

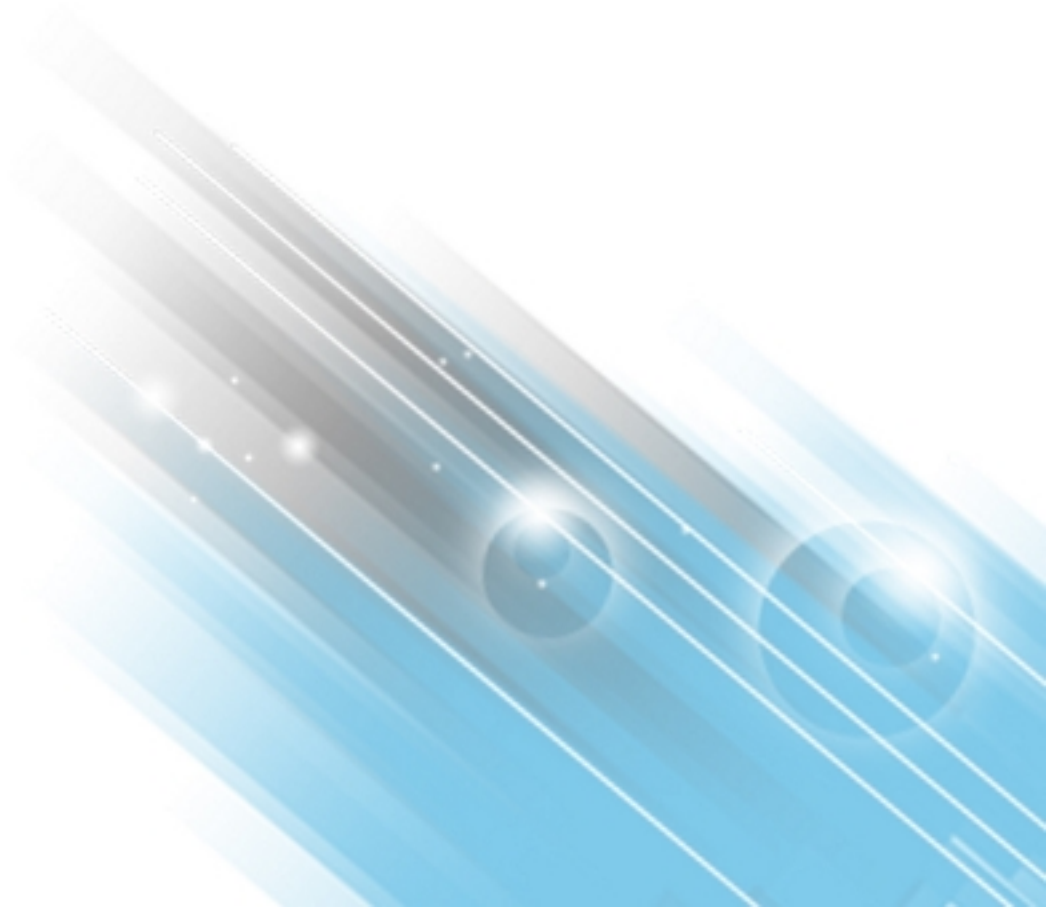
HP BSM Connector for Microsoft System Center Operations Manager

Software Version: 3.00

Windows® operating systems

Integration Guide

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Chapter 1: In This Release

This chapter presents a brief overview of the product features and enhancements introduced with HP BSM Connector for Microsoft System Center Operations Manager (BSM Connector for Microsoft SCOM) version 3.00. The chapter also lists current product limitations.

Note: The new *HP BSM Connector for Microsoft System Center Operations Manager Integration Guide* supersedes the entire user documentation set that was available in previous product releases, namely the following documents:

- *HP BSM Connector for Microsoft SCOM Release Notes*
- *HP BSM Connector for Microsoft SCOM Installation Guide*
- *HP BSM Connector for Microsoft SCOM User Guide*

New Features and Enhancements

The 3.00 release of BSM Connector for Microsoft SCOM includes the following **new features**:

- Support for HP BSM Connector 10.00 and HP Operations Manager i (OMi) 10.00

You can use the latest versions from the HP product portfolio as the base for integrating your systems-management application.

