HP Operations Manager**
VMware performance metrics with support for CPU, Memory, Storage, and Network	Supported	Supported	Supported	Supported
Hyper-V performance metrics with support for CPU and Memory		Supported		Supported
Physical hosts		Supported		Supported

VMware vCenter Deployment

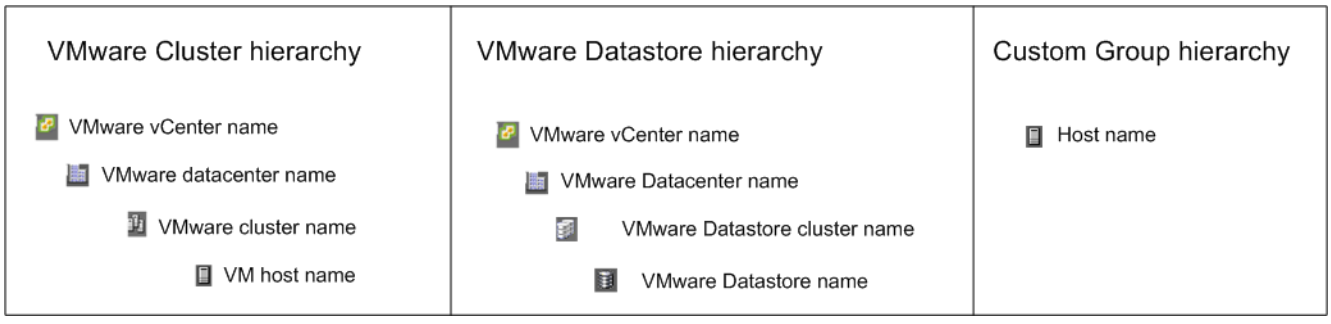
In this deployment VMware vCenter is the source of topology as well as virtualization performance data. The virtualization performance data is collected from one or more VMware vCenter.



The Groups available on the SHO user interface in this deployment are:

- VMware cluster and hosts
- VMware datacenter
- Datastore and datastore cluster
- Custom groups as defined by the user

The hierarchy of entities for the Groups is as shown in the following figure:

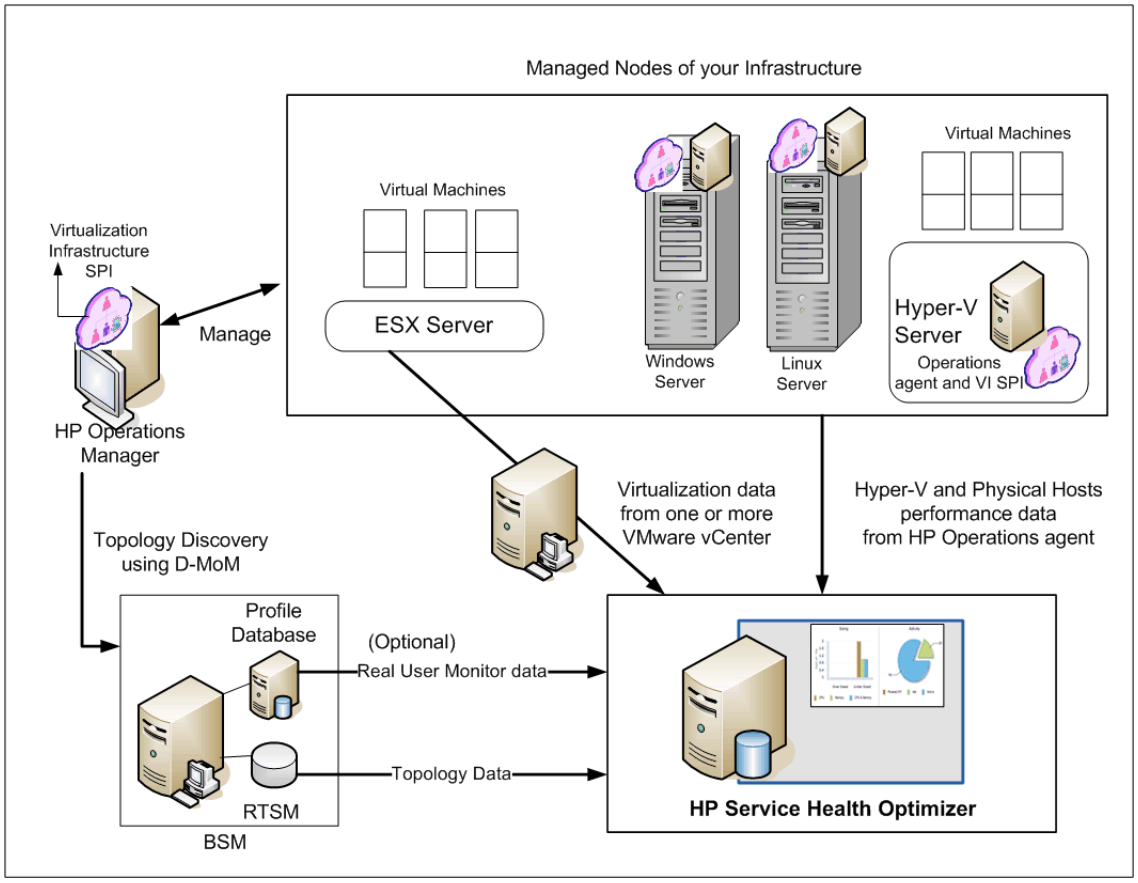


BSM Service and Operations Bridge Deployment

In this deployment, RTSM is the source of topology information for SHO. The infrastructure topology (that is, the VM hosts, VMs, VMware clusters, and physical hosts) information is discovered by HP Operations Smart Plug-in for Virtualization Infrastructure and populated in the RTSM database by using the Toposync or HPOM D-MoM dynamic topology synchronization technique.

The infrastructure performance data is collected as follows:

- The virtualization performance data for VMware is collected from one or more VMware vCenter servers.
- The performance data of physical hosts and Microsoft Hyper-V hosts is collected by HP Operations agent installed on the managed nodes in your environment.



This deployment includes the following BSM setups:

- Full BSM
- BSM Service and Operations Bridge Basic
- BSM Service and Operations Bridge Advanced

In this deployment scenario, SHO works if the following HP Software products are available in your environment:

- RTSM for topology information
- BSM platform

- VMware vCenter to collect virtualization data for VMware infrastructure
- HP Operations Manager with Virtualization Infrastructure SPI
- HP Operations agent (version 11.00 or later)

If you install SHR on the same system as SHO and collect real-user transaction data from the BSM Real User Monitor (RUM) application, you can leverage the RUM data into the SHO user interface. You must install the Real User Transaction Monitoring content pack and deploy the EUM_BSMR view on RTSM to collect the required data.

The Groups available on the SHO user interface in this deployment are:

- VMware cluster
- VMware datacenter
- Datastore and datastore cluster
- Business Service
- Business Application
- Custom groups as defined by the user

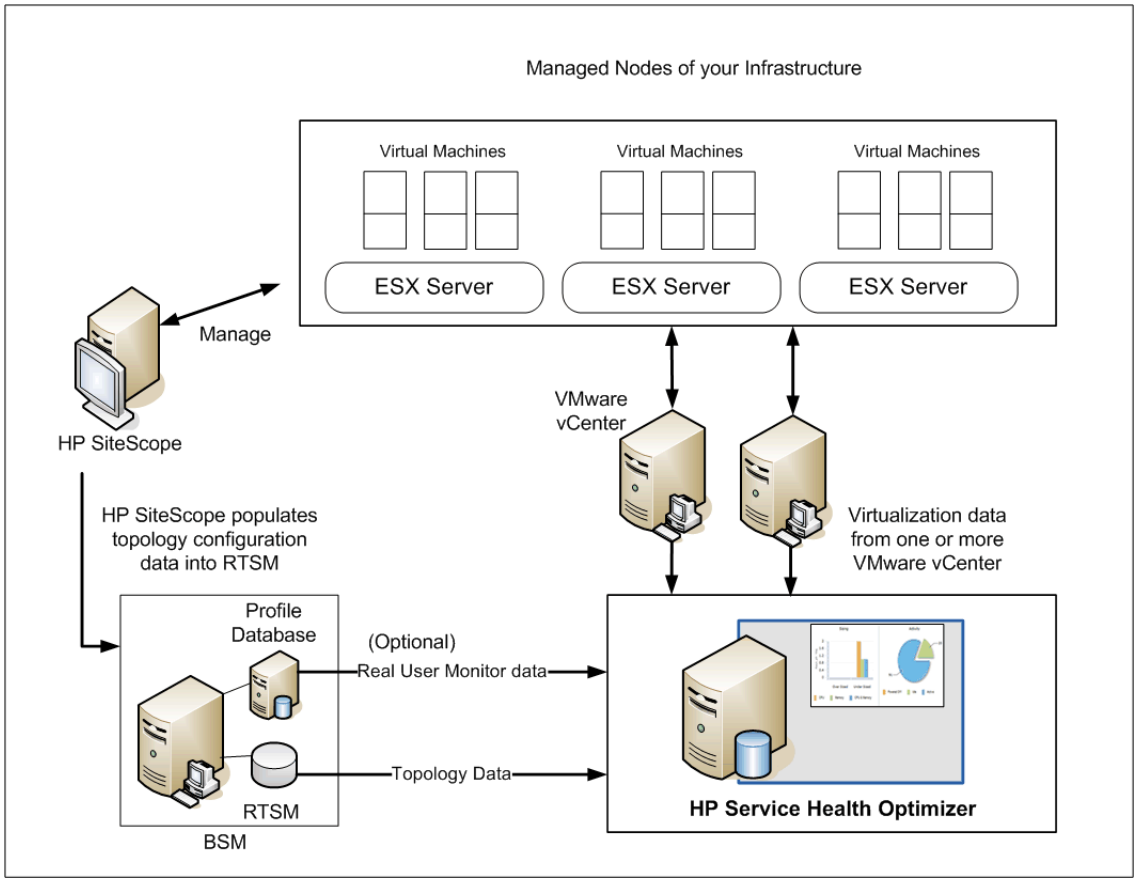
In the SaOB deployment you must deploy the following views on RTSM:

- SM_VMWare view: SHO uses this view to filter the CIs related to VMware virtualized infrastructure and the relationships between the CIs.
- SM_HyperV view: SHO uses this view to filter the CIs related to Microsoft HyperV virtualized infrastructure and the relationships between the CIs.
- SM_PA View: SHO uses this view to filter the CIs related to physical infrastructure and the relationships between the CIs.

BSM Application Performance Management Deployment

In this deployment RTSM is the source of topology information for SHO. The infrastructure topology (that is, the VM hosts, VMs, VMware clusters, and physical hosts) information is discovered by HP SiteScope and populated into the RTSM database.

The virtualization performance data for VMware is collected by one or more VMware vCenter software from the ESX servers. Data collection from physical hosts is not supported in this deployment.



If you install SHR on the same system as SHO and collect real-user transaction data from the BSM Real User Monitor (RUM) application, you can leverage the RUM data into the SHO user interface. You must install the Real User Transaction Monitoring content pack and deploy the EUM_BSMR view on RTSM to collect the required data.

The Groups available on the SHO user interface in this deployment are:

- VMware cluster
- VMware datacenter
- Datastore and datastore cluster
- Business Service
- Business Application
- Custom groups as defined by the user

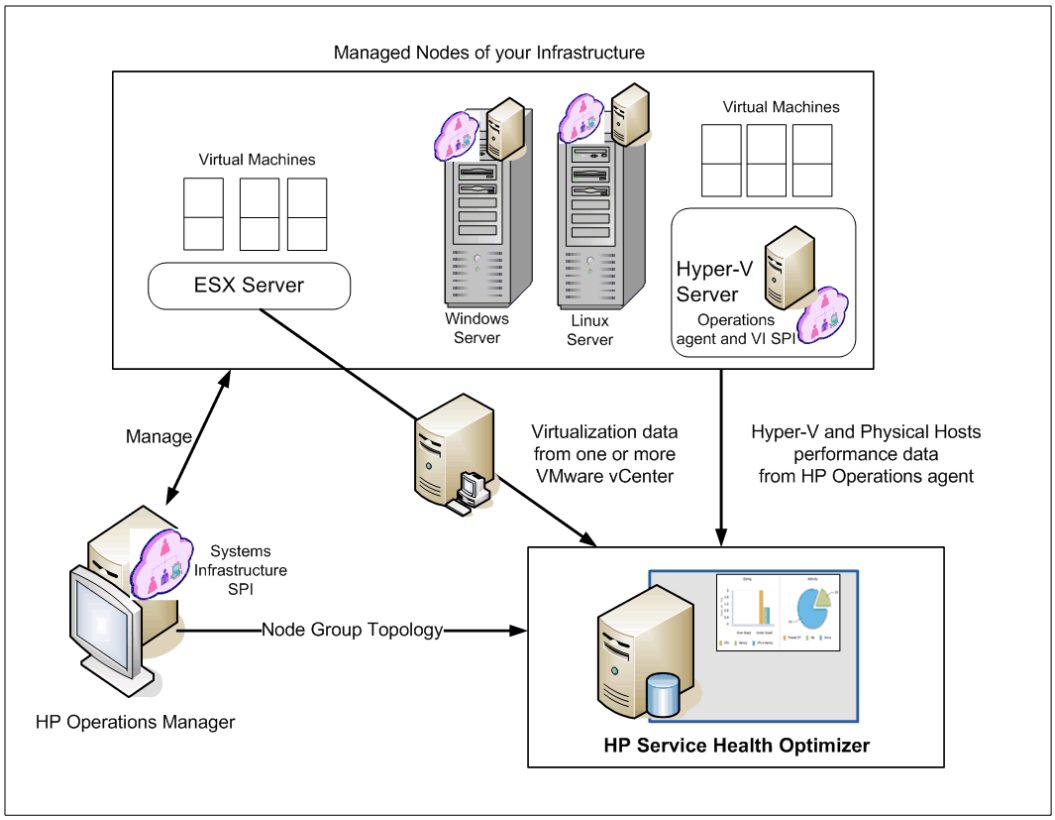
In the APM deployment you must deploy the following view on RTSM:

- SM_VMWare view: SHO uses this view to filter the CIs related to VMware virtualized infrastructure and the relationships between the CIs.

HP Operations Manager Deployment

In this deployment, the source of topology information is HPOM Node Groups. A Node Group is a group of managed nodes defined in HPOM that are logically combined for operational monitoring.

To retrieve the "Node Group-to-Host" relationship for ESX hosts, Microsoft Hyper-V, and physical hosts, you must install HP Operations agent and HP Operations Smart Plug-in for Systems Infrastructure (Systems Infrastructure SPI). The VMware virtualization data is collected from one or more VMware vCenter and the performance data of physical hosts and Microsoft HyperV is collected from HP Operations agent.



In this deployment scenario, SHO works if the following HP Software products are available in your environment:

- HP Operations Manager with Systems Infrastructure SPI
- HP Operations agent

The Groups available on the SHO user interface are:

- VMware cluster
- VMware datacenter

- Datastore and datastore cluster
- HPOM Node Groups
- Custom groups as defined by the user

Recognizing Topology Data

The following sections describe the topology entities recognized by SHO from the RTSM and HPOM Node Groups.

Recognizing Topology Data from RTSM

The RTSM contains all the configuration items (CIs) and relationships created in HP Business Service Management. The CIs and relationships together represent a model of all the components of the IT Universe in which your business functions. The IT Universe model can be very large, containing millions of CIs. To facilitate their management, you work with the CIs in a view that provides a subset of the overall components in the IT Universe. The Topology Map on RTSM provides a graphical display of a view. All the CIs in a given layer of the view are represented by icons and the connecting lines represent relationships.

In the SaOB deployment you must deploy the following views on RTSM:

- SM_VMWare view: SHO uses this view to filter the CIs related to VMware virtualized infrastructure and the relationships between the CIs.
- SM_HyperV view: SHO uses this view to filter the CIs related to Microsoft HyperV virtualized infrastructure and the relationships between the CIs.
- SM_PA View: SHO uses this view to filter the CIs related to physical infrastructure and the relationships between the CIs.

In the APM deployment you must deploy the following views on RTSM:

- SM_VMWare view: SHO uses this view to filter the CIs related to VMware virtualized infrastructure and the relationships between the CIs.

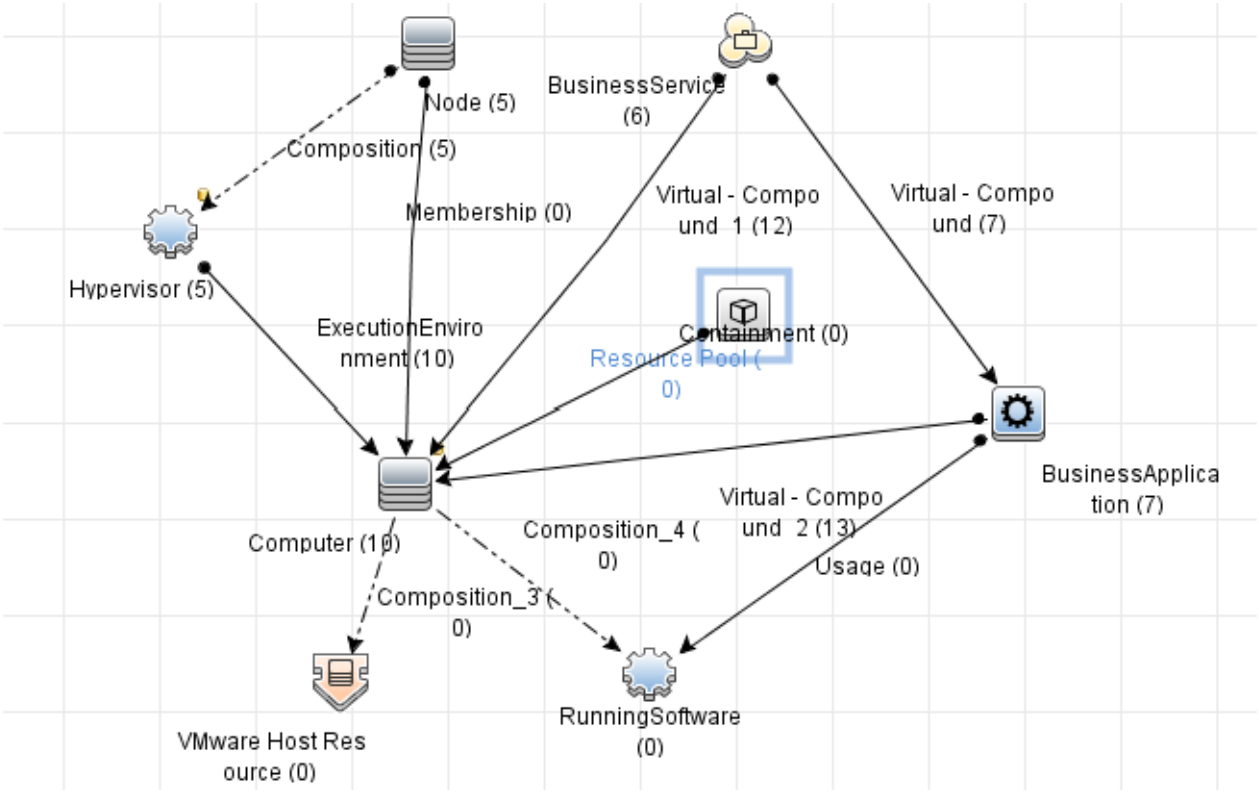
SM_VMWare view

The SM_VMWare view is used by SHO to discover all the VM hosts and VMs that are supporting either a Business Service or a Business Application. In this view, SHO recognizes the following CIs as VM hosts and VMs:

- **VM Hosts:** All the CIs that have either `composition` relationship with `hypervisor` (Virtualization software such as VMware) or `membership` relationship with `computer` (VM) are recognized as VM hosts.
- **VMs:** All the CIs that have either `containment` relationship with `resource pool` (VMware only) or `execution environment` relationship with `hypervisor` and one of the following relationships with a `Business Service` or a `Business Application` are recognized as VMs:
  - `Managed` relationship with `Business Service`,
  - `Managed` relationship with `Business Application`, or,

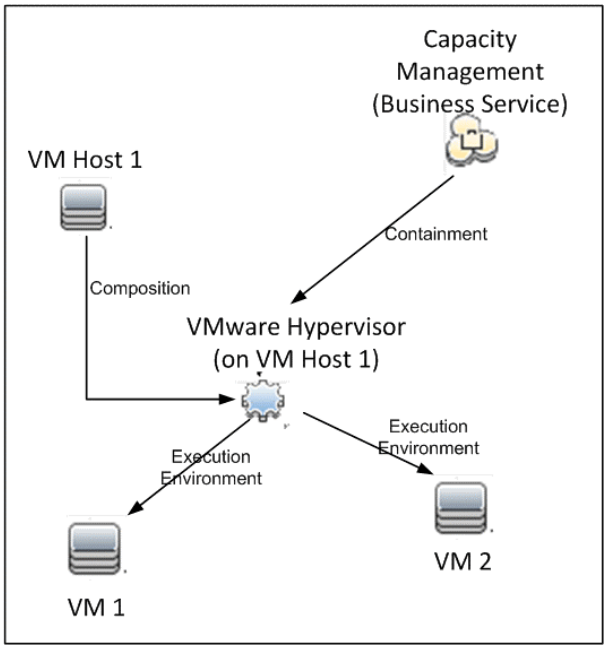
— `Composition` relationship with `running software` which in turn has usage relationship with `Business Application`.

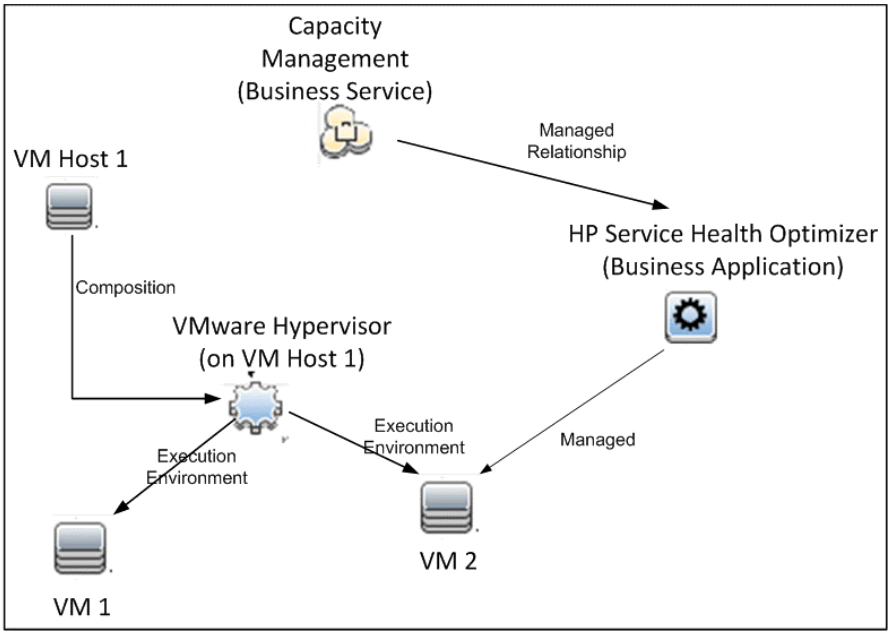
The following figure shows the CIs recognized by SHO in the SM_VMWare view:

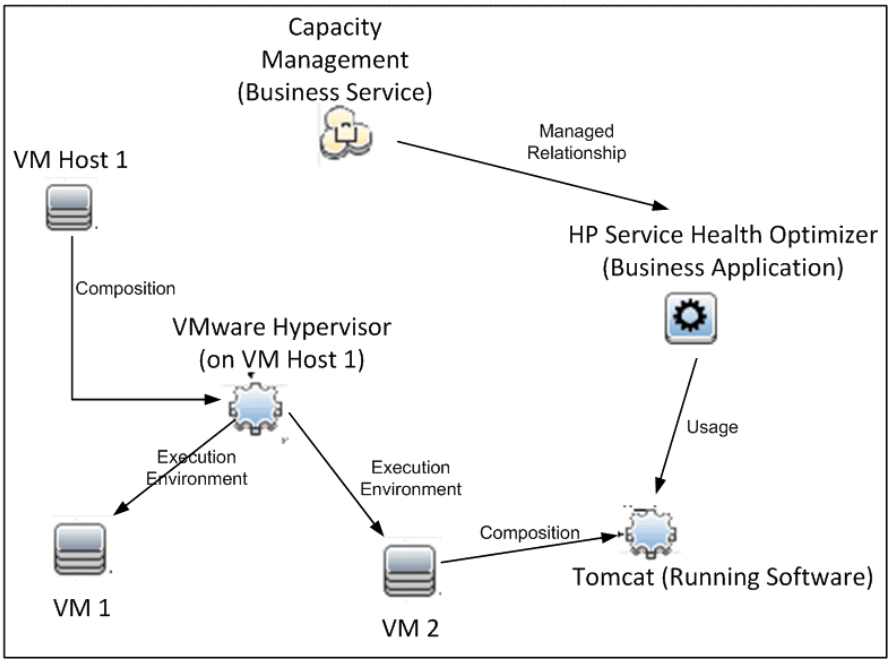


Examples

The following examples show the CIs recognized by SHO in different environments.