- Support for System Center 2012 – Operations Manager Software Development Kit (SDK)

BSM Connector for Microsoft SCOM uses this SDK version for accessing Microsoft System Center Operations Manager 2012 or 2012 R2

- Ability to integrate with multiple instances of Microsoft System Center Operations Manager

Hardware resources permitting, you can use a single installation of BSM Connector and BSM Connector for Microsoft SCOM to integrate multiple instances of Microsoft System Center Operations Manager with OMi.

- Topology self-discovery

This feature enables you to properly present the integrated systems-management application (a Microsoft SCOM instance) as the origin of collected data in OMi

The 3.00 release of BSM Connector for Microsoft SCOM includes the following **feature enhancements**:

- Simplified configuration with an extended GUI-based Configuration Utility
- Smoother, near real-time propagation of events and metric changes to OMi

The usage of the REST Web Service endpoint of BSM Connector reduces the delays in forwarding the collected data compared to the previous release.

- Bundled graph templates for visual representation of metrics in OMi

For detailed information, see the corresponding chapters and sections of this document.

Product Limitations

This section describes known limitations in HP BSM Connector for Microsoft System Center Operations Manager 3.00 (BSM Connector for Microsoft SCOM).

General Limitations

- BSM Connector requirement for support of Microsoft SCOM in IPv6 environment

BSM Connector for Microsoft SCOM supports remote Microsoft SCOM instances running in a pure IPv6 environment. Certain parts of the BSM Connector, however, do not support IPv6. Because BSM Connector for Microsoft SCOM must be installed on the same host as BSM Connector, this means that the BSM Connector host must be configured in a dual IP stack (IPv4 and IPv6) environment to support such Microsoft SCOM setup.

- Multiple instances of BSM Connector for Microsoft SCOM cannot be configured as product connectors in the same Microsoft System Center Operations Manager (Microsoft SCOM) instance

BSM Connector for Microsoft SCOM is a subscription-based product connector. A subscription filter defines which events (alerts) the connector collects. When an alert is generated, it is compared against all active connector subscriptions, but only the first matching subscribed connector receives the alert. To ensure that BSM Connector for Microsoft SCOM receive alerts, do not configure other product connectors in parallel with it. BSM Connector for Microsoft SCOM is by default configured to collect all alerts from Microsoft SCOM.

- Subscription changes may not take effect immediately

In a distributed environment, after changing a subscription in a Microsoft SCOM instance, the change may not take effect immediately on all Microsoft SCOM hosts. To verify that the change is complete, check the operating system Event Viewer tool for a corresponding notification event: in the Event Viewer GUI, navigate to **Event Viewer (local) > Applications and Services Logs >**

Operations Manager. If such event is logged, it indicates that the change is complete and BSM Connector for Microsoft SCOM is already receiving alerts according to the changed subscription.

- BSM Connector for Microsoft SCOM requires Microsoft SCOM administrative privileges to access data in a Microsoft SCOM instance

Microsoft SCOM requires administrative privileges for all product connectors that communicate with it. The user account that BSM Connector for Microsoft SCOM uses to connect to a Microsoft SCOM instance must be a member of an Active Directory group that has the `Operations Manager Administrators` user role assigned.

If you add the connection user account to a less privileged user role in Microsoft SCOM, BSM Connector for Microsoft SCOM will not be authorized to collect data.

Event Integration Limitations

- Microsoft SCOM may not forward all alerts to BSM Connector for Microsoft SCOM

If the value of the Microsoft SCOM setting **TierTimeDifferenceThreshold** is set too low, not all alerts might be forwarded to BSM Connector for Microsoft SCOM. The value of this setting defines the delay (in seconds) between alert retrievals from the database. The minimum value for the setting is 1.

Additionally, alerts with a repeat count of more than 10,000 are sometimes not dispatched from Microsoft SCOM.