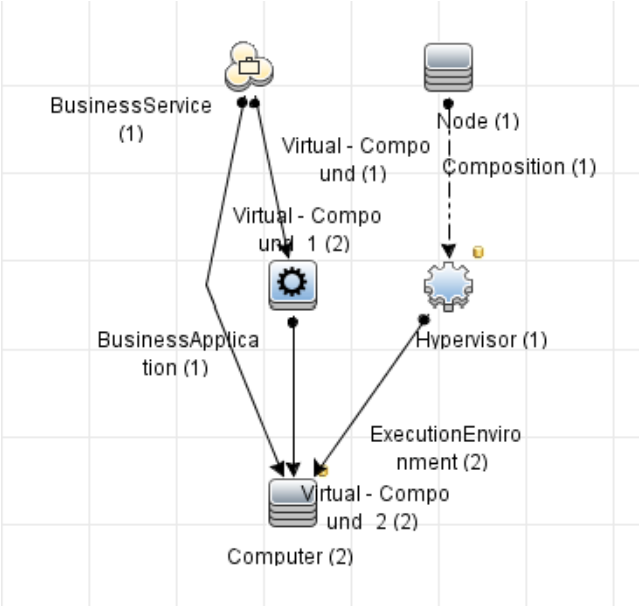

Capacity
Management
(Business Service)
Managed
Relationship
VM Host 1
HP Service Health Optimizer
(Business Application)
Composition
VMware Hypervisor
(on VM Host 1)
Usage
Execution
Environment
Execution
Environment
Composition
Tomcat (Running Software)
VM 1
VM 2

SM_HyperV view

The SM_HyperV view is used by SHO to discover all the VM hosts and VMs in the Microsoft HyperV environment that are supporting either a Business Service or a Business Application. In this view, SHO recognizes the following CIs as VM hosts and VMs:

- **VM Hosts:** All the CIs that have either `composition` relationship with `hypervisor` are recognized as VM hosts.
- **VMs:** All the CIs that have `execution environment` relationship with `hypervisor` are recognized as VMs

The following figure shows the CIs recognized by SHO in the SM_HyperV view:



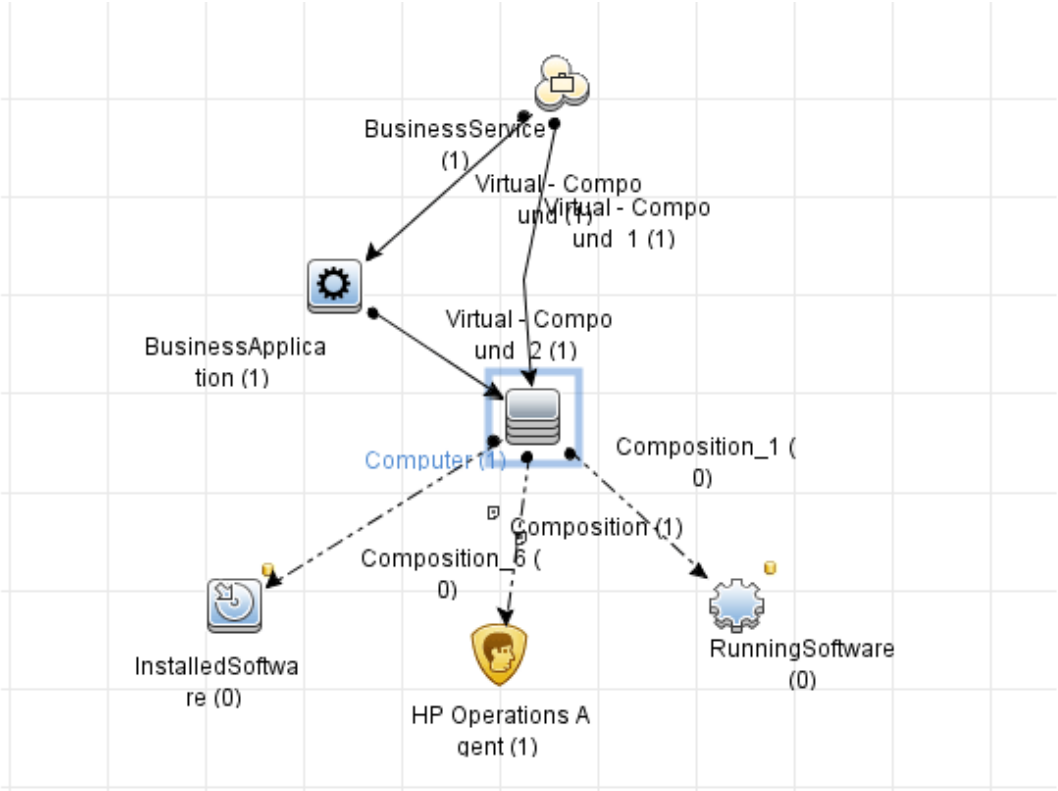
SM_PA View

The SM_PA view is used by SHO to discover all physical hosts that are supporting either a Business Service or a Business Application. In this view, SHO recognizes the following CIs as physical hosts:

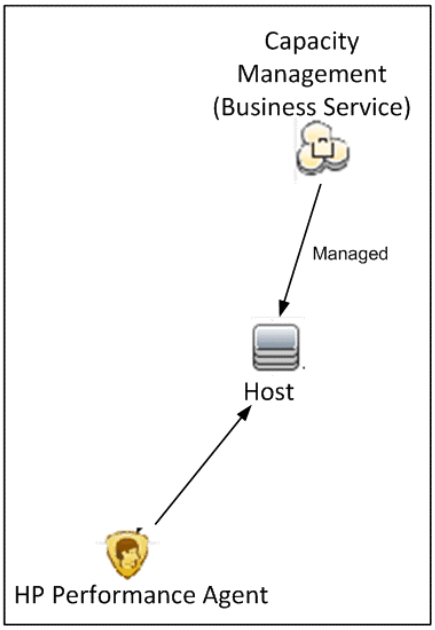
All the hosts running either HP Performance Agent or HP Operations agent and having one of the following relationships with a Business Service or a Business Application:

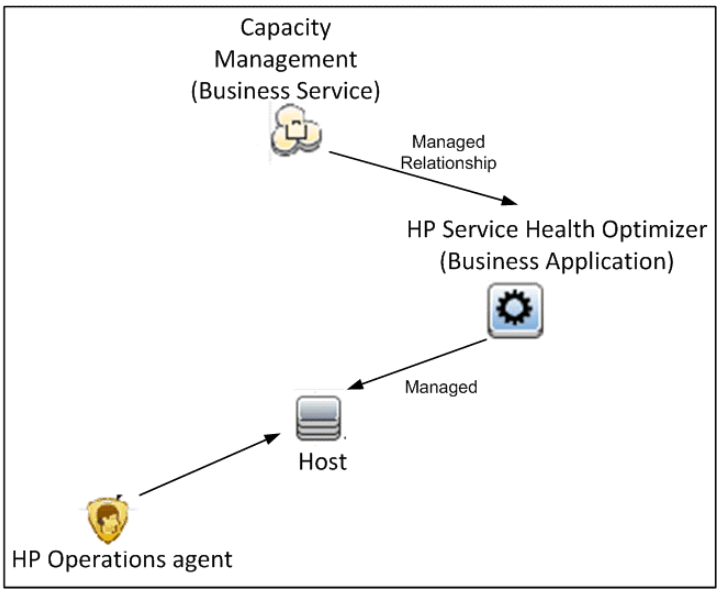
- `Managed` relationship with `Business Service`,
- `Managed` relationship with `Business Application`, or,
- `Composition` relationship with `Running Software` which in turn has `usage` relationship with `Business Application`.

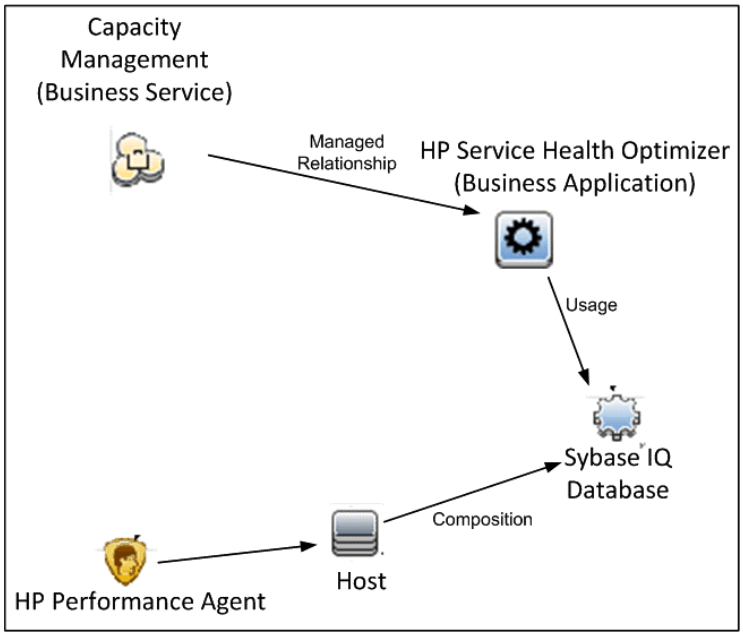
The following figure shows the CIs recognized by SHO in the SM_PA view:



The following examples show the CIs recognized by SHO in different environments:




Capacity
Management
(Business Service)
Managed
Relationship
HP Service Health Optimizer
(Business Application)
Managed
Host
HP Operations agent


Capacity
Management
(Business Service)
Managed
Relationship
HP Service Health Optimizer
(Business Application)
Usage
Sybase IQ
Database
Composition
Host
HP Performance Agent

Recognizing Topology Data from HP Operations Manager

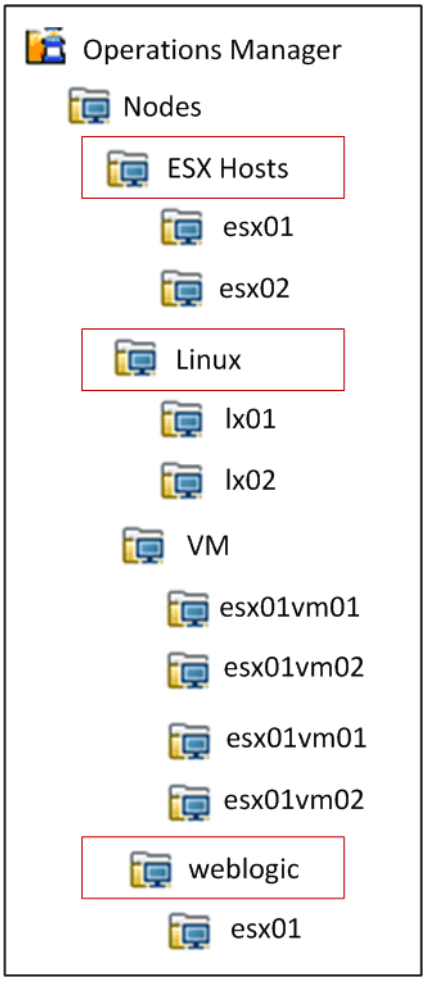
In a deployment with HP Operations Manager, SHO recognizes the HPOM Node Groups with following attributes:

- All Node Groups that contain at least one of the following:
  - x86 or x64 VM host running either VMware or Hyper-V, or,
  - x86 or x64 physical host.
- If a host belongs to more than one Node Group, then that host will be displayed against each of the Node Groups it belongs to.
- All the VMs under a Node Group are VMs that are hosted on all VM Hosts belonging to that Node Group.
- For nested Node Groups, the name of the Node Group will be displayed as `<parent Node Group>/<child Node Group>`

In the following example, SHO:

- Recognizes the Node groups named **`ESX Hosts`**, **`Linux`** and **`weblogic.`**
- Does not recognize the Node group named **`VM`** as it has only VMs.

Note that **`esx01`** will be displayed in both the **`ESX Host`** and **`weblogic`** Node Groups.



5 Installing SHO

Pre-installation Checklist

Before you proceed with the installation of SHO, make sure that the following tasks are completed.

☐ Your hardware meets the requirements for SHO.	See Hardware Requirements on page 13.
☐ You are using the operating system and web browser that supports SHO.	See Software Requirements on page 14.
☐ You have met all the software requirements.	See Software Requirements on page 14.
☐ You have the required installation media.	See Installation Media on page 11.

Installing SHO

To install the SHO server:

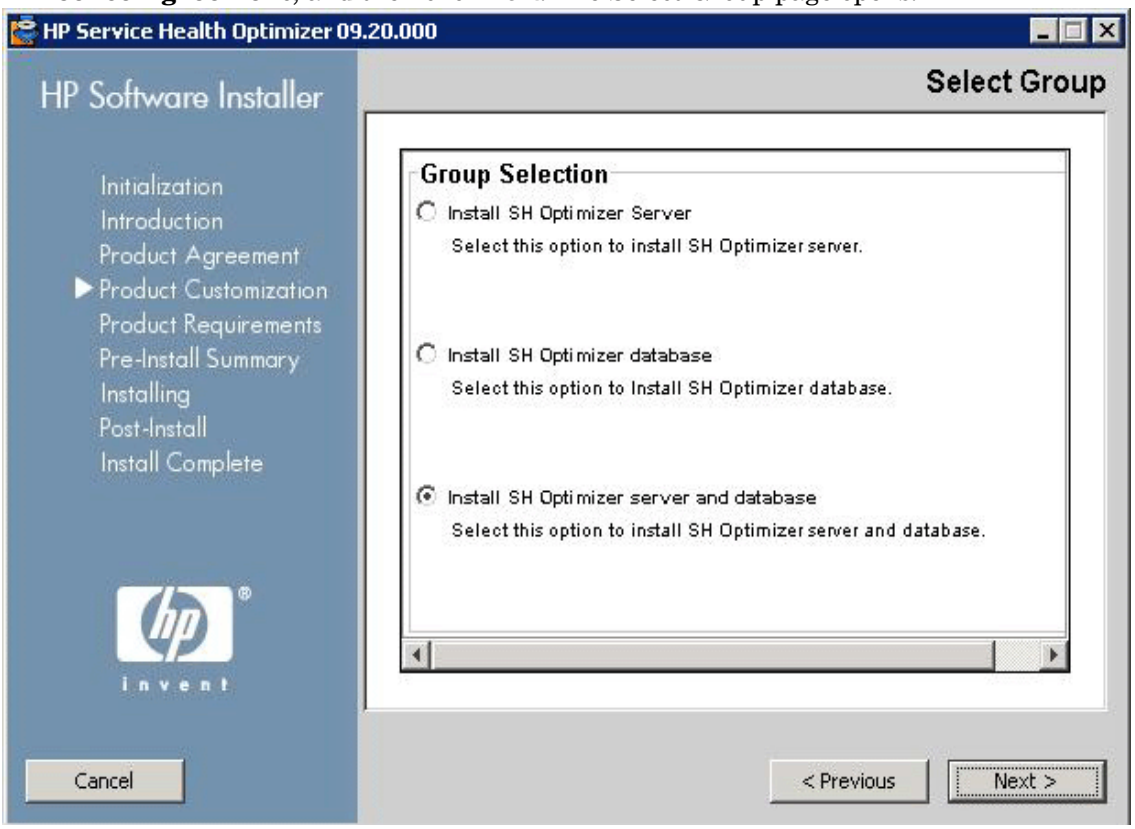
1. Log on to the host system. You must have Administrator privileges.
2. Insert the installation media in the DVD ROM of the system on which you want to install SHO. The Autorun feature starts the installation process. If Autorun is disabled on your system, go to the installation files location on the media and double-click the `setup.exe` file.
3. The Welcome screen opens. Select the language which you want to use for SHO. Click **OK**.
4. The HP Software Installer window opens.
   HP Software Installer checks the system for any applications or services that might hinder the installation of SHO. If HP Software Installer detects a hindrance, the Application requirements check warnings window opens.
5. View the details of the warnings listed in the Application requirements check warnings window and resolve or ignore the error or warning:
   a. Click a warning or an error to view the details.
   b. Resolve or ignore the error or warning as described in the details:
      – Click **Quit** to quit the installation and resolve the error. After the error is resolved, start the installation process again.

– Click **Continue** to ignore the warning and continue the installation. The Introduction (Install) page opens.

If this is not your first installation of SHO, HP Software Installer will prompt you to use the installation configuration file, which was created during the previous installation. Click **Yes** in the Installer Configuration message box if you want to use the values from the file. Click **No** without using the installation configuration file.

6 Review the Introduction (Install) page and click **Next**.

7 Review the terms on the License Agreement page, select **I accept the terms of the License Agreement**, and then click **Next**. The Select Group page opens.



8 Select one of the following options:

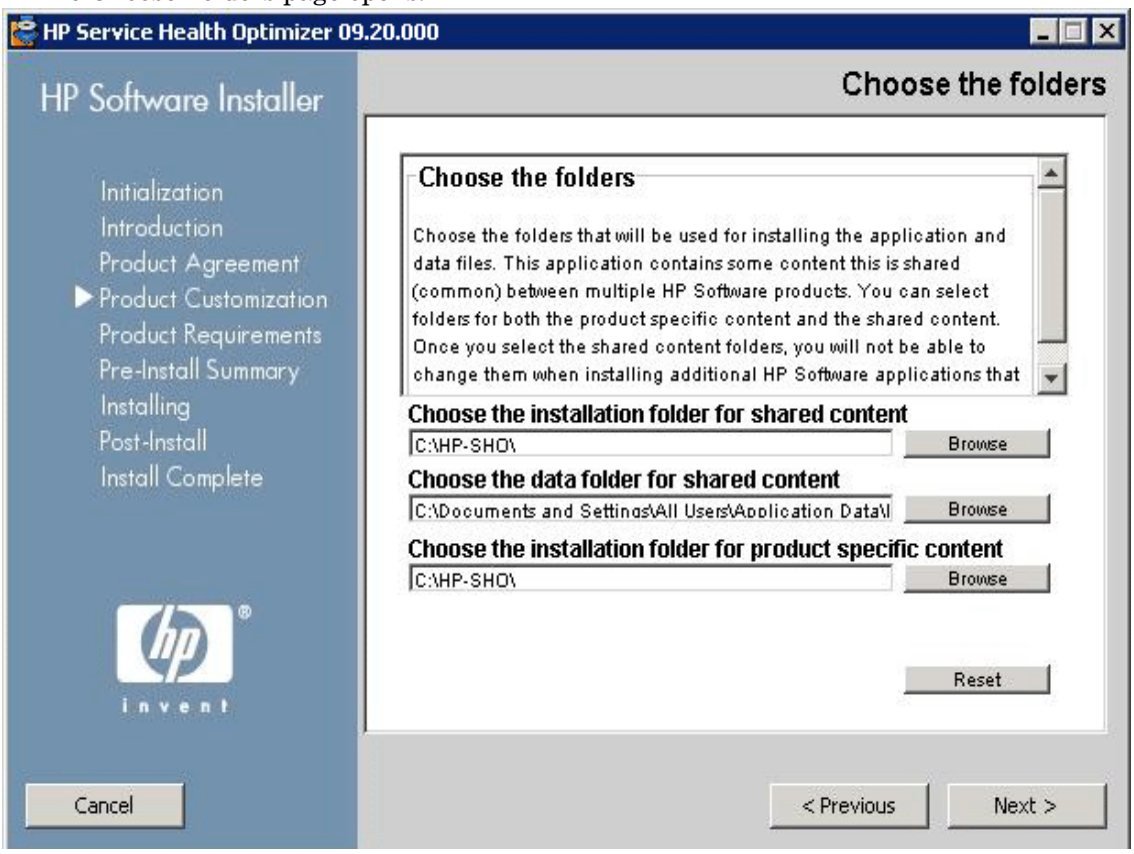
— **Install SH Optimizer**: Select this option and click **Next** if you want to install SHO server. The Select Features page opens.
Review the Select Features page and click **Next**.

— **Install SH Optimizer database**: Select this option and click **Next** if you want to install SHO database. Use this option if you are installing SHO server and SHO database on different machines.

— **Install SH Optimizer server and database**: Select this option if you want to install SHO server and SHO database.
The Select Features page opens.
Review the Select Features page and click **Next**.

SHO enables you to deselect SHO components on the Select Features page. However, it is recommended that you do not deselect any component during installation as the product will be installed improperly.

9 The Choose Folders page opens.



HP Software Installer checks the system for other installed HP products:

— If other HP products are not installed, the application files for the shared HP content are installed in the default folder, `%OvInstallDir%`.

> If any other HP Software products are installed in the system, SHO will not ask for install directory.

— The common HP software data files are installed in the default folder, `%OvDataDir%`.

Click **Next**. The Install Check page opens.

10 Review the Install Check page.
The installer performs the following checks:

- Available disk space for installing SHO.
  If the available disk space is insufficient, check the Hardware Requirements and increase the disk space accordingly.
- Validity of the SHO installation path.
  If the specified installation path is not valid, check whether the installation path exists or define a new installation path.
- Availability of .NET Framework 2.0.
  Install .NET Framework 2.0 before proceeding with SHO installation.
- Availability of the default port for SHO.
  The default port assigned to SHO is 8081. However, if this port is not available, you can assign a different port for SHO after completing the installation. To assign a different port for SHO, see Changing the Default Port Number on page 96.

If the install check fails, click **Cancel** to stop the installation. If the install check is successful, click **Next**. The Pre-Install Summary page opens.

11 Review the Pre-Install Summary page and click **Install**.

12 After the installation completes, the Installation Complete page opens.
On this page, you can review the post-install details on the **Summary** and **Details** tabs.

> Click **View log file** to view the installation log file. Use the log file to review the entire installation process or troubleshoot a specific issue, if any. For more information on the installation log files, see Setting the DEBUG level for SHO.log file on page 95.

13 Click **Done**.

Configuring the Desktop Heap Memory

In a single user's session, every desktop object has a desktop heap memory associated with it. The desktop heap stores certain user interface objects such as windows, menus, and hooks. Failures related to desktop heap can occur for the following reasons:

- If the session view space for a given session is fully utilized, a new desktop heap cannot be created.
- If an existing desktop heap allocation is fully utilized, it is impossible for threads that use that desktop to use more desktop heap.

Desktop heap exhaustion can prevent certain data processing stream failures (with Error Status Codes 128 or 832) in SHO, which prevents the movement of data through the stages of the collection framework—aggregation, transformation, and staging.

To avoid desktop heap usage issues, you must change the default value of the heap memory in the Registry Editor:

1 Click **Start** → **Run**. The Run dialog box opens.

2 Type **`regedit`** in the **Open** field, and then press **ENTER**. The Registry Editor window opens.

3 On the left pane, expand **HKEY_LOCAL_MACHINE**, expand **SYSTEM**, expand **CurrentControlSet**, expand **Control**, expand **Session Manager**, and then click **SubSystems**.

4 On the right pane, right-click **Windows**, and then click **Modify**. The Edit String dialog box opens.

5 In the **Value data** box, change the value **ObjectDirectory=\Windows SharedSection=1024,20480,768** to **ObjectDirectory=\Windows SharedSection=1024,20480,1536**.

6 Restart your system after making the changes in the Registry Editor.

6 Configuring SHO

You must perform all the configuration tasks described in this chapter immediately after installing SHO, but before you install the Content Packs.

Perform the following tasks to configure SHO:

Task 1: Start the SHO Database

> Perform Task 1 only if you have installed SHO database on a different system. Else, proceed to Task 2: Start the Administration Console.

Task 2: Start the Administration Console

Task 3: Select the Time Zone

Task 4: Configure the Database Connection

Task 5: Create the Database Schema

Task 6: Restart the SHO Database

> Perform Task 6 only if you have installed SHO with remote SHO database. Otherwise, proceed directly to Task 7: Review the Database Connection Summary.

Task 7: Review the Database Connection Summary

Task 8: Create the Management Database User Account

Task 9: Configure the Topology Source

Task 1: Start the SHO Database

Perform this task only if you have installed SHO database on a different system. Else, proceed to next task.

To start the SHO database:

1. Log on to the remote system where you have installed SHO database with Administrator privileges.
2. Click **Start** → **Run**. The Run dialog box opens.
3. Type **cmd** and press **ENTER** to open the Command Prompt window.
4. At the command prompt, type the following command to start the SHO database:

   start_iq @<SHO_database_home>\Sybase\IQ-15_4\scripts\pmdbConfig.cfg

   where, <*SHO_database_home*> refers to the install directory of SHO database on the remote system.
5. Press **ENTER**. The Starting IQ window opens.
6. Close the command prompt window.

To stop SHO database, right-click the Sybase IQ server icon in the notification bar and selecting the option from the pop-up menu.

If the Sybase IQ server icon does not appear in the notification bar of your SHO system, use the following command to stop SHO database:

dbstop -y -c uid=dba;pwd=sql;eng=<*server engine name***>;dbn=utility_db;links=tcpip{host=<***host name***>.<***domain name***>;port=21424}**

where, <*server engine name*> refers to the name of the Sybase server engine, <*host name*> refers to the name of the system hosting the SHO database, and <*domain name*> is the name of your domain according to your network configuration.

This command must be typed as a single line.

Task 2: Start the Administration Console

To start the Administration console:

1. Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration**. The Administration Console opens.
2. Type **administrator** in the **Login Name** field and click **Log In**. The PMDB Platform Configuration Wizard opens.

The post-install PMDB Platform 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.

Task 3: Select the Time Zone

On the Configure Parameter/s page, select the time zone under which you want SHO to operate.

To select the time zone:

1 Under **Select Time Zone**, select:

- **GMT**, if you want SHO to follow the GMT time.
- **Local**, if you want SHO to follow the local system time.

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

Task 4: 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 SHO.

To configure a database connection:

1 On the Configure Database Connection page, select **Remote Database** if SHO and SHO database are installed on different systems.

2 Under **Enter Database Connection Parameter**, type the following values:

Field	Description
Host Name	Name or IP address of the host where the SHO database server is running.
Port	Port number to query the database server. The default port is **`21424`**.
Server Name	Name of the SHO database server. Ensure that the SHO database 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 SHO 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 Sybase IQ documentation at **http://sybooks.sybase.com/**.

4 Under **Choose Password For PMDB Database User (PMDB_ADMIN)**, type the following values:

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

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

Task 5: Create the Database Schema

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

To create the database schema:

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

Field	Description
Low Volume	This option enables SHO to support data collection from less than 500 nodes.
Medium Volume	This option enables SHO to support data collection from 500 to 5000 nodes.

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 SHO database main store. This value is set by default and cannot be changed.
IQ Temporary Cache(MB)	The recommended size of the temporary buffer size for the SHO database temporary store. This value is set by default and cannot be changed.
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.

In the medium deployment scenario, the recommended SHO database temporary dbspace of 96 GB might not be sufficient if you are monitoring 1500-2000 nodes. In this case, you must set the dbspace size to a higher value.

3 If SHO is installed with embedded SHO database:

a In the **Database File Location** field, type the location where the database files will be stored; for example, `C:\HP-SHO\Sybase\db`.

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

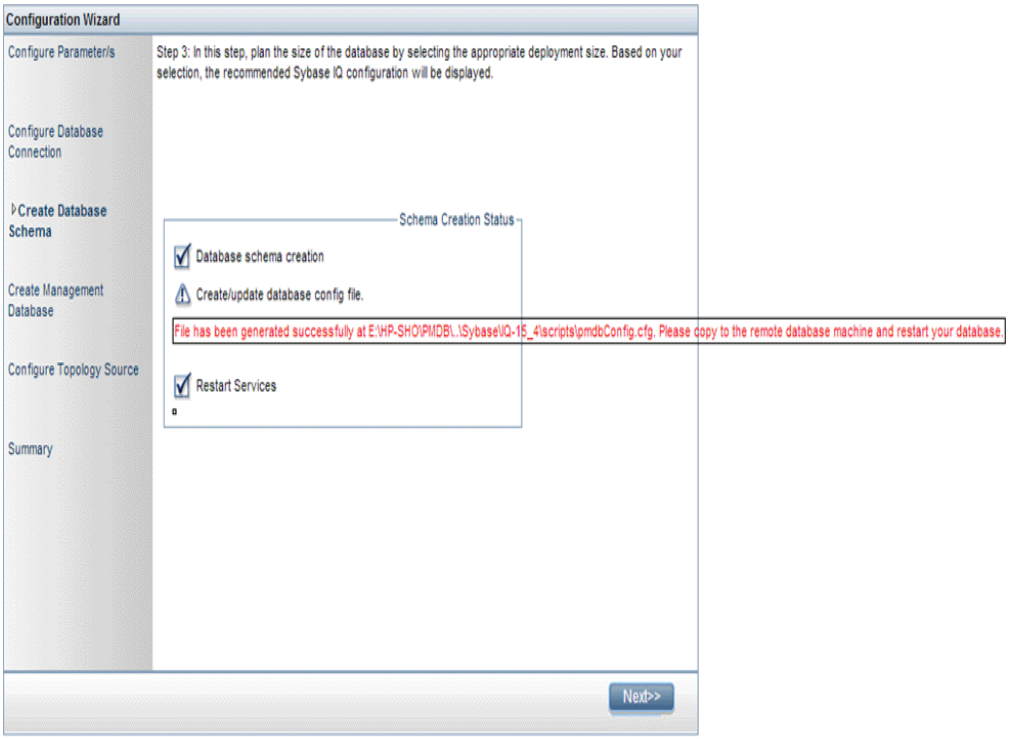
4 If SHO is installed with remote SHO database:

a In the **Database File Location** field, type the location where you want to store the database files on the remote machine; for example, `C:\HP-SHO\Sybase\db`. Create the database folder before typing the path in the Database File Location field.

Ensure that you have sufficient system resources to support the SHO data collection volume that you select.

b Click **Next**. A confirmation dialog box opens.
You are prompted to validate the existence of the database folder on the remote database host machine.

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



You are prompted to copy the newly created `pmdbConfig.cfg` file to the remote system and then restart the database.
If the database connection and schema creation fails, click the **Previous** button to check the values provided.

Task 6: Restart the SHO Database

Perform this task only if you have installed SHO database on a different system. Otherwise, proceed directly to Task 7: Review the Database Connection Summary.

For this task, you must first stop the SHO database from running. Then, using the Sybase IQ Service Manager, you must create an SHO database service. Using this service, you can then restart the SHO database.

Perform the following steps:

1. Browse to the newly created database folder and copy the `pmdbConfig.cfg` file to the remote system.
2. Click **Start** → **Run**. The Run dialog box opens.
3. Type **cmd** and press **ENTER** to open the Command Prompt window.
4. At the command prompt, type the following command to stop the SHO database and then press **ENTER**:

   dbstop -y -c uid=dba;pwd=sql;eng=<*server engine name***>;dbn=utility_db;links=tcpip{host=<***host name***>.<***domain name***>;port=21424}**

   In this instance, <*server engine name*> refers to the name of the Sybase server engine, <*host name*> refers to the name of the system hosting SHO, and <*domain name*> is the name of your domain according to your network configuration.

   This command must be typed as a single line.

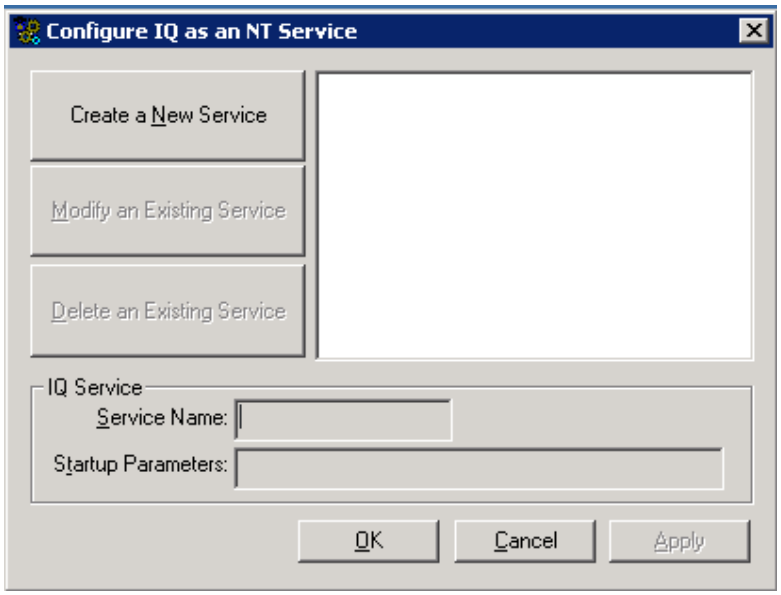
   You can also right-click the Sybase IQ server icon in the notification bar and stop the database from the menu.

Create a SHO Database Service

Running SHO database as a Windows service lets you start a server automatically whenever the machine is booted and run in the background as long as Windows is running.

To create the SHO database service:

1 Click **Start** → **Programs** → **Sybase** → **Sybase 15.3** → **Sybase IQ Service Manager**. The Configure IQ as an NT Service window opens.



2 Click **Create a New Service**.

3 In the **Service Name** field, type the name of the remote SHO database server.

4 In the **Startup Parameters** field, type all the parameters that are listed in the `pmdbConfig.cfg` file.

5 Browse to `%IQDIR15%\scripts` and open the `pmdbConfig.cfg` file. Copy all the listed parameters in the file to the **Startup Parameters** field:

`-n` **<***server name***>** **<***parameters***>** **<***database file path***>**

In this instance, <*server name*> is the name of the remote SHO database server, <*parameters*> are all the parameters that are present in the `pmdbConfig.cfg` file, and <*database file path*> is the location of the database files on the remote server.

For example:

```
-n testserver1 -x tcpip{port=21424} -c 48m -gc 20 -gd all -gl all -gm
100 -gp 4096 -iqmsgsz 100 -iqmsgnum 4 -iqmc 1845 -iqtc 1430 -iqmt 3500
-ti 4400 -gn 25 C:\sybaseIQ\db\pmdb.db
```

Include the full path to the database file. The server cannot start without a valid database path name.

6 Click **Apply** and then click **OK**.

Start the SHO Database Service

1 Click **Start** → **Run**. The Run dialog box opens.

2 Type **`services.msc`** in the **Open** field, and then press **ENTER**. The Services window opens.

3 On the right pane, right-click the newly created SHO database service, and then click **Start**.

Task 7: Review the Database Connection Summary

On the SHO host system, in the Administration Console, review the following:

- The database connection configured in Task 4
- The database schema created in Task 5

Click **Next**. The Create Management Database page opens.

Task 8: Create the Management Database User Account

The management database refers to the online transaction processing (OLTP) store used by SHO to store its run-time data such as data process job stream status, changed tables status, and node 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:

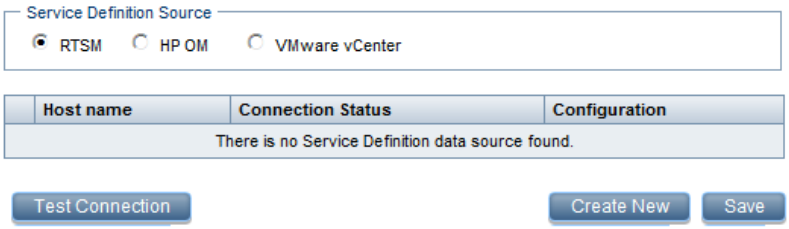
Field	Description
User Name	Name of the PostgreSQL database user. The default value is **postgres**.
Password	Password of the PostgreSQL database user. The default value is **PMDB92_admin@hp**.

2 Under **PMDB Platform Management Database User Information**, type the following values:

Field	Description
New Password	Password of the Management Database user.
Confirm New Password	Retype the same password to confirm it.

3 Click **Next**. The Summary page opens.

4 Review the database connection and management database details and then click **Next.** The Configure Topology Source page opens.



Task 9: Configure the Topology Source

Configuring SHO for data collection depends on the topology source you select.

- If SHO is installed in the Run Time Service Model (RTSM) deployment scenario, see Configuring the RTSM Topology Source for SHO on page 43.
- If SHO is installed in the HP Operations Manager (HPOM) deployment scenario, see Configuring the HPOM Topology Source for SHO on page 51.
- If SHO is installed in the VMware vCenter deployment scenario, see Configuring VMware vCenter Topology Source for SHO on page 55.

For more information on the above deployment scenarios, see Deployment Scenarios.

Configuring the RTSM Topology Source for SHO

In the BSM Service and Operations Bridge or Application Performance Management deployment scenario, RTSM is the source of the topology information. The topology information includes all Configuration Items (CIs) as modeled and discovered in RTSM. Group information is obtained from the RTSM views. Node resource information is obtained directly from RTSM. Collection of the information is through the web service interface exposed by RTSM.

To configure the RTSM topology source, you must perform the following tasks.

In the RTSM deployment scenario, the hosts and VMs which are not discovered by the RTSM topology not collected by SHO.

Task 1: Deploy the Topology Views

In the HP BSM environment, RTSM is used to discover the CIs and generate the topology views. To configure SHO to collect domain-specific data, you first need to deploy those topology views for each Content Pack.

These topology views contain the specific CI attributes that Contents Packs use to collect the relevant data. However, these topology views can vary from one Content Pack to another.

To deploy the topology model views for the Content Packs in the HP BSM server:

1. Log on to the HP BSM host system as administrator.
2. Log on to the host system, that has SHO installed on it, as administrator through remote access from the HP BSM host system.
3. Browse to `%PMDB_Home%\packages` and copy the following topology views.

   Common views for Service and Operations Bridge (SaOB) and Application Performance Management (APM) deployments

Copy these views for both deployments.

Content Pack	View Name	Location
SHO	SHO_View.zip	%PMDB_HOME%\packages\SystemManagement\ETL_SM_VI_VMWare_VC.ap\source\cmdb_views
Real_User_Monitor	EUM_BSMR.zip	%PMDB_Home%\packages\RUM\RUM.ap\CMDB_View

It is possible to deploy Real_User_Monitor view only if SHR is installed on the same system.

Topology views for Service and Operations Bridge (SaOB) deployment

Content Pack	View Name	Location
System_Management	SM_BSM9_Views.zip	%PMDB_HOME%\packages\SystemManagement\ETL_SystemManagement_PA.ap\source\cmdb_views
	SM_BSM9_Views.zip	%PMDB_HOME%\packages\SystemManagement\ETL_SystemManagement_HyperV.ap\source\cmdb_views

No additional views to be copied for Application Performance Management deployment.

For example, to copy the SHO zip files, browse to `%PMDB_HOME%\packages\SystemManagement\ETL_SM_VI_VMWare_VC.ap\source\cmdb_views\SHO_View.zip` and copy the `SHO_View.zip` file to the HP BSM host system.

4 On the HP BSM host system, in a web browser, type the following URL:

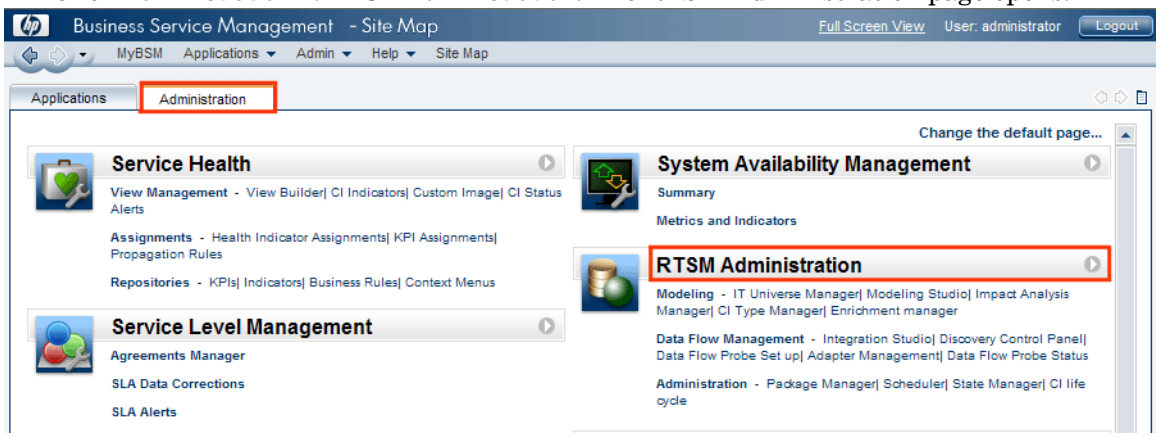
`http://<`*`server_name`***`>.<`***`domain_name`***`>/HPBSM`**

In this instance, <*server_name*> is the name of the HP BSM server and <*domain_name*> is the name of the user's domain according to the user's network configuration.

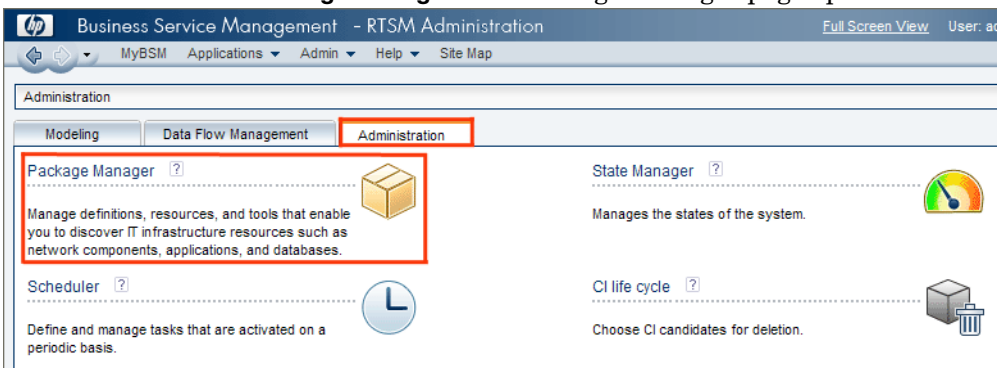
The Business Service Management Login page opens.

5 Type the login name and password and click **Log In**. The Business Service Management - Site Map opens.

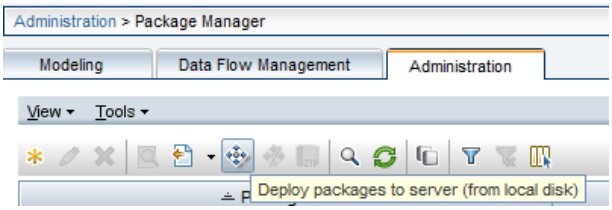
6 Click **Administration** → **RTSM Administration**. The RTSM Administration page opens.



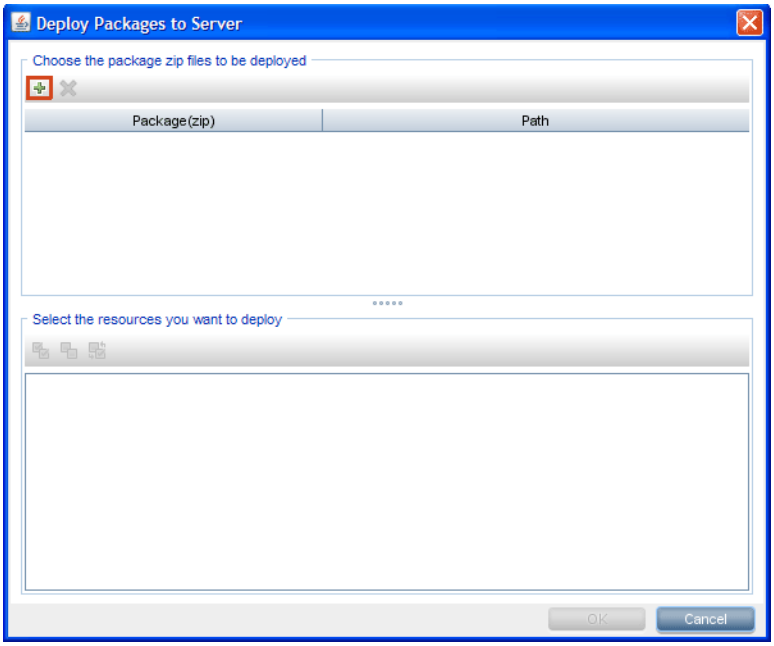
7 Click **Administration** → **Package Manager**. The Package Manager page opens.



8 Click the **Deploy Packages to Server (from local disk)** icon. The Deploy Package to Server dialog box opens.



9 Click the **Add** icon.



The Deploy Package to Server (from local disk) dialog box opens.

10 Browse to the location of the Content Pack zip files, select the required files, and then click **Open**.

You can view and select the TQL and ODB views that you want to deploy under **Select the resources you want to deploy** in the Deploy Package to Server (from local disk) dialog box. Ensure that all the files are selected.

11 Click **Deploy** to deploy the Content Pack views.

Enabling CI Attributes for a Content Pack

Each Content Pack view includes a list of CI attributes that are specific to that Content Pack. The CI attributes that are required for data collection are automatically enabled in each of the Content Pack views after you deploy them.