- When alerts get closed in Microsoft SCOM backward synchronization is also triggered

HP Operations Manager i invokes backward synchronization of the alert resolution state to the Microsoft SCOM instance (through BSM Connector for Microsoft SCOM) regardless of where the alert gets closed. Such synchronization is unnecessary when you close the alert in Microsoft SCOM.

Metric Integration Limitations

- Collected metrics are limited by the supported Microsoft SCOM management packs

BSM Connector for Microsoft SCOM can forward only metrics that are related to the objects defined in the topology synchronization package for the supported Microsoft SCOM management packs. Other metrics might not be visible in HP Operations Manager i, but are still added to the database of HP Operations Agent.

Chapter 2: Introduction

HP BSM Connector for Microsoft System Center Operations Manager (**BSM Connector for Microsoft SCOM**) integrates Microsoft System Center Operations Manager (**Microsoft SCOM**) and HP Operations Manager i (**OMi**) so that the gathered systems-management data about the events, topology, and metrics in a Microsoft SCOM environment is made available to the OMi solution. Such data can then be monitored and processed properly within OMi. BSM Connector for Microsoft SCOM therefore enables you to establish a link between a Microsoft SCOM environment and operations management in OMi.

For a list of the Microsoft SCOM release versions that BSM Connector for Microsoft SCOM supports, see "[Application Software](#)" on page 18. For information about Microsoft SCOM, its individual releases and their features, see the documentation on the Microsoft web site.

Product Concepts

BSM Connector for Microsoft SCOM is a product complementary to HP BSM Connector (**BSM Connector**). It enhances BSM Connector to provide the following functionality:

- Collection of Microsoft SCOM alerts¹ (**events**), monitored objects (**topology**), and performance data (**metrics**) from a Microsoft SCOM environment
- Mapping of the collected data to an OMi-compliant form
- Customization of the data collection and data mapping
- Closure of Microsoft SCOM events from OMi by using backward synchronization of the event resolution states

Deployment options for BSM Connector for Microsoft SCOM are bound by BSM Connector. While both must be installed on the same system, remote monitoring capability of BSM Connector enables the applications to reside on a dedicated integration server. In such a setup, the processing, memory, and storage resources of the Microsoft SCOM host are burdened to a lesser degree.

The basic part of BSM Connector for Microsoft SCOM is the Generic Integrator module (**GenInt**). It provides common functionality for integrating BSM Connector and a third-party or HP's own systems, storage, or infrastructure management application.

BSM Connector for Microsoft SCOM supports integration with multiple instances of Microsoft SCOM. Each integrated instance is configured separately. You can therefore have a single BSM Connector host relaying data to OMi from multiple Microsoft SCOM-monitored infrastructure segments.

The collection, processing, and mapping of events, topology data, and metrics can be configured in detail as part of advanced configuration of BSM Connector for Microsoft SCOM.

¹An indication of a significant event that requires attention. Alerts are created by rules and monitors.

Event Collection and Forwarding

BSM Connector for Microsoft SCOM makes Microsoft SCOM events available to OMi as follows¹:

1. Events are collected from Microsoft SCOM through the API provided by the Microsoft System Center Operations Manager SDK.
2. In BSM Connector for Microsoft SCOM, the collected events are sent to the REST Web Service endpoint of BSM Connector.
3. The preprocessed events are mapped by using a BSM Connector policy of the REST Web Service Listener type, and then forwarded to OMi.