To enable additional CI attributes to collect additional information relevant to your business needs:

1 In a web browser, type the following URL:

`http://`<*server_name*>**`.`**<*domain_name*>**`/HPBSM`**

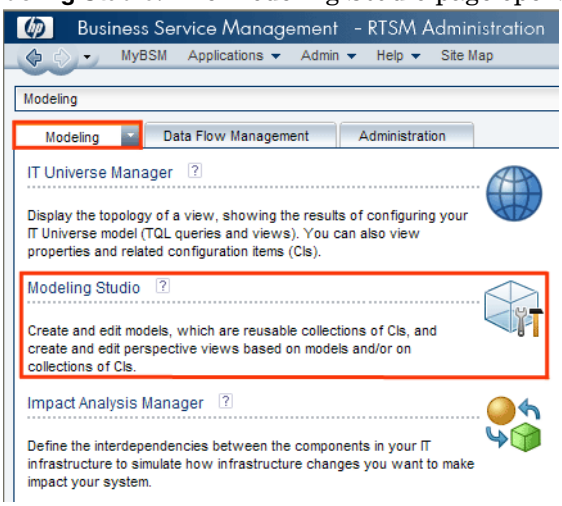
In this instance, <*server_name*> is the name of the HP BSM server, and <*domain_name*> is the name of the user's domain according to user's network configuration.

The Business Service Management Login page opens.

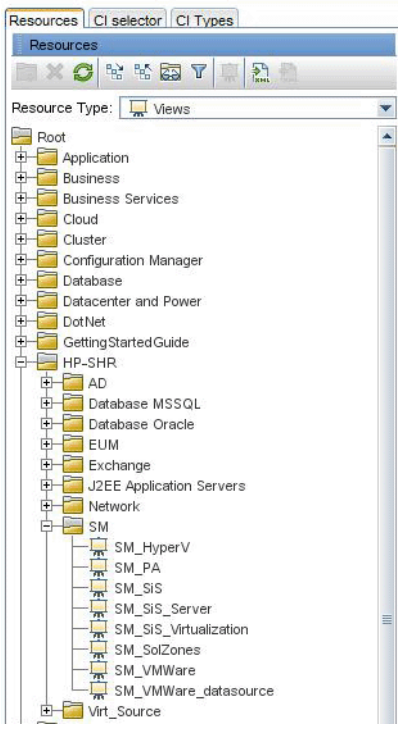
2 Type the login name and password and click **Log In**. The Business Service Management Site Map opens.

3 Click **Administration** → **RTSM Administration**. The RTSM Administration page opens.

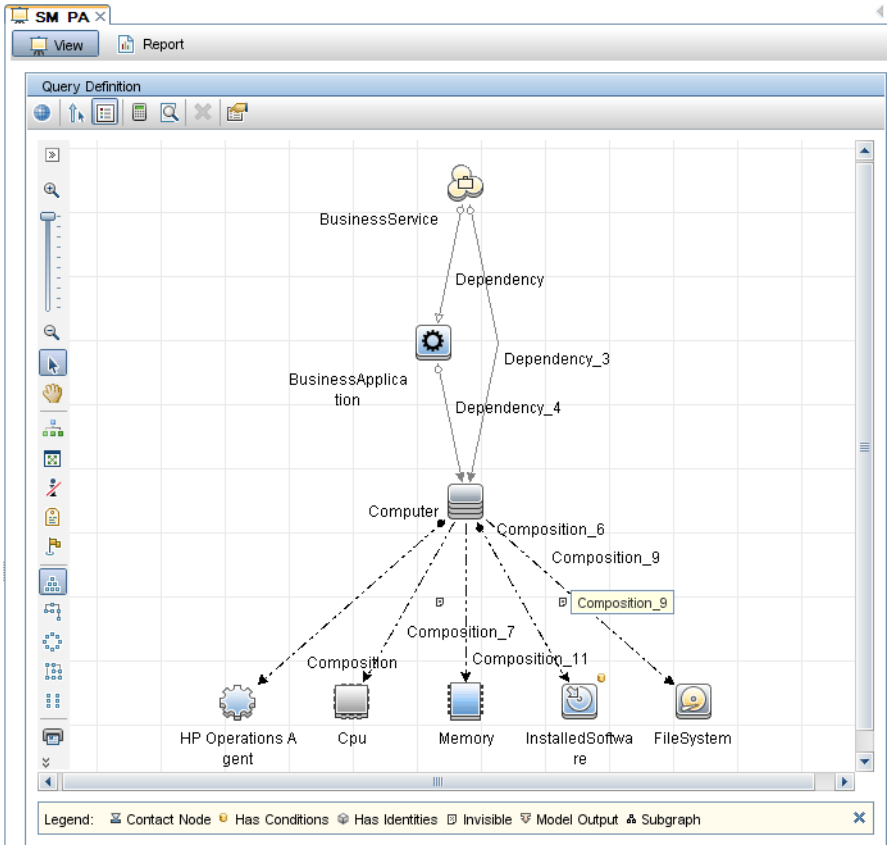
4 Click **Modeling** → **Modeling Studio**. The Modeling Studio page opens.



5 In the Resources pane, expand **HP-SHR**, expand a Content Pack folder and double-click a topology view to open it.

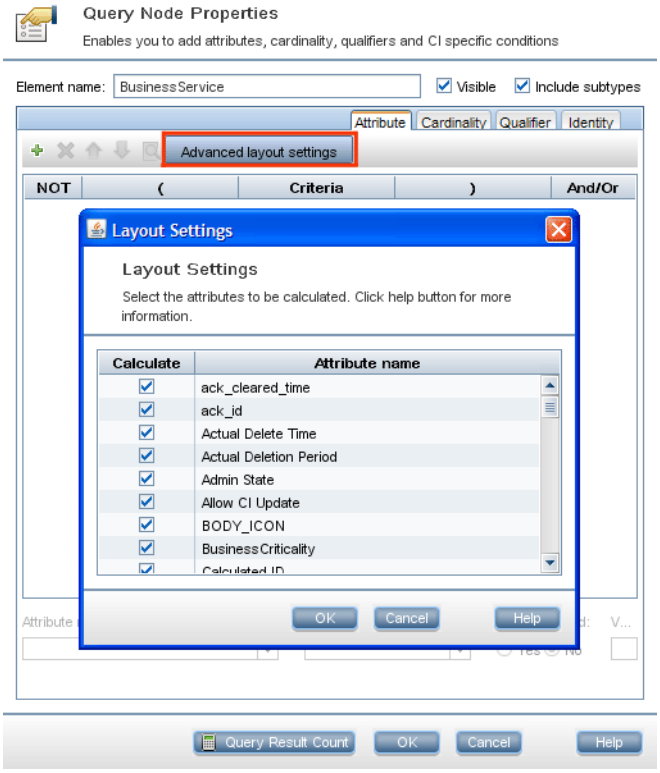


6 In the Topology pane, right-click any node in the topology diagram, and then click **Query Node Properties** to view the list of CI attributes for the selected node.



The Query Node Properties dialog box opens.

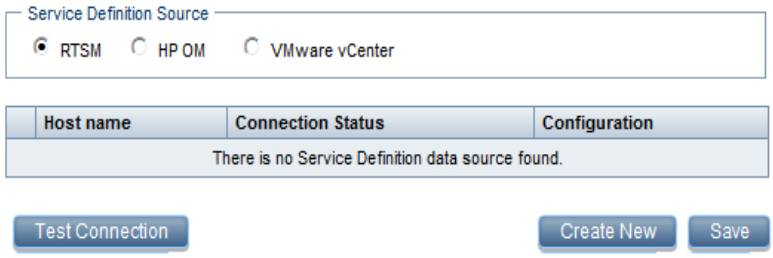
7 Click **Advanced layout settings**. The Layout Settings dialog box opens. Select the attributes that you want to enable and then click **OK**.



You have successfully deployed the Content Packs views based on the type of deployment scenario selected for SHO.

Task 2: Configure the RTSM Service Definition Source

On the Configure Topology Source page, you can configure the RTSM service definition source to provide the topology information of the managed environment.



To configure RTSM Service Definition source:

1 Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration**. The Administration Console opens.

2 On the Login screen, in the **Login Name** field, type **`Administrator`**, and then click **Log in**.

3 In the Administration Console, click **Topology Source** → **Service Definition**. The Service Definition page opens.

4 Under **Service Definition Source**, select **RTSM** to create an RTSM data source connection.

You cannot change the topology source after it has been configured on the Service Definition page.

5 Click **Create New**. The Connection Parameters dialog box opens.

6 Type the following values in the Connection Parameters dialog box:

Field	Description
Host Name	IP address or FQDN of the BSM server. If your HP BSM installation is distributed, type the name of the data processing server (DPS) in the **Host name** field.
Port	Port number to query the RTSM web service. The default port number is 21212. If the port number has been changed, contact your database administrator for more information.
User name	Name of the RTSM web service user. The default user name is **admin**.
Password	Password of the RTSM web service user. The default password is **admin**.

You can create only one RTSM data source connection. After the connection is created, the Create New button is disabled by default. Since this configuration is a one-time setup, make sure that you type in the correct values.

7 Click **OK**.

8 Click **Test Connection** to test the connection.

9 Click **Save**.

10 In the message box, click **Yes**. A `Saved Successfully` message appears in the Information message panel.

For more information about configuring the RTSM service definition source, see the *Online Help for Administrators* topic, Managing the enterprise topology.

11 Click **Next**. The Summary page opens.

12 Click **Finish** to complete the post-install configuration tasks. The Deployment Manager page opens.

13 Close the Administration Console and reboot your system to ensure that the dependency between HP PMDB Platform Collection Service and HP PMDB Platform Message Broker Service takes effect.

After you reboot the system, you can proceed with installing the required Content Packs. For more information, see Deploying the Content Packs on page 57.

If you want VMware vCenter to collect virtualization data, you must configure VMware vCenter for data collection after you install the Content Packs. For steps to configure VMware vCenter for data collection, see Configuring VMware vCenter for Data Collection on page 59.

Configuring the HPOM Topology Source for SHO

In the HPOM deployment scenario, the HPOM database is the source of the topology information of the managed nodes. SHO supports data collection from HPOM for Windows and HPOM for Unix, HPOM for Linux, and HPOM for Solaris databases.

The topology relationship is limited to node groups, nodes, and node resource. The group information is obtained from the HPOM node groups. Node resource information is discovered by SHO based on the rules defined by Content Packs.

Prerequisites

Before configuring the HPOM topology source connection, you must perform certain prerequisite tasks depending on how HPOM is installed in your environment—whether within a domain or as a standalone system.

Configuring the SHO Services for Domain Users

If SHO is installed on a system with a domain administrator account instead of a local account, the PMDB Platform Service and PMDB Platform Collection Service will not start for the HPOM deployment scenario. Therefore, you must configure the services for the domain user before configuring the HPOM service definition source connection.

Configure the PMDB Platform Service for the Domain Account

Perform the following steps:

1. Click **Start** → **Run**. The Run dialog box opens.
2. Type **`services.msc`** in the **Open** field, and then press **ENTER**. The Services window opens.
3. On the right pane, right-click **Platform**, and then click **Stop**.
4. Right-click **SHR** and then click **Properties**. The SHR Service Properties dialog box opens.
5. On the **Log on** tab, select **This account**.
6. Type the domain user name in the blank field. For example, if the user is of the domain DOMAIN and with the user name Administrator, then type **`DOMAIN\Administrator`** in the field.
7. Type the user password in the **Password** field.
8. Retype the password in the **Confirm password** field.
9. Click **Apply** and then click **OK**.
10. On the right pane, right-click **Platform**, and then click **Start**.

Configure the PMDB Platform Collection Service for the Domain Account

Perform the following steps:

1. Click **Start** → **Run**. The Run dialog box opens.
2. Type **`services.msc`** in the **Open** field, and then press **ENTER**. The Services window opens.
3. On the right pane, right-click **Platform Collection Service**, and then click **Stop**.
4. Right-click **Platform Collection Service** and then click **Properties**. The PMDB Platform Collection Service Properties dialog box opens.

5 On the **Log on** tab, select **This account**.

6 Type the domain user name in the blank field.

7 Type the user password in the **Password** field.

8 Retype the password in the **Confirm password** field.

9 Click **Apply** and then click **OK**.

10 On the right pane, right-click **PMDB Platform Collection Service**, and then click **Start**.

These steps are mandatory only if the product is being installed for a domain user. These steps are not required if the product is installed for a local user.

After performing the configuration steps, proceed with the HPOM service definition connection configuration.

Configure the HPOM Service Definition Source

Use the Administration Console to configure the HPOM service definition source connections to provide the topology information.

The default SQL Server Express that gets installed with HPOM for Windows does not accept remote connections.

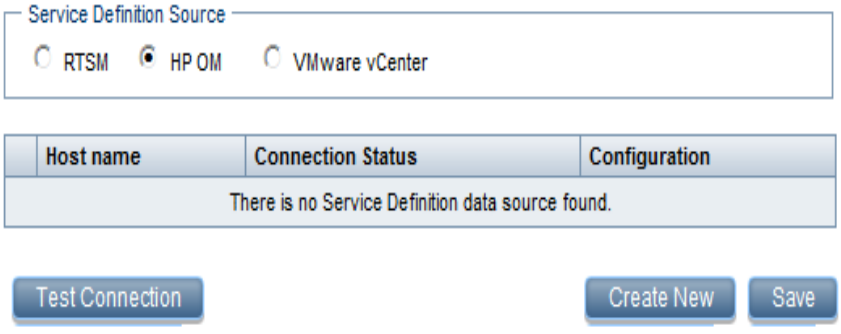
Perform the following steps:

1 Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration**. The Administration Console opens.

2 On the Login screen, in the **Login Name** field, type **`Administrator`**, and then click **Log in**.

3 In the Administration Console, click **Topology Source** → **Service Definition**. The Service Definition Source page opens.

4 Under **Service Definition Source**, select **HP OM** to create an HPOM data source connection.



You cannot change the topology source after it has been configured on the Service Definition page.

5 Click **Create New**. The Connection Parameters dialog box opens.

6 Type the following values in the Connection Parameters dialog box:

If you are using the database method of authentication to connect to the HPOM database server, you must provide the user details that have the select and connect permissions for the “openview” database.

Field	Description
Datasource Type	Select the type of HPOM that is configured in your environment. The options include: • HPOM for Windows • HPOM for Unix • HPOM for Linux • HPOM for Solaris
Database Type	Depending on the data source type that you select, the database type is automatically selected for you. • For the HPOM for Windows data source type, the database type is MSSQL. • For the HPOM for Unix, HPOM for Linux, or HPOM for Solaris, the database type is Oracle.
Host Name	IP address or fully-qualified domain name (FQDN) of the HPOM database server.
Database Instance	System identifier (SID) of the database instance in the data source. The default database instance is OVOPS.
Database Name	Name of the HPOM database. This field only appears if HPOM for Windows is selected as the data source type. The name of the database is openview.
Port	Port number to query the HPOM database server. To check the port number for the database instance, such as OVOPS, see Checking for the HPOM Server Port Number on page 54.
Windows Authentication	Option to enable Windows Authentication for accessing the HPOM database. The user can use the same credentials to access HPOM as that of the Windows system hosting the database. This option only appears if HPOM for Windows is selected as the data source type.
Username	Name of the HPOM database user. For the HPOM for Windows data source type, if the Windows Authentication option is selected, this field is disabled and appears empty. For information on creating a new user account for the HPOM database server, see Creating Database User Account on an HPOM Database Server on page 97.
Password	Password of the HPOM database user. For the HPOM for Windows data source type, if the Windows Authentication option is selected, this field is disabled and appears empty.

7 Click **OK**.

8 Click **Test Connection** to test the connection.

9 Click **Save**.

10 In the message box, click **Yes**. A `Saved Successfully` message appears in the Information message panel.

You can configure additional HPOM data sources by performing steps 3-6 above.

> To collect data from non-domain hosts, appropriate DNS resolutions must be made by the HPOM administrator for these hosts so that they are reachable by SHO, which is installed in the domain.

11 To change the HPOM data collection schedule for one or more hosts, under **Schedule HP OM Synchronization**, specify a synchronization time between 1 and 24 hours in the **Hrs** box.

12 Click **Apply**.

13 Click **Save**. A `Saved Successfully` message appears in the Information message panel.

For more information about configuring HPOM service definition sources, see the *Online Help for Administrators* topic, Managing the enterprise topology.

Checking for the HPOM Server Port Number

If SQL Server is the database type used in HPOM, see step 3 in Creating Database User Account on an HPOM Database Server on page 97 to check for the HPOM server port number.

If Oracle is the database type in HPOM, perform the following steps to check for the port number:

1 Log on the Oracle server.

2 Browse to the `$ORACLE_HOME/network/admin` or `%ORACLE_HOME%\NET80\Admin` folder.

3 Open the `listener.ora` file. The port number for the HPOM server is listed in the file.

After you configure the HPOM topology source, in the PMDB Platform Configuration Wizard, click **Next**. The Summary page opens. Click **Finish** to complete the post-install configuration tasks. The Deployment Manager page opens.

Close the Administration Console and reboot your system to ensure that the dependency between PMDB Platform Collection Service and PMDB Platform Message Broker Service takes effect.

After you reboot the system, you can proceed with installing the required Content Packs.

> If you want VMware vCenter to collect virtualization data, you must configure VMware vCenter for data collection after you install the Content Packs. For steps to configure VMware vCenter for data collection, see Configuring VMware vCenter for Data Collection on page 59.

Configuring VMware vCenter Topology Source for SHO

Before you configure VMware vCenter as a topology source for SHO, you must set the appropriate user permissions and the Statistics Level in the VMware vCenter.

You must set the appropriate user permissions and the Statistics Level for each VMware vCenter that you want to use as a topology source for SHO.

User Permissions

In the VMware vCenter server, grant the user the following permissions:

- Set the **datastore** permission to **Browse Datastore**.
- Set the **datastore** permission to **Low Level File Operations**.
- Set the **sessions** permission to **Validate session**.

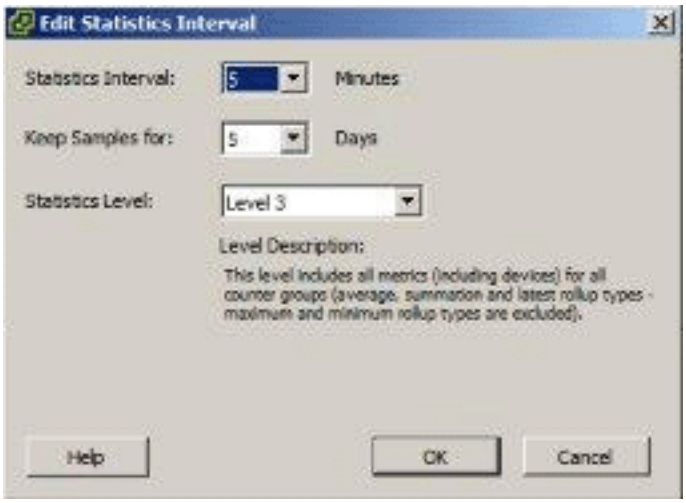
Statistics Level

To set the Statistics Level in the VMware vCenter server,:

1. In the vSphere Client, click **Administration** → **vCenter Server Settings**.
2. In the vCenter Server Settings window, click **Statistics**.
   The Statistics Interval page displays the time interval after which the vCenter Server statistics will be saved, the time duration for which the statistics will be saved and the statistics level.
3. Click **Edit**.
4. In the Edit Statistics Interval window, set the:
   - **Statistics Interval**

     You must set the statistics interval as 5 minutes.

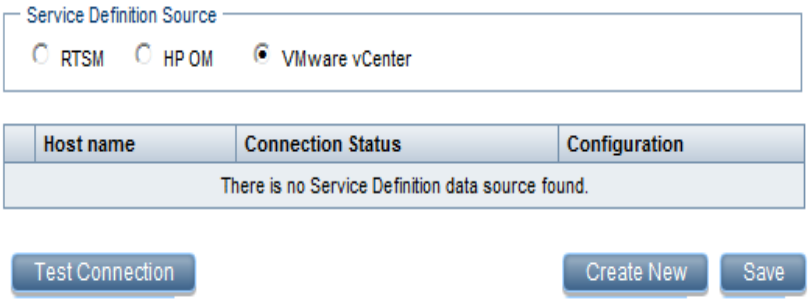
   - **Statistics Level**
     For the statistics level that you select, the Edit Statistics Interval window displays the type of statistics which will be collected for that level.



You must set the minimum statistics level as 2.

To configure VMware vCenter as topology source for SHO:

1 Under **Service Definition Source**, select **VMware vCenter** to create a VMware vCenter data source connection.



You cannot change the topology source after it has been configured on the Service Definition page.

2 Click **Create New**. The Connection Parameters dialog box opens.

3 Enter the following values in the Connection Parameters dialog box:

Field	Description
Host name	IP address or fully-qualified domain name (FQDN) of the VMware vCenter database server.
User name	User name to access the VMware vCenter.
Password	Password of the VMware vCenter user.

The VMware vCenter sources that you configure for topology collection are automatically configured by SHO for collecting performance data.

4 Click **OK**. The VMware vCenter details are listed in the table.

5 Click the checkbox before the Host Name for each VMware vCenter.

6 Click **Test Connection.**

7 Click **Save**.

8 In the message box, click **Yes**. A `Saved Successfully` message appears in the Information message panel.

If multiple VMware vCenters are used for topology collection, repeat steps 2-8 above for each VMware vCenter connection that you want to create.

7 Deploying the Content Packs

For deploying the required Content Packs, SHO provides the Deployment Manager utility through the Administration Console. This web-based interface simplifies the deployment process by organizing the Content Packs based on the domain, the data source applications from where you want to collect data, and the specific Content Pack components you want to install to collect the data. For more information on the different components into which the Content Packs are divided, see Content Pack Components on page 106.

Once the topology source is configured, the Deployment Manager filters the list of Content Pack components to display only those components that can be deployed in the supported deployment scenario.

Deploying the Content Packs

To deploy the Content Packs:

1. Open the Administration Console.
   To access the Administration Console directly, type the following address in a web browser: **http://<server name>.<domain name>:21411/** where <*server name*> is the name of the host system on which you have installed SHO and <*domain name*> is the name of your domain according to your network configuration. The Administration Console opens.
2. Enter the valid user name and password. Click **Log In**.
   The Home page opens.

   The default user name is **administrator.** Leave the password field blank.
3. On the left pane, click **Administration** and then click **Deployment Manager**. The Deployment Manager page opens.

   If SHR is already installed on the system, then remove the VirtualEnvPerf_ETL_VMWare_PerformanceAgent Content Pack. This ensures that performance data is collected only from VMware vCenter.

Install the following content packs depending on the deployment scenario:

Common Content Packs *(To be installed in all deployment scenarios)*	• Core_Domain • SHO • VirtualEnvPerf_Domain • VirtualEnvPerf_Domain_VMWare • SysPerf_Domain • vCenter Collector ContentPack
RTSM Deployment Scenario	• SysPerf_ETL_PerformanceAgent This is an **optional** Content Pack. Deploy this Content Pack if you want to collect data for stand-alone hosts. • VirtualEnvPerf_ETL_HyperV_Performance Agent This is an **optional** Content Pack. Deploy this Content Pack if you want to collect data for HyperV hosts. • Real_User_Management This is an **optional** Content Pack. You can deploy this Content Pack only if SHR is installed on the same system.
HPOM Deployment Scenario	• SysPerf_ETL_PerformanceAgent This is an **optional** Content Pack. Deploy this Content Pack if you want to collect data for stand-alone hosts. • VirtualEnvPerf_ETL_HyperV_Performance Agent This is an **optional** Content Pack. Deploy this Content Pack if you want to collect data for HyperV hosts.
VMware vCenter Deployment Scenario	• No additional Content Packs to be installed.

Review the list of the selected Content Packs.

4 Click **Deploy**.

The Content Packs are installed one after the other beginning with the Default Content Pack and then the dependent Content Packs.

The **Status** column displays the progress of the installation. Refresh the Deployment Manager page to display the updated status.

Once the installation completes, `Installation Successful` is displayed in the Status column for each Content Pack component.

8 Setting up SHO for Data Collection

After installing the Content Packs, you must configure SHO to collect data.

- If you want VMware vCenter to collect virtualization data in RTSM or HPOM deployment scenario, you must add the VMware vCenter data sources from which data will be collected. For steps to configure VMware vCenter for data collection in RTSM or HPOM deployment scenario, see Configuring VMware vCenter for Data Collection.

  In **VMware vCenter deployment scenario**, the VMware vCenter sources that you configure for topology collection are automatically configured by SHO for collecting performance data.

- For steps to modify the VMware vCenter data collection, see Modifying the VMware vCenter Data Collection.

Configuring VMware vCenter for Data Collection

Before you configure VMware vCenter for data collection, you must set the appropriate user permissions and the Statistics Level in the VMware vCenter.

User Permissions

In the VMware vCenter server, grant the user the following permissions:

- Set the **datastore** permission to **Browse Datastore**.
- Set the **datastore** permission to **Low Level File Operations**.
- Set the **sessions** permission to **Validate session**.

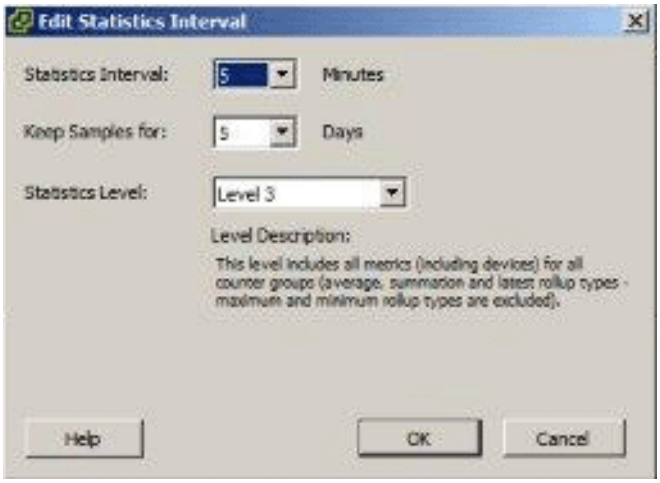
Statistics Level

To set the Statistics Level in the VMware vCenter server,:

1. In the vSphere Client, click **Administration** → **vCenter Server Settings**.
2. In the vCenter Server Settings window, click **Statistics**.
   The Statistics Interval page displays the time interval after which the vCenter Server statistics will be saved, the time duration for which the statistics will be saved and the statistics level.
3. Click **Edit**.
4. In the Edit Statistics Interval window, set:
   - **Statistics Interval**

     You must set the statistics interval as 5 minutes.

- **Statistics Level**
  For the statistics level that you select, the Edit Statistics Interval window displays the type of statistics which will be collected for that level.



- Set the minimum statistics level as 2.

To add VMware vCenter data sources:

1 In the Administration Console, click **Collection Configuration** → **VMware vCenter Data Source**. The VMware vCenter Data Source page opens.

2 Click **Create New**. The Connection Parameters dialog box opens.

3 Type the following values in the Connection Parameters dialog box:

Field	Description
Host name	IP address or fully-qualified domain name (FQDN) of the VMware vCenter server.
User name	The valid user name to access the VMware vCenter server.
Password	The valid password to access the VMware vCenter server.

4 Select the check box next to the host name and then click **Test Connection** to test the connection.

To change the VMware vCenter data polling schedule for one or more hosts, in the **Schedule Frequency** column, specify a polling time between 5 and 60 minutes in the **Mins** box.

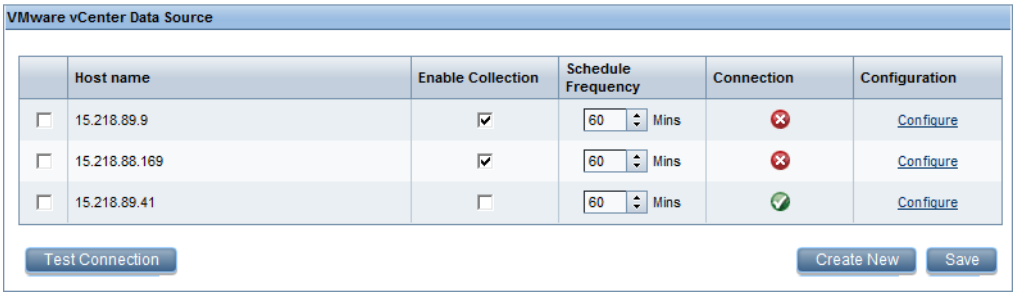
5 Click **Save**. A `Saved Successfully` message appears in the Information message panel.

If multiple VMware vCenters are used for topology collection, repeat steps 2-5 above for each VMware vCenter connection that you want to create.

Modifying the VMware vCenter Data Collection

To modify the VMware vCenter data collection in VMware vCenter deployment scenario:

1 In the Administration Console, click **Collection Configuration** → **VMware vCenter Data Source**. The VMware vCenter Data Source page opens.



2 Click **Configure**. The Connection Parameters dialog box opens.

3 Type the following values in the Connection Parameters dialog box:

Field	Description
Host name	IP address or fully-qualified domain name (FQDN) of the VMware vCenter database server.
User name	The valid user name to access the VMware vCenter.
Password	The valid password to access the VMware vCenter.

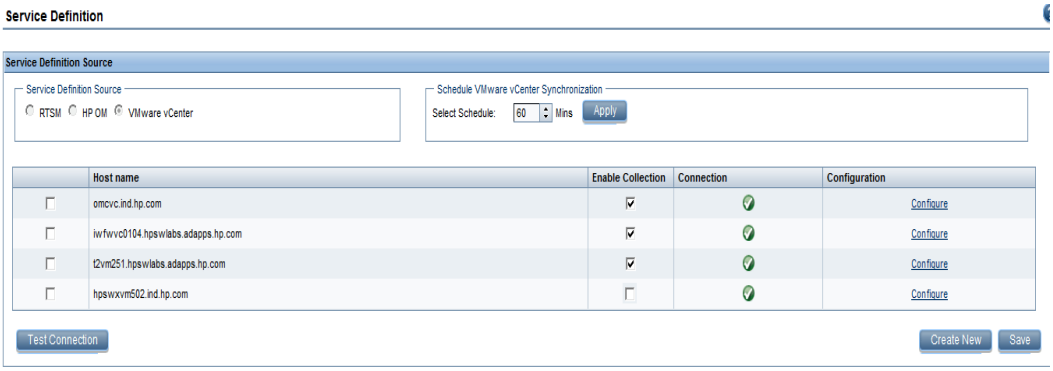
4 Select the check box next to the host name and then click **Test Connection** to test the connection.

> To change the VMware vCenter data collection schedule for one or more hosts, in the **Schedule Frequency** column, specify a collection time between 5 and 60 minutes in the **Mins** box.

5 Click **Save**. A `Saved Successfully` message appears in the Information message panel.

Disabling Data Collection in VMware vCenter Deployment Scenario

If you disable data collection by a VMware vCenter from the VMware vCenter Data Source page, you must manually disable the topology collection for the same VMware vCenter server from the **Topology Source** → **Service Definition** page.



9 Configuring SHO Web Server Connection to SHO Database

To connect the SHO server to the database:

1. To go to the SHO users' interface, enter the following URL in a web browser: **http://*<server name>*.*<domain name>*:8081/SHO/** where <*server name*> is the name of the host system on which you have installed SHO and <*domain name*> is the name of your domain according to your network configuration. The SHO users' interface opens.
2. Enter the valid login credentials and click **Log In**. The DB Configuration window opens.
3. Define the SHO Database Configuration.

Field	Description
Host	The fully qualified SHO database host name.
Port	Port number to query the database. The default port number is 21424.
Username	The user name for accessing the database. You must create this user in the SHO database when you configure SHO.
Password	The password for accessing the database.

   Click **Test** to check whether you have defined the correct database details.
4. Click **Save**.
5. Click **Restart SH Optimizer** after making any changes to this page. This restarts the SHO application server hosted on HP OpenView Tomcat server.

If you change the SHO database password in the Administration Console, you must update the password in the DB Configuration window too. Failure to do so may result in SHO Users' Interface showing blank graphs.

10 User Management in SHO

SHO uses an open source component, Shiro, for user management. SHO supports authentication for local users and LDAP users.

SHO has default credentials to enable users to login immediately after SHO installation is completed.

However, SHO allows you to change the default user credentials.

Changing the default password for existing users

To change the default password for existing users:

1. Type the following command in the command prompt:

   %OvInstallDir%/bin/sho/updatepassword.bat -change <*username*> <*password*>

   where, <*username*> is the existing user name and <*password*> is the new password.

2. Restart the HP Openview Tomcat(B) Servlet Container service.
   For more information, see Restarting the HP Openview Tomcat(B) Servlet Container service.

SHO also enables you to reset the password to blank.

To reset the password:

1. Type the following command in the command prompt:

   %OvInstallDir%/bin/sho/updatepassword.bat -reset <*username*>

   where, <*username*> is the user name for which you want to reset the password.

2. Restart the HP Openview Tomcat(B) Servlet Container service.
   For more information, see Restarting the HP Openview Tomcat(B) Servlet Container service.

Enabling a local user to access SHO

To enable a local user to access SHO:

1. Type the following command in the command prompt:

   %OvInstallDir%/bin/sho/adduser.bat -local <*username*> <*password*>

   where, <*username*> is the new user name and <*password*> is the new password for the local user.

2. Restart the HP Openview Tomcat(B) Servlet Container service.
   For more information, see Restarting the HP Openview Tomcat(B) Servlet Container service.

Enabling authentication for LDAP users

To configure SHO for LDAP authentication:

1. Go to **%OVDATADIR%\conf\SHO**.
2. Double click `shiro.ini`.
3. Delete '#' from the following lines of code:

   ```
   #ldapRealm = org.apache.shiro.realm.ldap.JndiLdapRealm
   #ldapRealm.userDnTemplate = <template>
   #ldapRealm.contextFactory.url = ldap://<host>:<port>
   #ldapRealm.contextFactory.authenticationMechanism = SIMPLE
   ```

4. In the <*template*> tag, define the LDAP template.

   For example, consider the following scenario:

   - The operational unit for a user of an application is **xyz**.
   - The operational unit for **xyz** is **abc**.
   - The operational units **xyz** and **abc** fall under the **example.com** domain.

   Then, then template will be:

   uid={0},ou=xyz,ou=abc,dc=example,dc=com

   In the above template, **{0}** will be replaced by the user id of the SHO user during runtime.

   If you do not know the operational units, then you can get the template from the Active Directory host.

   Follow these steps to get the LDAP template from the Active Directory host:

   1. Log in to the Active Directory host as an administrator.
   2. Run the following command in a single line:

      ldifde -f <*filename*>.ldf -s localhost -r (samaccountname=<*username*>)

      where, <*filename*> is the file name that you assign to the `.ldf` file and the <*username*> is the name of the user to whom you want to assign access to SHO.

      This command creates a `.ldf` file in the location where you run the above command.

   3. Open the `.ldf` file.
   4. Use the value of the `Distinguished Name (DN)` parameter as the LDAP template.

      Before you copy the DN parameter to `shiro.ini` file, ensure that you replace the value of **CN** or **UID** with **{0}**.

5. In the <*host*> and the <*port*> tags, define the host and port number of the LDAP server.

After you configure SHO for LDAP authentication, you can grant access to existing LDAP users.

To enable existing LDAP users to access SHO:

1. Type the following command in the command prompt:

   `%OvInstallDir%/bin/sho/adduser.bat -LDAP <username>`

   where, <*username*> is the existing LDAP user name.

2. Restart the HP Openview Tomcat(B) Servlet Container service.
   For more information, see Restarting the HP Openview Tomcat(B) Servlet Container service.

Restarting the HP Openview Tomcat(B) Servlet Container service

1. Click **Start** → **Run**. The Run dialog box opens.
2. Type **`services.msc`** in the Open field, and then press **ENTER**. The Services window opens.
3. Right-click the **HP Openview Tomcat(B) Servlet Container** service, and then click **Restart**.

11 Licensing

After installing and configuring SHO, you must obtain and install the license for SHO.

Obtaining a Permanent License

To obtain a permanent license for SHO:

1. Login to the SHO users' interface.
2. On the menu bar of the users' interface, click **Configuration** → **General**.
3. On the Configuration View page, click the **License** tab.
4. On the Licensing tab, click **Launch HP Password Center**.
   The HP Licensing for Software page opens.

   If the SHO license expires, then you cannot access the SHO Users' Interface. In this scenario, type the following URL in a Web browser to access the HP Licensing for Software page: **https://h30580.www3.hp.com/poeticWeb/portalintegration/hppWelcome.htm**.

5. Click **Generate New licenses** under Welcome.
6. Log on to HP Passport with your user ID and password. If you do not have an account, you must create one before you can proceed. The Order number page opens.
7. Type the order number in the **Entitlement Order number** field and click **Go**.
   The Product selection page opens.
8. Select **PERM** and click **Activate**.
   The License redemption page opens.
9. Select **Find or create a license owner** and type your e-mail address in the **License Owner e-mail address** field.
10. Type the IP address of the SHO host system and click **Next**.
    The Create license owner page opens.
11. Type the license owner information:

Field	Description
Create license owner (End-User) information	Name, phone number, and email address of the license owner.
Company email domain	Domain name of the license owner's company.
Mailing address	Mailing address of the license owner.
License owner privacy policy (Optional)	Optional settings for License owner privacy policy.

12 Click **Next**.
The Transaction summary page opens.

13 Review the summary and click **Next**.
The License certificate page opens.

14 Review the license certificate information and save the license to your system.

After you have obtained a permanent license, you will receive an email containing the license key.

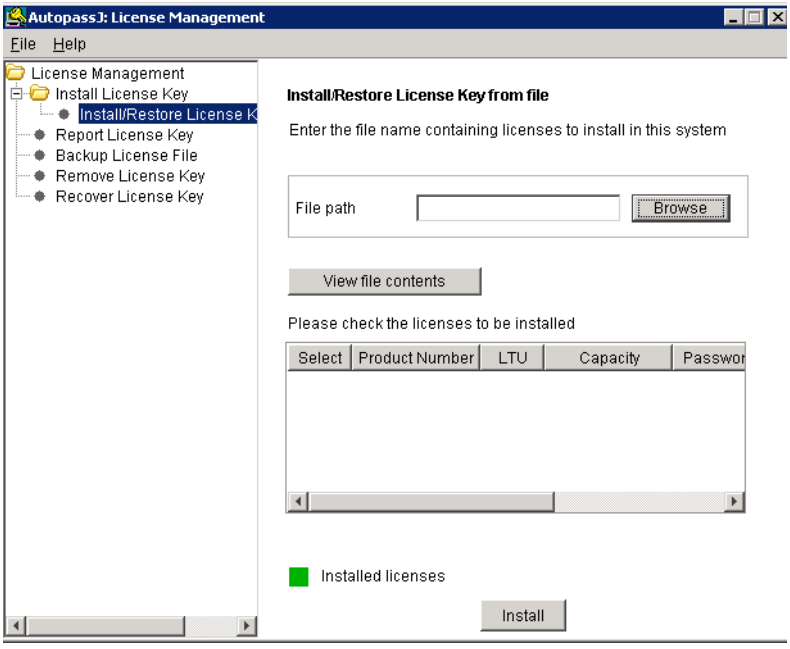
Copy the license key from the email that you have received and paste it into a text (.txt) file. Save the file.

Installing the Permanent License for SHO

To install the permanent license:

1 Log on to the system where you have installed SHO with Administrator privileges.

2 Click Start **Programs** → **HP Software** → **SH Optimizer** → **License Manager**. The AutopassJ: License Management window opens.



3 Click **Browse** on the Install/Restore License Key from file page.

4 Browse to the location of the saved text file, select the file and click **Open**.

5 Click **View file contents**. The licenses are displayed in the box below.

6 Select the licenses that you want to install and click **Install**.

12 Validating Your SHO Setup

After you install the SHO server and configured SHO to collect data from the various data sources, you might want to verify if the product is working properly.

This chapter covers certain validation tasks that you can perform to verify the success of the installation. After installing and configuring SHO, wait for at least three hours before performing the following validation tasks.

☐ Check whether SHO Services are running.	See Check the SHO Services on page 72.
☐ Check whether SHO server is connected to the SHO database.	See Check for the SHO Database on page 73.
☐ Check whether SHO has been properly configured to collect topology data.	See Check the Topology Collection Status on page 75.
☐ Check whether all the Content Packs are properly installed.	See Check for the Installed Content Packs on page 75.
☐ Check the stream status for the installed Content Packs.	See Check the Workflow Stream Status for the Content Packs on page 76.

Check the SHO Services

You must check whether the SHO services are running, including the SHO database services.

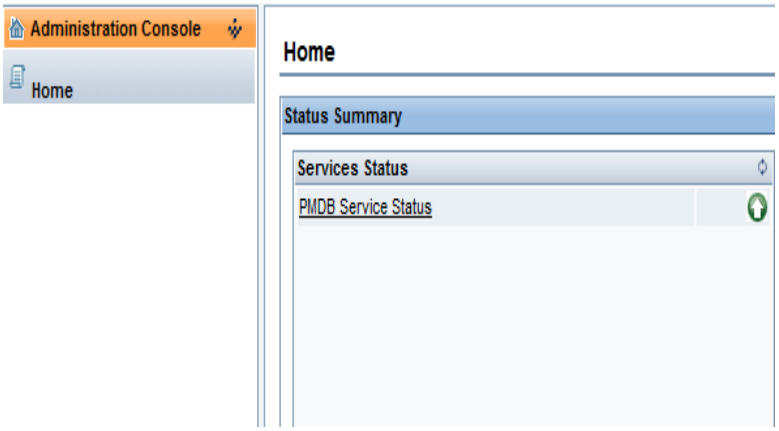
Check whether the following services are running:

- HP_PMDB_Platform_Administrator
- HP_PMDB_Platform_Collection
- HP_PMDB_Platform_DB_Logger
- HP_PMDB_Platform_IM
- HP_PMDB_Platform_Message_Broker
- HP_PMDB_Platform_PostgreSQL
- HP_PMDB_Platform_Sybase
- HP_PMDB_Platform_Timer
- HP Openview Tomcat(B) Servlet Container Service

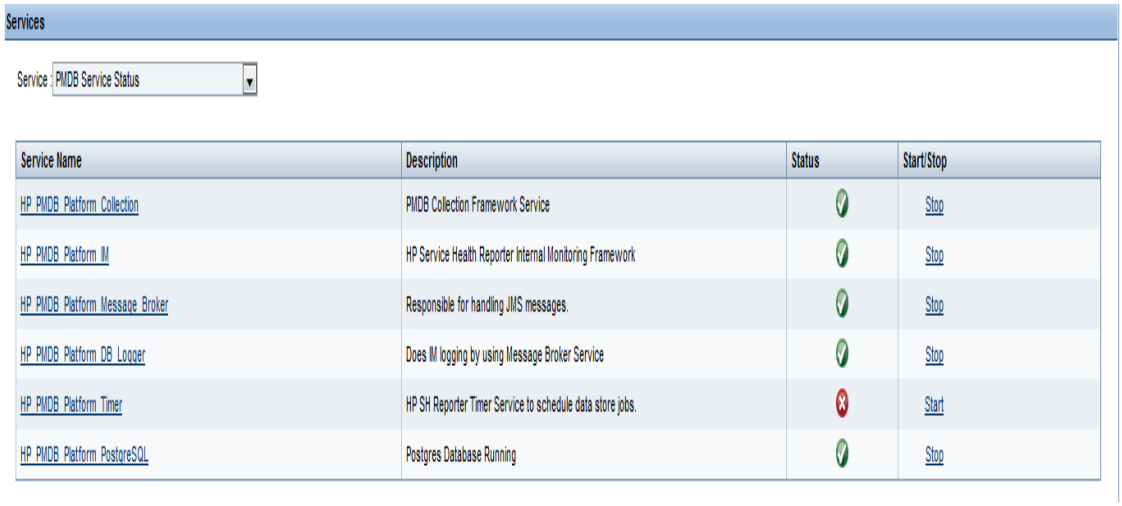
To check for the services in the Administration Console:

1. Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration** to open the Administration Console.
2. Type the user credentials in the Login screen and click **Log In**. The Platform Home page opens.
3. On the Home page, observe the status of the SHO services in the **Services Status** section.

   The icon indicates that the service are up and running.



4 Click the **PMDB Service Status** hyperlink to view the list of individual services and their status. The Services page opens.

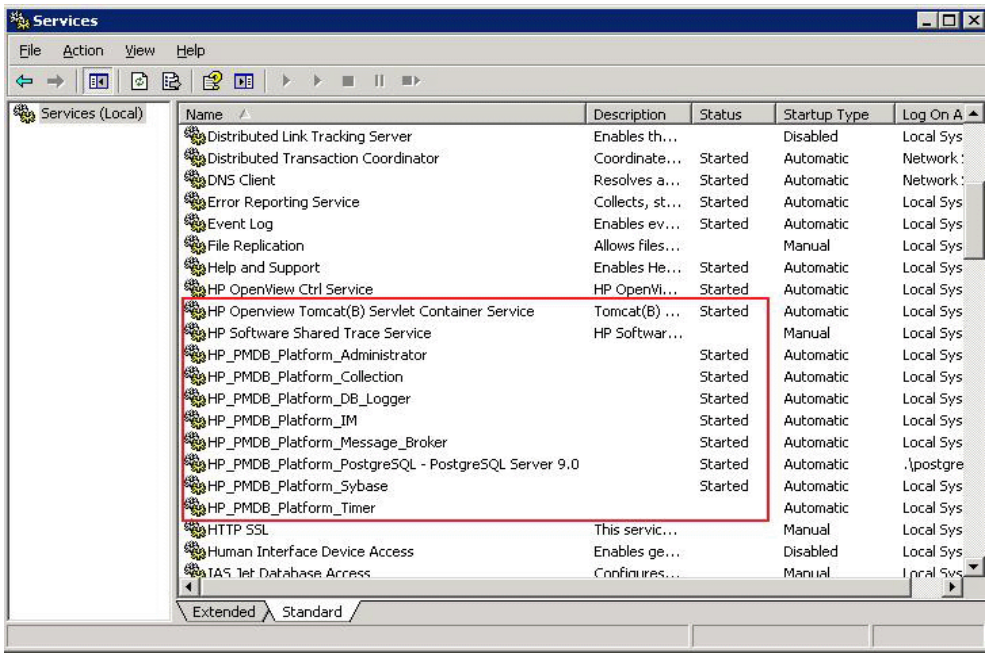


Alternatively, you can check the services in the Services window by performing the following steps:

1 Click **Start** → **Run**. The Run dialog box opens.

2 Type **`services.msc`** in the **Open** field, and then press **ENTER**. The Services window opens.

3 On the right pane, view the status of the SHO services.

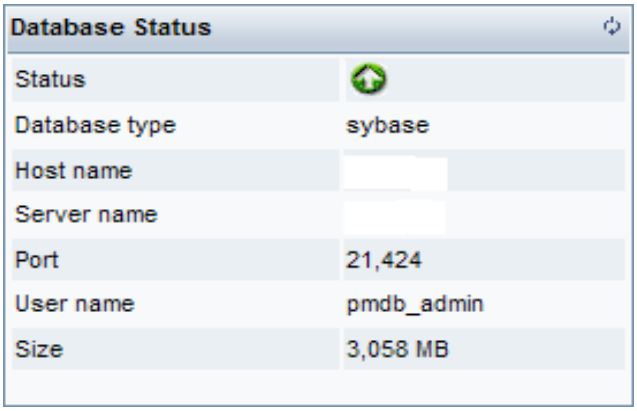


Check for the SHO Database

After checking the SHO services, you can check if the database created during the post-install configuration phase exists.

You can check the status of the database in the Administration Console.

1. Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration** to open the Administration Console.
2. Type the user credentials in the Login screen and click **Log In**. The Administration Console Home page opens.
3. On the Home page, observe the status of the SHO database in the **Database Status** section.



4. On the left pane, click **Internal Monitoring** → **Database Monitoring** to view more information about the database. The Database Monitoring page opens.
   On this page, you can view the detailed database information, connection status, availability, and space usage of the database.

Verify the SHO Database License Type

If SHO database is installed on a system that uses the Intel EM64T processor, you must verify the SHO database license type in the `pmdb.lmp` file. If the license type is not the OEM CPU License, it causes the SHO database license to expire after one month and the database stops working.

To verify the SHO database license type:

1. Browse to the location where the database files are stored. This is location you specified in step a on page 39.
2. Open the `pmdb.lmp` file in an Text Editor.
3. Verify the license type, `LT=AC`. If the value of LT is not AC, change it to AC.
4. Save the changes and close the file.

After you change the license type in the `pmdb.lmp` file, you must restart the database:

1. Click **Start** → **Run**. The Run dialog box opens.
2. Type **`services.msc`** in the **Open** field, and then press **ENTER**. The Services window opens.
3. On the right pane, right-click the SHR Sybase IQ service, and then click **Restart**.

Check the Topology Collection Status

Verify whether SHO has been properly configured to collect topology data. After topology collection is completed, SHO creates View files for the topology data. These CSV files are stored in the `%PMDB_HOME%\collect` folder. The CSV files are later transferred to `%PMDB_HOME%\stage` folder and then to the `%PMDB_HOME%\stage\archive` folder.

The following files must be present for each deployment scenario:

Common *(Visible in all deployment scenarios)*	• `<vcname>_0_relation_0_<entities>_<timestamp>.csv` where <*vcname*> is the name of the vCenter being used for collection, <*entities*> are the resources for which the topology relationship data is being collected, and <*timestamp*> denotes the time when the CSV file was generated. • `<vcname>_0_config_0_<entity>_<timestamp>.csv` where <*vcname*> is the name of the vCenter being used for collection, <*entity*> is the resource for which the configuration data is being collected, and <*timestamp*> denotes the time when the CSV file was generated. • `<vcname>_0_perf_0_<entity>_<timestamp>.csv` where <*vcname*> is the name of the vCenter being used for collection, <*entity*> is the resource for which the performance data is being collected, and <*timestamp*> denotes the time when the CSV file was generated.
RTSM	• `SM_VMWare_BusinessView_0_relations_0_<timestamp>.csv` • `SM_VMWare_0_relations_0_<timestamp>.csv` • `SM_VC_VMWare_0_business_application_0_<timestamp>.csv` • `SM_VC_VMWare_0_business_service_0_<timestamp>.csv` • `SM_VC_VMWare_0_generic_0_<timestamp>.csv` • `SM_VC_VMWare_0_vmware_esx_server_0_<timestamp>.csv` • `SM_VC_VMWare_0_VMWare_nt_0_<timestamp>.csv` • `SM_VC_VMWare_0_VMWare_unix_0_<timestamp>.csv`
HPOM	• `SM_VC_VMWare_0_relations_0_<timestamp>.csv`
VMware vCenter	• No additional files available.

Check for the Installed Content Packs

You can verify if the all the required Content Packs are installed by using the Administration Console. To view the list of Content Packs, perform the following steps:

1. Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration** to open the Administration Console.

2 Type the user credentials in the Login screen and click **Log In**. The Administration Console Home page opens.

3 On the left pane, click **Internal Monitoring** → **Content**. The SHO Content page opens. On this page, all the installed Content Packs are displayed with the date of installation.

4 If all the Content Packs are installed successfully, **Installation Successful** is displayed in the Status column for each Content Pack component.

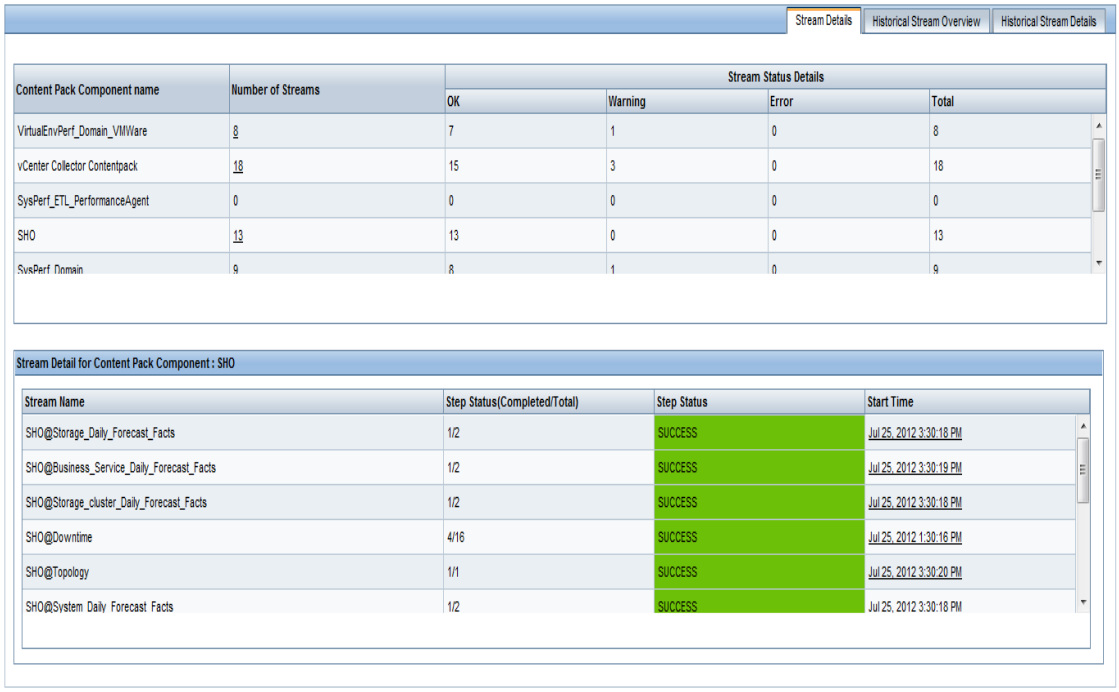
Check the Workflow Stream Status for the Content Packs

You can verify if data aggregation is taking place on the collected data and data is getting loaded into the database by checking the workflow stream status in the Administration Console. For the installed Content Packs, all workflow streams must either be running or completed successfully, but not in the waiting state. To view the stream details, perform the following steps:

1 Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration** to open the Administration Console.

2 Type the user credentials in the Login screen and click **Log In**. The Administration Console Home page opens.

3 On the left pane, click **Internal Monitoring** → **Data Processing**. The Data Processing page opens.



On this page, you can check the number of workflow streams that are running for each Content Pack and the status of those streams.

Following are the common streams that are available for all the deployment scenarios:

- ETL_SM_VI_VMWare_VC@K_CI_Bridge
- ETL_SM_VI_VMWare_VC@K_VM_DStore_Bridge
- ETL_SM_VI_VMWare_VC@K_VMWare_DataCenter

- ETL_SM_VI_VMWare_VC@SR_VMWare_ResPool
- ETL_SM_VI_VMWare_VC@K_Host_Cluster_Bridge
- ETL_SM_VI_VMWare_VC@K_CI_System
- ETL_SM_VI_VMWare_VC@K_DStore_Cluster_Bridge
- ETL_SM_VI_VMWare_VC@SR_VMWare_Cluster
- ETL_SM_VI_VMWare_VC@K_VMWare_Cluster
- ETL_SM_VI_VMWare_VC@SR_SM_NODE_RES
- ETL_SM_VI_VMWare_VC@SR_VMWare_DataStore
- ETL_SM_VI_VMWare_VC@K_VMWare_ResourcePool
- ETL_SM_VI_VMWare_VC@SR_VI_VM
- ETL_SM_VI_VMWare_VC@K_VMWare_DataStore
- ETL_SM_VI_VMWare_VC@K_VM_Host_Bridge
- ETL_SM_VI_VMWare_VC@K_CI_VM
- ETL_SM_VI_VMWare_VC@K_RP_Host_Bridge
- ETL_SM_VI_VMWare_VC@K_VMWare_VMDisk

Following streams are available for the **RTSM** deployment scenario:

- ETL_SM_VI_VMWare_VC@K_CI_Business_Service
- ETL_SM_VI_VMWare_VC@K_CI_Application
- ETL_SM_VI_VMWare_VC@K_CI

Following streams are available for the **HPOM** deployment scenario:

- ETL_SM_VI_VMWare_VC@K_CI

For more information on the step statuses, see the *Online Help for Administrators* topic, Understanding the job stream status.

Check for Data Movement in ETL

Additionally, you can verify that data is getting loaded into the SHO database by checking the `%PMDB_HOME%\stage\failed_to_load` folder. If data has been successfully loaded to the stage tables, there will not be any CSV files in the `failed_to_load` folder.

After data is loaded into the stage tables, it is moved into the database. To verify this, check the `%PMDB_HOME%\stage\collection\failed_to_load` folder. If data has been successfully stored in the database, there will not any CSV files in the `failed_to_stage` and `failed_to_load` folders.

The CSV files for the workflow streams that completed successfully are moved into the `archive` folder.

For the stream aggregation information, you can also check the `trend.log` file located in the `%PMDB_HOME%\log` folder. For data loading information, you can check the `loader.log` file.

13 Uninstalling SHO

It is mandatory to uninstall the Content Packs before uninstalling the SHO server.

- If SHO is installed on a system which has SHR installed, then remove only the SHO Content Pack.
- If you want to retain VMware vCenter as the data source, then do not remove **vCenter Collector ContentPack**.

  However, if you want to use HP Performance Agent as the data source, then remove **vCenter Collector ContentPack** and deploy the **VirtualEnvPerf_ETL_VMWare_PerformanceAgent** Content Pack.

Perform these tasks to uninstall SHO:

Task 1: Backup the pmdbconfig.cfg File

Before you start the uninstallation of SHO, backup the `pmdbconfig.cfg` file.

This file is located at: `%sybase%\IQ-15_4\Scripts\`.

Task 2: Backup SHO Database

Before you start the uninstallation of SHO, it is recommended that you backup the SHO database.

SHO provides a backup script that you must edit to fit your requirements before you begin the backup process. This script is available in the `%PMDB_HOME%\scripts\Sybase` folder.

To edit the backup script:

1. Browse to `%PMDB_HOME%\scripts\Sybase` folder.
2. Open `IQ_backup_full.sql` with the Notepad application.

   In the last parameter within the .sql script, replace **`location_for_backup`** with the location where you want to save the backup files.

   ```
   dsi_pmdb_backup
   'FULL',NULL,'READWRITE_FILES_ONLY',NULL,NULL,NULL,NULL,NULL,'D','location_for_backup'
   ```

   For example:

   ```
   'FULL',NULL,'READWRITE_FILES_ONLY',NULL,NULL,NULL,NULL,NULL,'D',
   E:\HP-SHR\Backup
   ```

   For an SHO installation with a remote database, the **location_for_backup** denotes a valid path on the SybaseIQ database server.

The script is run through the `Execute_FullBackup_Script.bat` file. This batch file is available in `%PMDB_HOME%\scripts\`.

After the script runs, a database backup is created at the specified location.

Task 3: Remove the Content Packs

To remove the Content Packs:

1. Stop the SHO Windows services:
   a. Log on to the host system, where the Content Packs are installed, as administrator.
   b. Click **Start** → **Programs** → **Administrative Tools** → **Services**. The Services window appears.
   c. On the right pane, right-click the following services and select **Stop** to stop the service:
      — HP PMDB Platform Timer
      — HP PMDB Platform Collection Service
   d. Close the Services window.
2. Click **Start** → **Programs** → **HP Software** → **SH Optimizer** → **Administration** to open the Administration Console.
3. Type **`administrator`** in the **Login Name** field and click **Log In**. The Home page opens.
4. On the left pane, click **Administration** and then click **Deployment Manager**. The Deployment Manager page opens.
5. In the remove column, click the  icon for the Content Pack component that you want to remove. The Content Pack Removal Summary dialog box opens.

   This dialog box displays the list of Content Pack components that will be removed by the Deployment Manager. This list includes the selected Content Pack component and other dependent components.
6. Click **OK**.
7. Restart the SHO Windows services:
   a. Log on to the host system, where the Content Packs are installed, as administrator.
   b. Click **Start** → **Programs** → **Administrative Tools** → **Services**. The Services window appears.
   c. On the right pane, right-click the following services and select **Start** to start the service:
      — HP PMDB Platform Timer
      — HP PMDB Platform Collection Service
   d. Close the Services window.

You have successfully removed the Content Packs.

Task 4: Uninstall SHO

Perform the following steps to uninstall SHO:

1. Click **Start** → **Settings** → **Control Panel**. The Control Panel window opens.
2. Double-click the **Add or Remove Programs** icon. The Add or Remove Programs window opens.
3. Under **Currently installed programs**, select **HP Service Health Optimizer**, and then click **Change/Remove**. The HP Software Installer opens.

HP Software Installer checks the system for any applications or services that might block the uninstallation process; such as anti-virus software. If HP Software Installer detects a hindrance, a warning or error is generated, and an Application requirements check warnings window opens.

4 View the details of the warnings listed in the Application requirements check warnings window and resolve or ignore the error or warning:

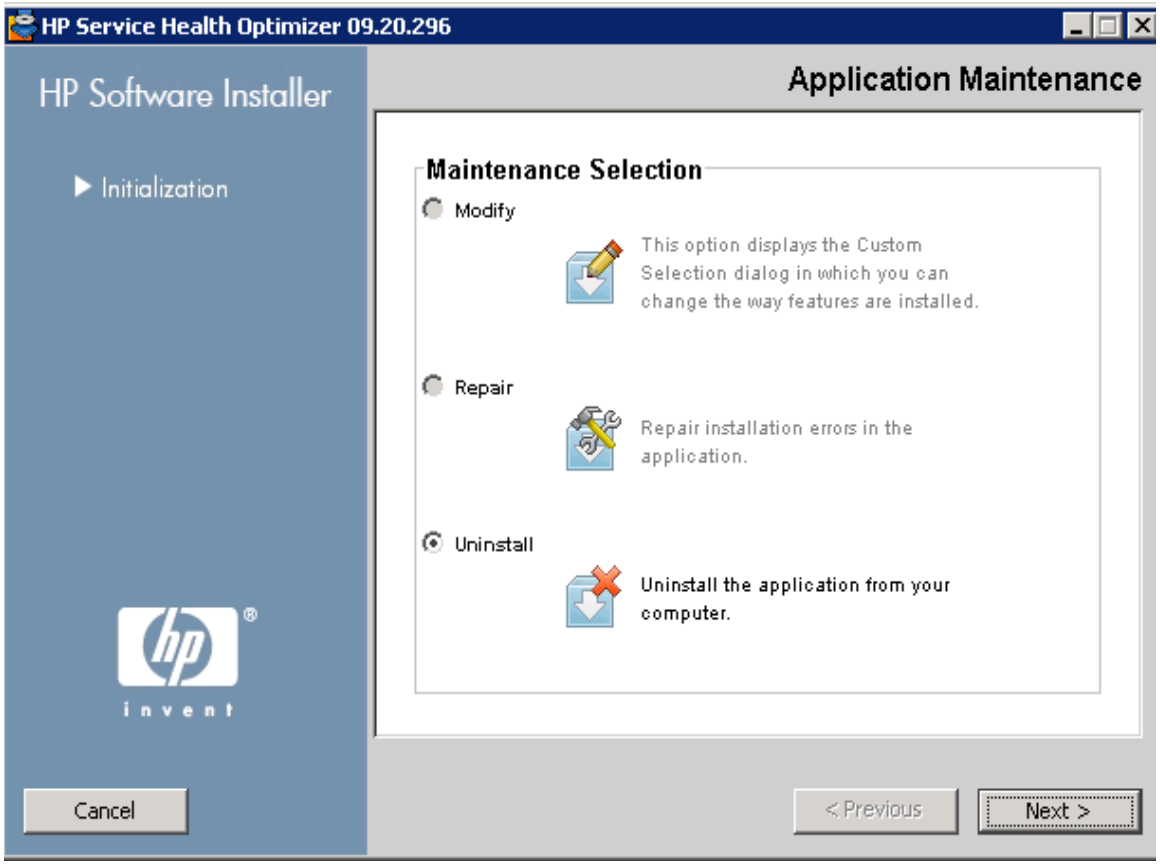
a Click the specific warning or error to view the details.

b Resolve or ignore the error or warning as described in the details:

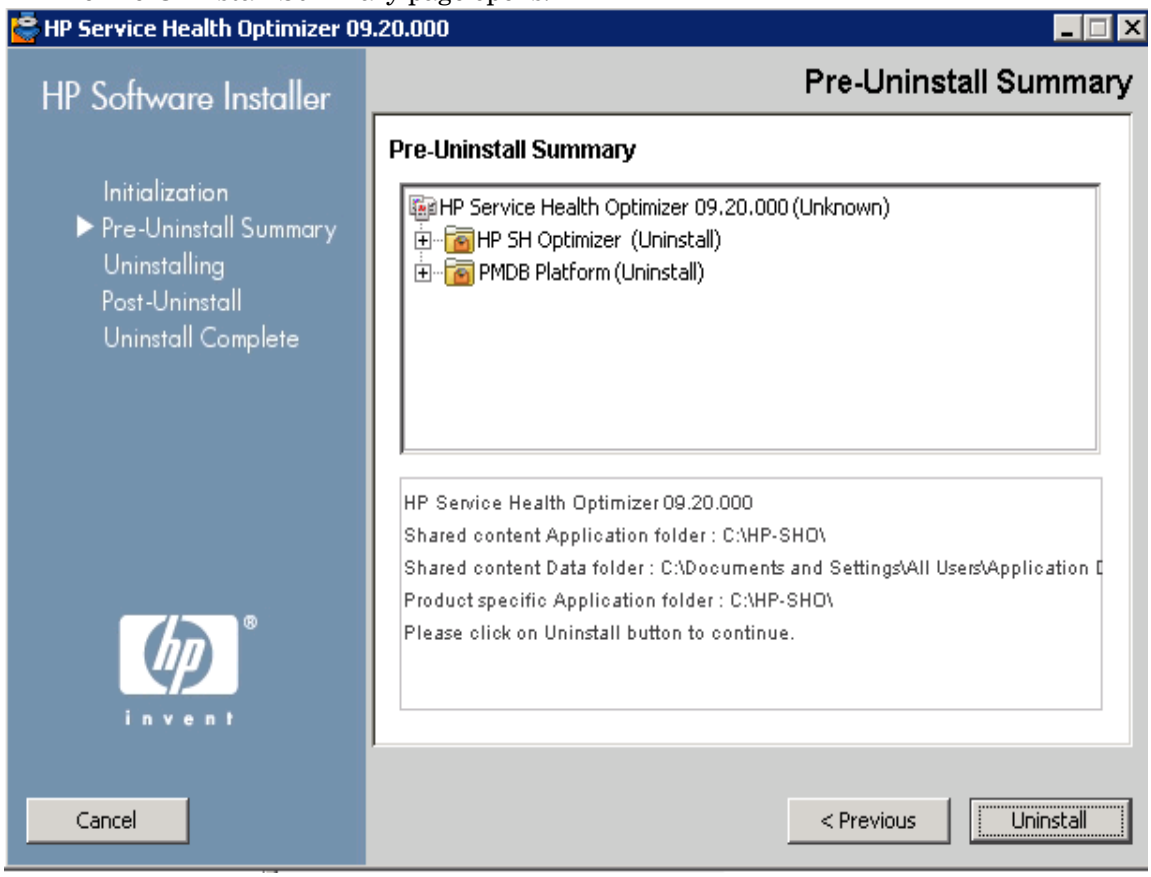
– Click **Quit** to quit the uninstallation and resolve the error. Once the error is resolved, start the uninstallation process again.

– Click **Continue** to ignore the warning and continue the uninstallation process.

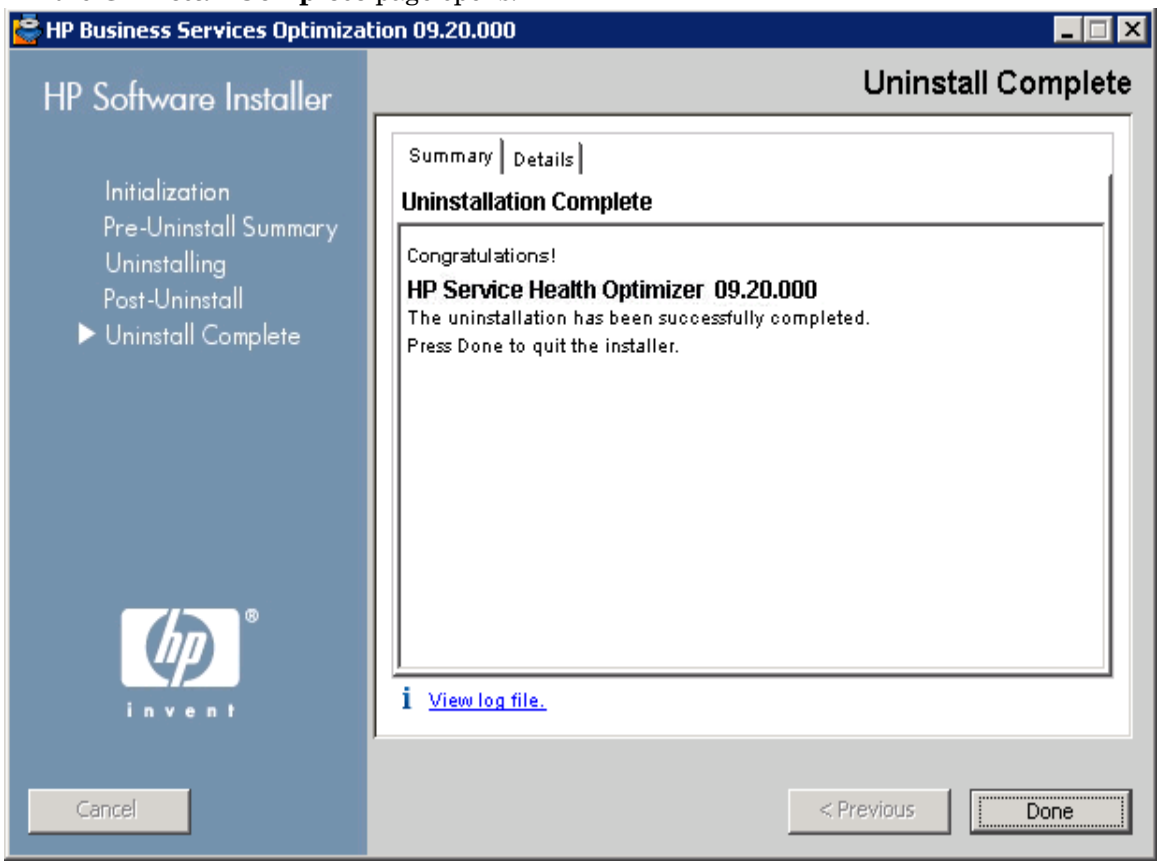
The Application Maintenance page opens.



5 Select **Uninstall** and click **Next**.
The Pre-Uninstall Summary page opens.



Click Uninstall to start the uninstallation process. After the uninstallation is complete, the **Uninstall Complete** page opens.



6 Click **View log file** to see the details of the uninstallation process. Click **Done** to complete the uninstallation.

7 Go to **%PMDB_HOME%\packages** and delete the SHO folder.

SHO is successfully uninstalled from your system.

Uninstalling Remote SHO Database

To uninstall SHO database:

1. Log on to the remote Sybase IQ machine.
2. Click **Start** → **Programs** → **Administrative Tools** → **Services**. The Services window opens.
3. Right-click **Sybase IQ Agent 15.4** and then click **Stop**.
4. Right-click the Sybase IQ service that you created and then click **Stop**.
5. On the Windows desktop, click **Start** → **Settings** → **Control Panel**.
6. Click **Add or Remove Programs** in the Control Panel window.
7. Click **HP Service Health Optimizer** in the Add or Remove Programs window and then click **Change/Remove** to remove the SHO database.
8. In the HP Software Installer, click **Next** on the Welcome page.
9. Ensure that HP SH Optimizer Database is selected.
10. Click **Uninstall**.
11. In the Remove Existing File message box, click **Yes to All**.
12. Browse to `<ovinstalldir>` directory and check if the `Sybase` folder is deleted. If the folder exists, manually delete it.
13. Click **Finish** to complete the uninstallation process. Restart your system.

14 Troubleshooting SHO Installation

This section of the guide covers the possible problems that can cause SHO installation to fail and how you can troubleshoot them.

SHO Log Files

SHO maintains a set of log files for each of its modules such as the installer, collector, loader, metadata repository, internal monitoring, Administration Console, Package Manager, SHO services, and data processing. In the event of a failure, the error messages are recorded in these log files. You can use these log files as troubleshooting tools in case you encounter any issues with SHO.

This section includes:

- Installation log files
- Post-install configuration log files

Installation Log Files

When you encounter problems during the installation of SHO or the Content Packs, the HP Software Installer generates error messages that notify you about the installation failure. However, the error messages might not provide all the information required to help you resolve the problems. Instead, you can use the installation log files as one of your troubleshooting tools. The following table lists the installation log files and the locations.

Log File	Location
SHO installation log file	%temp%\..\HPOvInstaller\HP-SHO_9.20\HP-SHO_9.20_<*timestamp*>_HPOvInstallerLog.html %temp%\..\HPOvInstaller\HP-SHO_9.20\HP-SHO_9.20_<*timestamp*>_HPOvInstallerLog.txt This folder also stores log files for each component of SHO such as LCore components, OVPerl, and so on. However, for troubleshooting purposes, you can use the Installer Log.
Content Pack installation log file	%PMDB_HOME%\log\packagemanager.log
Sybase IQ log file	%USERPROFILE%\IQ15Console.log If you have installed Sybase IQ remotely, the log file is available at the following location on the remote system: %temp%\..\HPOvInstaller\HP-SHO-SybaseIQ_9.20\ The log file will have a time stamp attached to it. For example: HP-SHO-SybaseIQ_9.20_2012.09.16_08_45_HPOvInstallerLog.html HP-SHO-SybaseIQ_9.20_2012.09.16_08_45_HPOvInstallerLog.txt After identifying the cause of the problem, see the Sybase IQ documentation to rectify it. The latest documents are available at **http://sybooks.sybase.com/**
Postgresql-<date and time>.log	Log file for the PostgreSQL service.

Post Install Configuration Log File

The post-install configuration log file contains details on operations performed during the post-install configuration phase. The log file can be accessed from %PMDB_HOME%\log\postinstallconfig.log.

This log file contains:

- Details on database schema creation on Sybase IQ.
- Details on SHO Management database schema creation on MySQL.

Troubleshooting SHO Installation

The following are the possible problems that can cause SHO installation to fail and their mode of troubleshooting:

Sybase IQ Database Crash Issue

Problem

Sybase IQ, shipped with SHO, occasionally crashes during the product run time. You can identify this crash on the Home page of the Administration Console, indicated by the icon for the database status. In addition, after the crash, the SHO Sybase Service will be running in the Services window, but the Sybase IQ process (`iqsrv15.exe`) will not be displayed in the list of processes in the Windows Task Manager.

Solution

There is no known solution for this crash scenario. However, SHO includes a Sybase IQ restart script file, `SHRIQFix.bat`, that checks whether Sybase IQ is down and automatically restarts the database whenever it crashes. You must manually schedule this file to run by using the Scheduled Tasks Wizard. This script file is located in the `%PMDB_HOME%\bin` folder.

The script file does not work for Sybase IQ installed on a remote system. In this case, you must verify whether Sybase IQ has crashed and then manually restart the database from the Services window.

To schedule the restart script file in a system with SHO and Sybase IQ installed, follow these steps:

1. Click **Start** → **Programs** → **Accessories** → **System Tools** → **Scheduled Tasks**. The Scheduled Tasks windows opens.
2. Double-click **Add Scheduled Tasks**. The Scheduled Task Wizard opens.
3. Click the **Next** button to proceed.
4. On the next page, click **Browse**. The Select Program to Schedule window opens.
5. Browse to the `%PMDB_HOME%\bin folder`, select `SHRIQFix.bat`, and then click **Open**.
6. Click the **Next** button to proceed.
7. On the next page, type a name for the task in the text box, and then, under `Perform this task`, select **`Daily.`** Click **Next** to proceed.
8. On the next page, specify the start time, the start date, and the frequency of the task to be run.
9. Click **Next** to proceed.
10. On the next page, type your Window's user credentials and then click **Next**.
11. On the next page, select the **Open advanced properties for this task when I click Finish** check box, and then click **Finish**. The Advanced Properties dialog box opens.
12. Click the **Schedule** tab and then click **Advanced**. The Advanced Schedule Options dialog box opens.
13. Select **Repeat task** and then in the `Every` field, specify the time at which the task should be run.
14. Click **OK** to close the Advanced Schedule Options dialog box.

15 Click OK to close the Advanced Properties dialog box.

Environment Variables Not Set in a Virtual Machine

Problem

If SHO is installed on a virtual machine that is not restarted after the installation, the environment variables set by the installer will not be available to the user.

Solution

After installing SHO, restart the virtual machine.

Environment Variables Set in One Session Is Not Visible in Another Session

Problem

The environment variables set during the installation are not visible during the post-install session. This can cause the post-installation configuration and content pack installation to fail.

Solution

This problem occurs only when SHO is installed during one Terminal Service Client session and the post-installation configuration tasks are attempted in another Terminal Service Client session.

To resolve this, follow these steps:

1 In the current session, on the desktop, right-click **My Computer**, and then click **Properties**. The System Properties dialog box opens.

2 Click the Advanced tab.

3 Click **Environment Variables**. The Environment Variables dialog box opens.

4 Click **OK**.

5 Click **OK** in the System Properties dialog box.

Database Schema Creation Takes a Long Time

Problem

During the post-install configuration stage, on the Create Database Schema page of the Administration Console, clicking the **Next** button after typing the required values produces no activity and the users have to wait for a long time for the process to complete.

Solution

Clear the web browser cache, reload the page, and perform the steps again.

Content Pack Installation Fails

Problem

When a content pack installation fails, the Administration Console displays the installation failure. However, the data processing streams for that failed Content Pack are not updated in the Administration Console.

Solution

To resolve this problem, you must remove the failed Content Pack. For the steps, see Remove the Content Packs on page 80.

Content Pack Uninstallation Fails

Problem

When removing the Content Packs, the uninstallation process fails and the following error message is displayed:

`SQL Anywhere Error -210: User 'pmdb_admin' has the row in '<table_name>' locked`

This failure occurs when one or more database connections have a shared lock on a database stage table.

Solution

Follow these steps:

1. Log on to the host system as administrator.
2. Click **Start** → **Programs** → **Administrative Tools** → **Services**. The Services window appears.
3. On the right pane, right-click the following services and click **Stop** to stop the following services:

- HP_PMDB_Platform_Collection
- HP_PMDB_Platform_Timer

4. On the desktop, in the notification bar, right-click the Sybase IQ server icon, and then click **Shut down** <*host name*>.

If the Sybase IQ server icon does not appear in the notification bar, type the following command in the Command Prompt window to shut down Sybase IQ:

`dbstop -y -c uid=dba;pwd=sql;eng=`<*server engine name*>**`;dbn=utility_db;links=tcpip{host=`**<*host name*>.<*domain name*>**`;port=21424`**

In this instance, <*server engine name*> refers to the name of the Sybase server engine, <*host name*> refers to the name of the system hosting the SHO database and <*domain name*> is the name of your domain according to your network configuration.

To restart the Sybase IQ service, in the Services window, right-click the HP_PMDB_Platform_Sybase, and then click Start.Note: If you installed Sybase IQ remotely, then you must start the Sybase service that you created on the remote system.

Wait for all active streams to complete running:

1. Click **Start** → **Run**. The Run dialog box opens.

2 Type **cmd** in the Open field, and then press **ENTER**. The Command Prompt window opens.

3 Type the following command to pause the loading of the job stream:

```
abcAdminUtil -pause -type loadBatch
```

4 Wait for all the loaded job streams to complete running.

5 Check the status by typing the following command:

```
abcMonitor -stream ID=ALL, state=active
```

To verify if the tables are locked, perform the following steps:

1 Click **Start** → **Programs** → **Sybase** → **Sybase IQ 15.4** → **Interactive SQL Java**. The Interactive SQL Java console opens.

2 In the Connect dialog box, on the Identification tab, select **Supply user ID and password**.

3 Type the user name and password and then press **OK**.

4 Under **SQL Statements,** type **sp_iqlocks**, and then click the **Execute all SQL statement(s)** button to run the command.

If there are locked tables, wait for a few minutes for all workflow streams to complete and then run the command again. If there are no locked tables, you can proceed with the removal of the Content Packs.

Sybase IQ Uninstallation Fails

Problem

Uninstalling SHO does not remove Sybase IQ Server Suite 15.4 (64-bit).

Solution

Follow these steps:

1 On the Windows desktop, click **Start** → **Settings** → **Control Panel**

2 Click **Add** or **Remove Programs** in the Control Panel window.

3 Click **Sybase IQ Server Suite 15.4** (64-bit) in the Add or Remove Programs window and then click **Change/Remove** to remove the Sybase IQ application.

4 In the Sybase IQ uninstallation wizard, click **Next** on the Welcome page.

5 Ensure that the features that you want to remove are selected and then click **Next**.

6 Click **Next** and then click **Uninstall**.

7 In the Remove Existing File message box, click **Yes to All**.

8 In the Restore Environment Variable message box, click **Yes to All**.

9 Click **Finish** to complete the uninstallation process.

10 Select the **Yes, restart my computer** option and then click **Finish** to restart your system.

Installation Failure Caused by Native Windows Installer Error

Problem

During the installation of SHO, the installation process halts and the following error message is displayed:

```
Unable to proceed with installation since the required native installer check failed.
```

Solution

This problem occurs when the native Windows Installer files are damaged or missing, or if the Windows Installer service is unregistered or damaged. To resolve this problem, you must re-register the Windows Installer. Unregistering and reregistering Windows Installer corrects many Windows installation issues. Follow these steps:

1. Click **Start** → **Run**. The Run dialog box opens.
2. In the Open field, type **cmd**, and press **ENTER**. The Command Prompt window opens.
3. At the command prompt, type the following command to unregister the Windows Installer: **msiexec /unregister**
4. Type the following command to re-register the Windows Installer:**msiexec /regserver**

Remote Sybase IQ Database Creation Fails

Problem

In the HP Service Health Optimizer Configuration Wizard, while trying to create the Sybase database file on a remote system, the post-install fails and the following error message is displayed:

<*time stamp*>,690 INFO,
com.hp.bto.bsmr.dao.helper.CreateSybaseIQDatabase.logDBLoginInfo, Database Info
[username->dba;serverName-><*server_name*>_remote;Dbhostname-><host_name>;port->21421]

<*time stamp*>,018 ERROR,
com.hp.bto.bsmr.dao.helper.CreateSybaseIQDatabase.executeSQL, Could not connect to the database.

<*time stamp*>,049 ERROR,
com.hp.bto.bsmr.dao.helper.CreateSybaseIQDatabase.executeSQL, Specified database not found

<*time stamp*>,081 ERROR,
com.hp.bto.bsmr.dao.helper.CreateSybaseIQDatabase.executeSQL, SQLCODE=-83, ODBC 3 State="08001"

Solution

This error occurs if the database file location specified in the HP Service Health Optimizer Configuration Wizard includes space in the file path. To resolve this problem, on the remote system, make sure that the specified database file location exists on the remote system. In addition, make sure that the path provided in the Post-Install wizard does not contain any spaces.

Insufficient Database Space during SHO Content Pack Deployment

Problem

SHO encounters insufficient database space during SHO Content Pack deployment. This happens because the IQ_System_Main dbspace defined during post installation configuration is insufficient.

Solution

To extend the IQ_System_Main dbspace:

1. Click **Start** → **Programs** → **Administrative Tools** → **Services**. The Services window opens.
2. Right-click **Sybase IQ Agent 15.4** and then click **Restart**.

   If the Sybase IQ Agent 15.4 service does not restart, end the **iqsrv15.exe** process from the Processes tab of the Windows Task Manager.

3. At the command prompt, type the following command and then press **ENTER**:

   ```
   %PMDB_HOME%\bin\sqlexecutor -sqlscript
   %PMDB_HOME%\scripts\Sybase\extend_iq_main_and_cp_update.sql -logfile
   %PMDB_HOME%\tmp\extend_iq_main_and_cp_update.out
   ```

   This command must be typed as a single line.

4. Remove the SHO Content Pack using the Deployment Manager. For procedure to remove SHO Content Pack, see Remove the Content Packs on page 80.
5. Deploy the SHO Content Pack using the Deployment Manager. For steps to deploy the SHO Content Pack, see Deploying the Content Packs on page 57.

Unable to Log on to the Administration Console

Problem

After typing in the user credentials in the Administration Console Login screen and clicking the Log in button, the following error message is displayed:

Solution

To resolve this problem, follow these steps:

1. Click **OK** in the message box.
2. Clear the web browser cache:

a. In Internet Explorer, on the menu bar, click **Tools**, and then click **Internet Options**. The Internet Options dialog box opens.

b. Make sure that the **General** tab is displayed.

c. Under Browsing history, click **Delete**. The Delete Browsing History dialog box opens.

d. Click **Delete files** in the Temporary Internet Files section.

e. Click **Close** and then click **OK**. Your cache should now be clear.

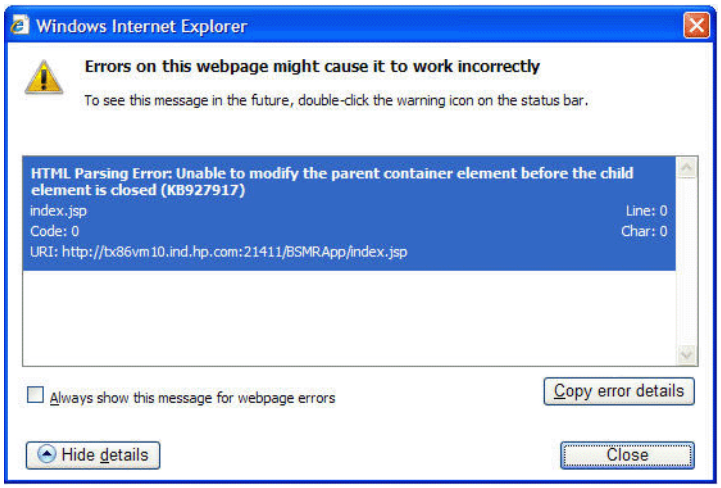
3. Retype the user credentials in the **Login Name** and **Password** fields.

4. Click **Log in**. The Administrative Console opens.

Intermittent Behavior of the Administration Console

Problem

At times, the Administration Console does not work properly. After opening the Administration Console, the following Windows error message appears:



Solution

To resolve this problem, you must clear the web browser cache. See Unable to Log on to the Administration Console on page 92

Post-installation Configuration Failure Caused by Change in IPv6 Address in Windows Server 2008

Problem

After the installation, if you restart a system that uses a dynamic IPv6 address, the system takes an automatically-generated IPv6 address instead of the static IPv6 address. The post-installation configuration fails as a result of this change in the IPv6address. This problem is observed in Windows Server 2008.

Solution

The interface ID is randomly derived in Windows Server 2008 by default, rather than based on the Extended Unique Identifier (EUI)-64 address.

To resolve this problem, you must disable the random interface IDs. For more information, see Microsoft documentation.

A Appendix

This appendix provides additional information relevant to SHO.

Setting the DEBUG level for SHO.log file

Before you can effectively use the `SHO.log` file to troubleshoot a problem, you must have detailed information about that problem. By default, `SHO.log` file only displays INFO, ERROR, WARNING or FATAL categories of messages. For detailed information, you can configure the SHO to log DEBUG or ALL categories of messages in the log file. A DEBUG category of message provides additional information about a particular error that occurred than just a simple error or warning message.

To set the DEBUG category level for the `SHO.log` file:

1. Open the `log4j.properties` file from the `%OVDataDir%/Conf/SHO` folder.
2. Under the `General` tag, add the DEBUG value for all the modules.
3. Save the changes and close the file.

Changing the Default Port Number

The default port assigned to SHO is 8081. However, if this port is not available, the Installer displays a warning message. You can assign a different port for SHO after completing the installation.

Follow the steps given below to change the default port number:

1. Check for the availability of the port number you want to use, by running the following command:
   `cd %ovinstalldir%\nonOV\tomcat\b\bin`
   `cscript OvTomcatBCtl.vbs -checkport <portnumber>`
   Here <*portnumber*> is the port number that you want to assign to HP Openview Tomcat(B).
   A message indicating the availability of the port is displayed. For example, if you are checking for the availability of the port number 8081, the message, "Port Number 8081 is not in use." appears, if the port number is available. If the Port Number 8081 is not available, a message indicating that the port number is used by another program or service appears.
2. Stop the HP Openview Tomcat(B) Servlet Container service.
   You can stop the HP Openview Tomcat(B) Servlet Container service by running the following command at the command prompt:
   `ovc -stop ovtomcatB`
3. To change http or https port numbers for SHO server, run the following command at the command prompt:

   `cd %ovinstalldir%\nonOV\tomcat\b\bin`
   `ovconfchg -ns NONOV.TomcatB -set HTTPPort <port number>`
   `ovconfchg -ns NONOV.TomcatB -set HTTPSPort <port number>`
4. Start the HP Openview Tomcat(B) Servlet Container service.
   You can start the HP Openview Tomcat(B) Servlet Container service by running the following command at the command prompt:
   `ovc -start ovtomcatB`

If the default port (8081) is assigned to some other application along with SHO, then the SHO login screen may fail to load. In this scenario, use the above procedure to change the default port for SHO.

Creating Database User Account on an HPOM Database Server

Performing this task depends on how Microsoft SQL Server is set up in the HPOM environment and how you can configure SHO to communicate with the HPOM database server. There are two possible scenarios:

- HPOM for Windows 8.x/9.x is installed on one system with Microsoft SQL Server 2005 or Microsoft SQL Server 2008 installed on the same system or a remote system. SHO, which is installed on another system, can be configured to connect to SQL Server either through Windows authentication or SQL Server authentication (mixed-mode authentication). The authentication method defined in SQL Server can be used in SHO to configure the HPOM database connection.
- HPOM for Windows 8.x uses Microsoft SQL Server 2005 Express Edition that is embedded with it by default. Similarly, HPOM for Windows 9.x uses the embedded Microsoft SQL Server 2008 Express Edition by default. The authentication mode in this scenario is Windows NT authentication. However, in this case, a remote connection between SQL Server and SHO is not possible. Therefore, you must create a user account for SHO so that mixed-mode authentication is possible.

Before creating the user account, you must first enable mixed-mode authentication. For the steps, see the Enable Mixed Mode authentication after installation section in the Microsoft Support KB article at the following URL:

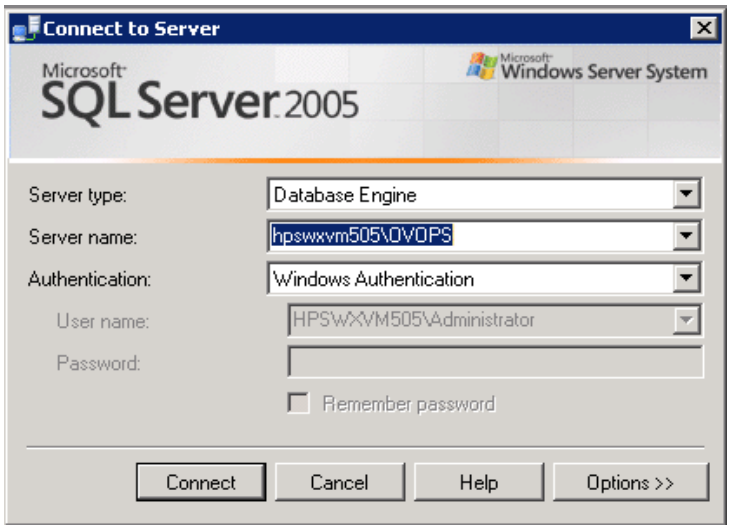
http://support.microsoft.com/kb/319930

To create a user name and password for authentication, perform the following steps. If you are using Microsoft SQL Server 2008, the steps are similar to the following steps performed in SQL Server 2005:

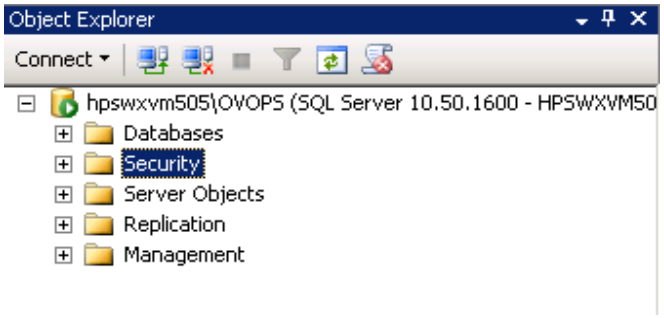
1. Create a user name and password:
   a. Log on to the HPOM system with embedded Microsoft SQL Server 2005.
   b. Click **Start** → **Programs** → **Microsoft SQL Server 2005** → **SQL Server Management Studio**. The Microsoft SQL Server Management Studio window opens.

   If SQL Server Management Studio is not installed on your system, you can download it from the Microsoft web site using the following URL: **http://www.microsoft.com/downloads/en/details.aspx?FamilyID=c243a5ae-4bd1-4e3d-94b8-5a0f62bf7796**.

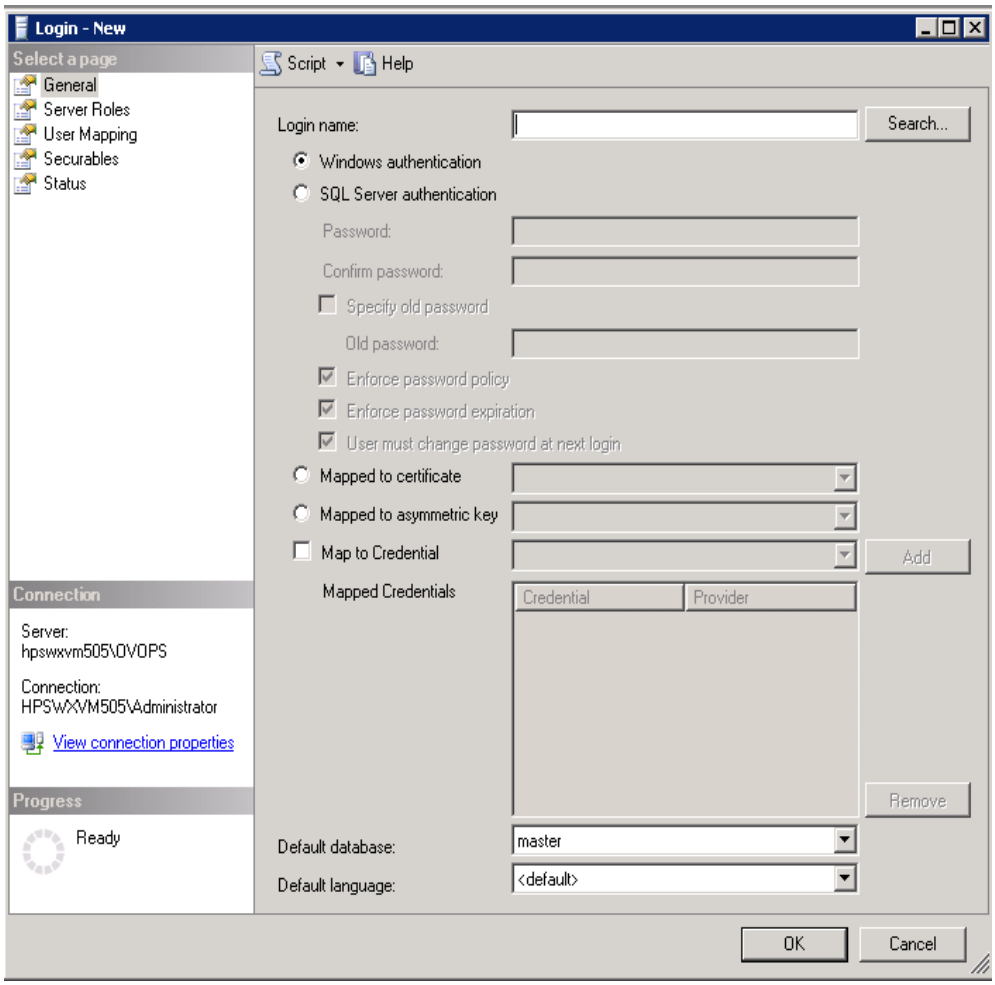
c In the Connect to Server dialog box, select **NT Authentication** in the **Authentication** list, and then click **Connect**.



d In the **Object Explorer** pane, expand **Security**.



e Right-click **Logins** and click **New Login**. The Login - New dialog box opens.



f In the **Login name** field, type a user name. Specify the other necessary details.

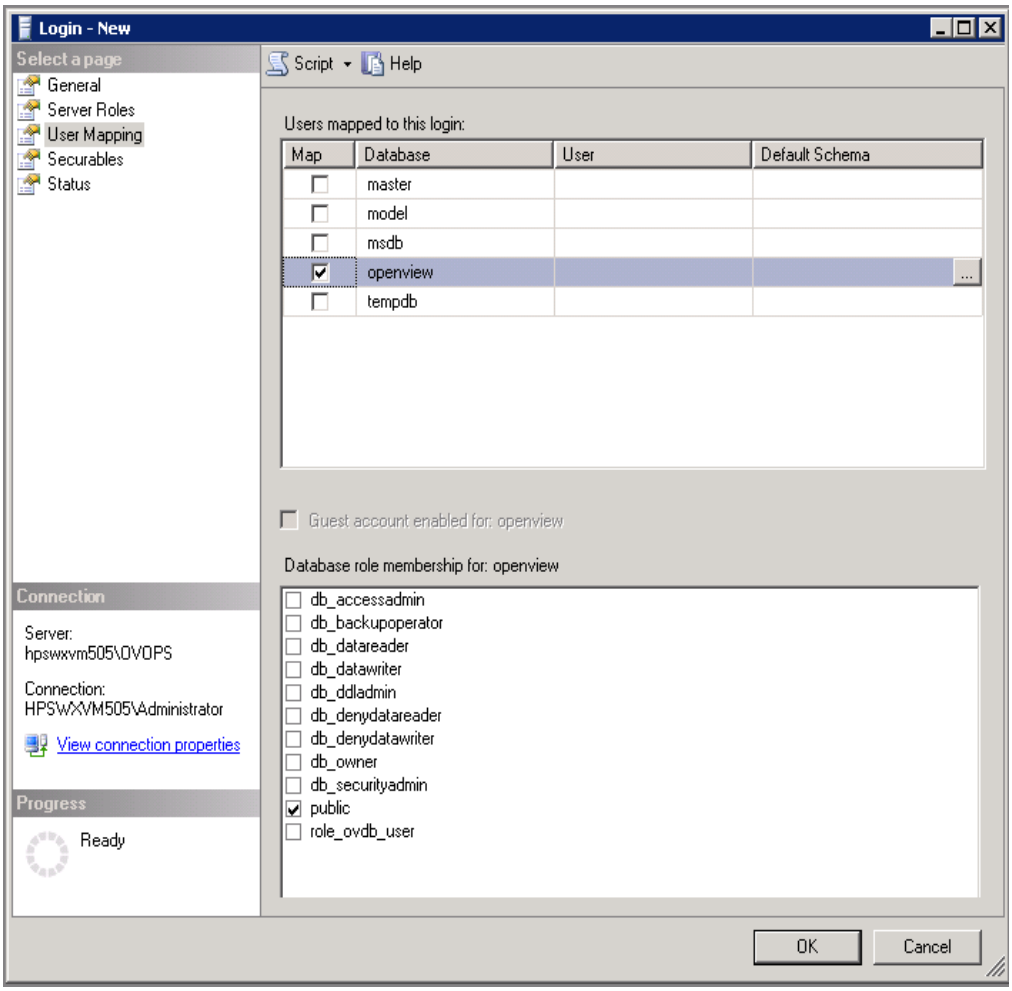
g Select the **SQL Server authentication** radio button.

h In the **Password** field, type the password.

i In the **Confirm password** field, retype the password. You might want to disable the password enforcement rules to create a simple password.

j Click **User Mapping**.

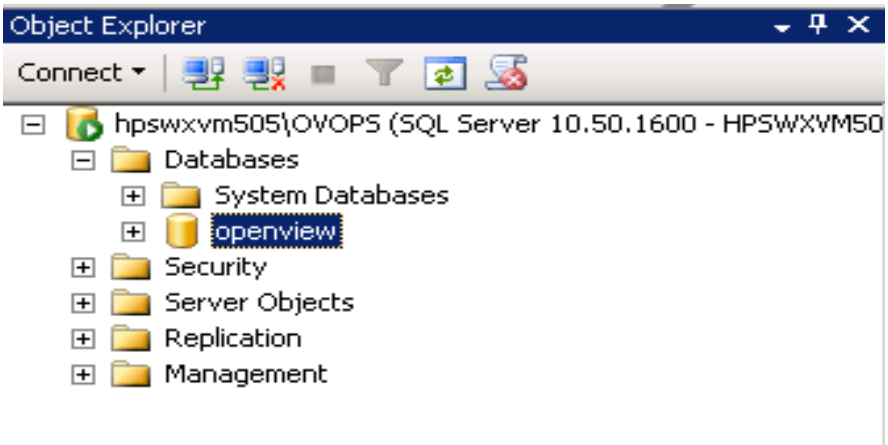
k Under **Users mapped to this login**, select the check box next to **openview**.



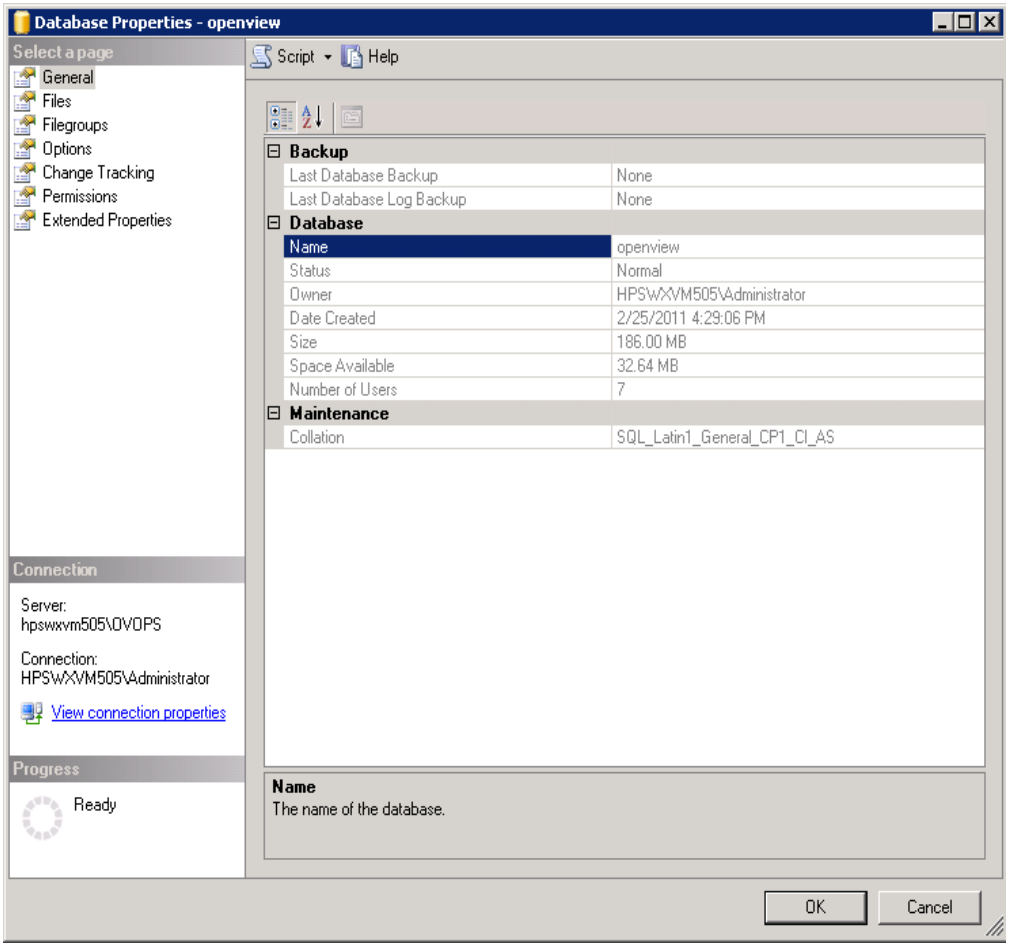
l Click **OK** to create the user name and password.

2 The database user must have at least the **Connect** and **Select** permissions. To enable **Connect** and **Select** permissions for the newly created user account:

a In the **Object Explorer** pane, expand **Databases**.



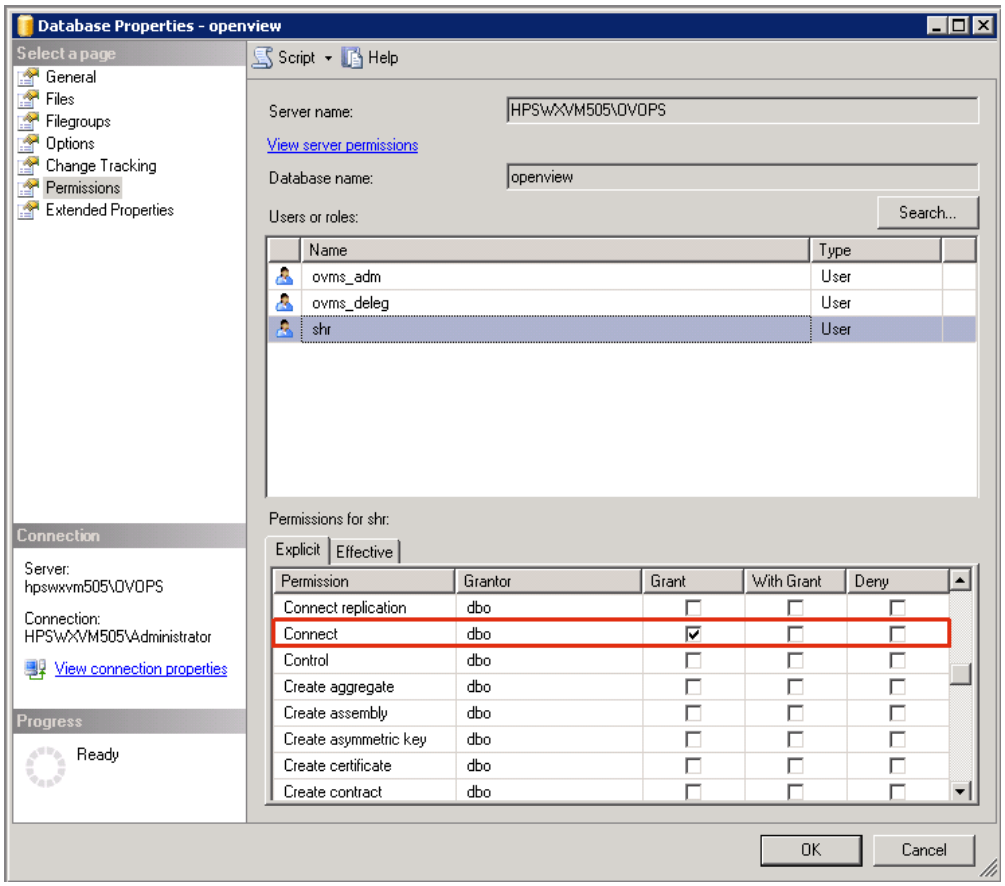
b Right-click **openview** and then click **Properties**. The Database Properties - openview dialog box opens.



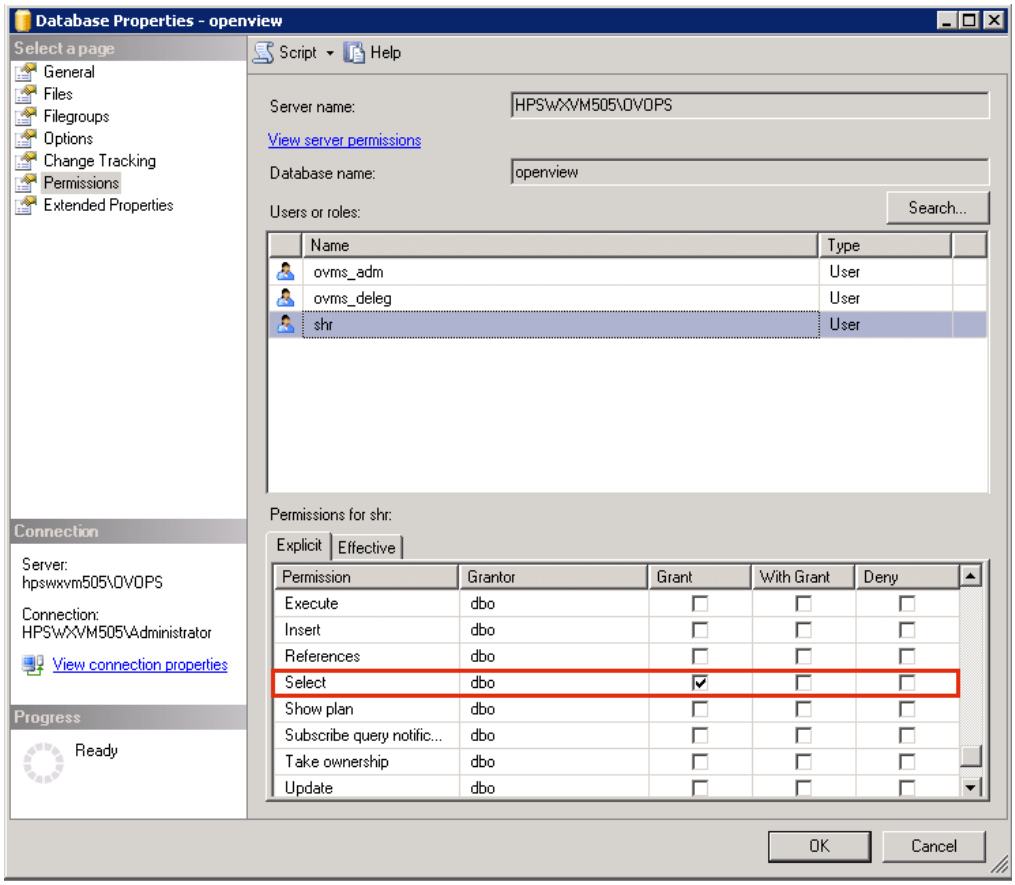
c Under the **Select a page** pane, click **Permissions**.

d Under **Users or roles**, click the newly created user account.

e Under **Explicit permissions for test**, scroll down to the **Connect** permission, and then select the **Grant** check box for this permission.



f Scroll down to the **Select** permission and select the **Grant** check box for this permission.

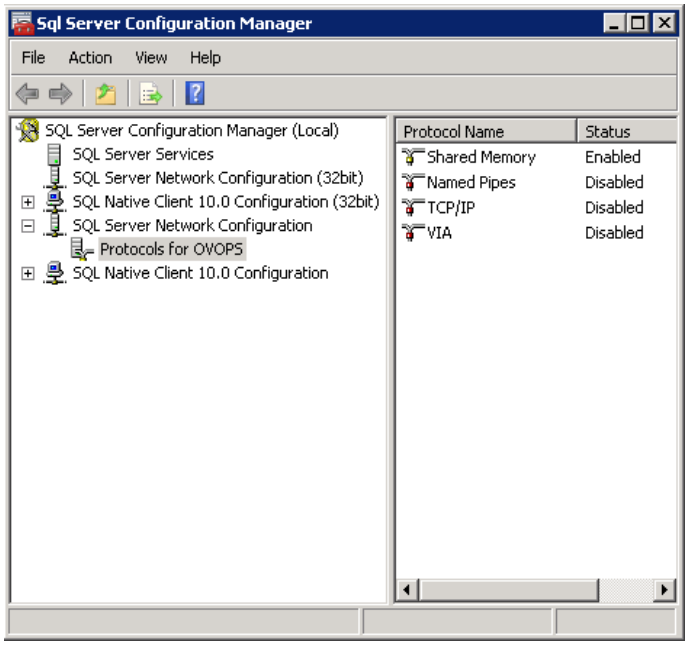


g Click **OK**.

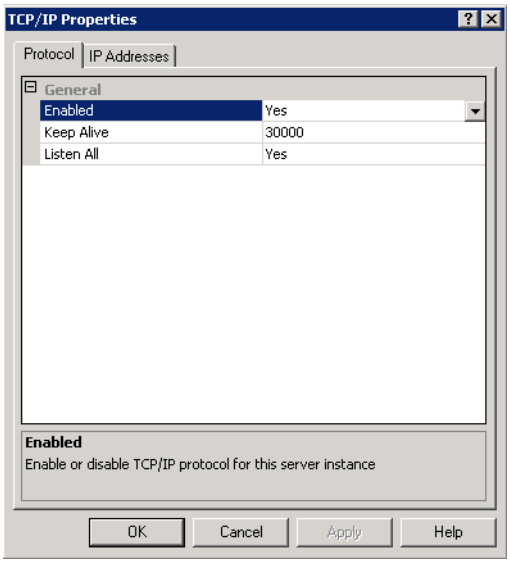
3 Check the HPOM server port number:

a Click **Start** → **Programs** → **Microsoft SQL Server 2005** → **Configuration Tools** → **SQL Server Configuration Manager**. The SQL Server Configuration Manager window opens.

b Expand **Sql Server Network Configuration** and select **Protocols for OVOPS**. On the right pane, right-click **TCP/IP**, and then click **Enable**.



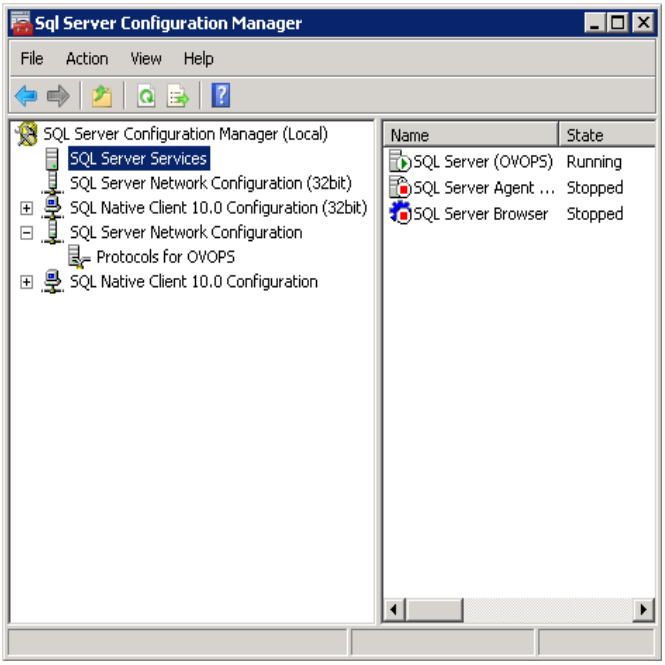
c Right-click **TCP/IP** again, and click **Properties**. The TCP/IP Properties dialog box opens.



d On the **IP Addresses** tab, under the **IPAll**, note down the port number.

4 Restart the HPOM database server:

a In the SQL Server Configuration Manager window, click **SQL Server Services**.



b On the right pane, right-click **SQL Server (OVOPS)**, and then click **Restart**.

You can use the newly created user name, password, and the observed instance name and port number when configuring the HPOM data source connection in the Administration Console.

You can perform these steps by using the command prompt utility, **osql**. For more information, see the Microsoft Support KB article at the following URL:

http://support.microsoft.com/kb/325003

Content Pack Components

The Content Packs visible in the Deployment manager are restructured into the following layers or components:

- **Domain Content Pack component**: The Domain component defines the data model for a particular Content Pack. It contains the rules for generating the relational schema. It also contains the data processing rules, including a set of standard pre-aggregation rules, for processing data into the database. The Domain Content Pack component does not depend on the configured topology source or the data source from where you want to collect data.
- **ETL Content Pack component**: The ETL Content Pack component defines the collection policies and the transformation, reconciliation, and staging rules. It also provides the workflow streams that define the order of execution of the data processing steps.

  The ETL Content Pack component is data source dependent. Therefore, for a particular domain, each data source application has a separate ETL Content Pack component. For example, if you want to collect system performance data from the HP Operations Agent, you must install the **SysPerf_ETL_PerformanceAgent** ETL component.

  A single data source application can have multiple ETL components. For example, you can have one ETL component for each virtualization technology supported in Performance Agent such as Oracle Solaris Zones, VMware, IBM LPAR, and Microsoft HyperV. The ETL component can be dependent on one or more Domain components. In addition, you can have multiple ETL components feeding data into the same Domain component.

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Product name and version: HP Service Health Optimizer 9.20

Document title: Installation and Configuration Guide

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