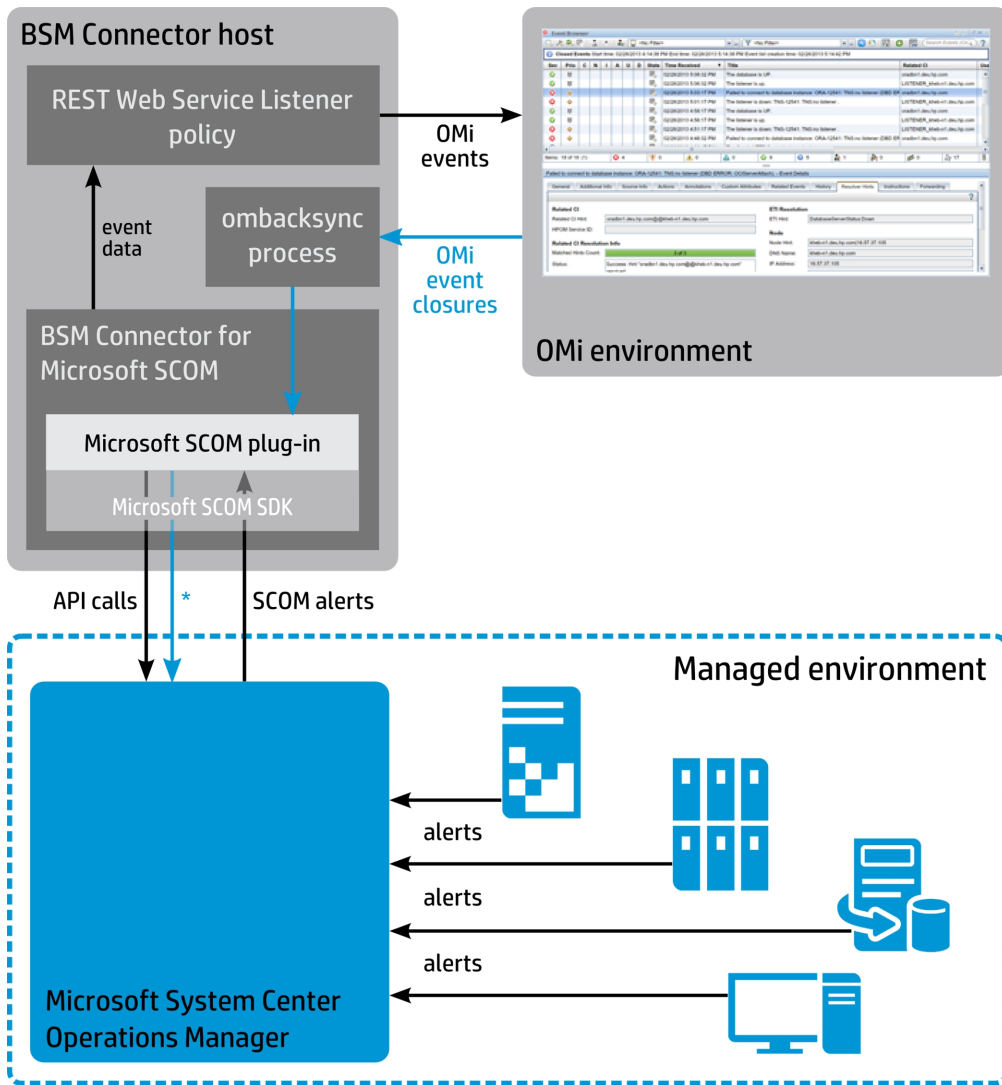
Each event is tested if it matches some rule in the policy. If it does, the event is mapped accordingly. To ensure all events are mapped, there are several generic rules at the end of the rule list:

- Two different rules, each of which matches all Microsoft SCOM events using a different filter
- A rule that matches events that concern multiple monitored objects
- A rule that matches all events

Additionally, you can also configure a so-called "noise suppressing" rule.

¹The process is repeated regularly.

Figure 1. Architectural overview of the Microsoft SCOM event integration with OMi



BSM Connector for Microsoft SCOM enables tracing which Microsoft SCOM alert caused an OMi event. It also supports close-state propagation of events. Whenever an alert is closed in Microsoft SCOM, the corresponding event in OMi is also closed. Additionally, if backward synchronization of event resolution states is enabled (this is the default behavior), for each event that you close in OMi the corresponding Microsoft SCOM alert is also closed. Other alert updates are not propagated back to Microsoft SCOM.

You can collect either all events or the events that originate from the chosen topology scope only. For the latter choice, the topology integration must be already configured and a topology collection scope must be defined.

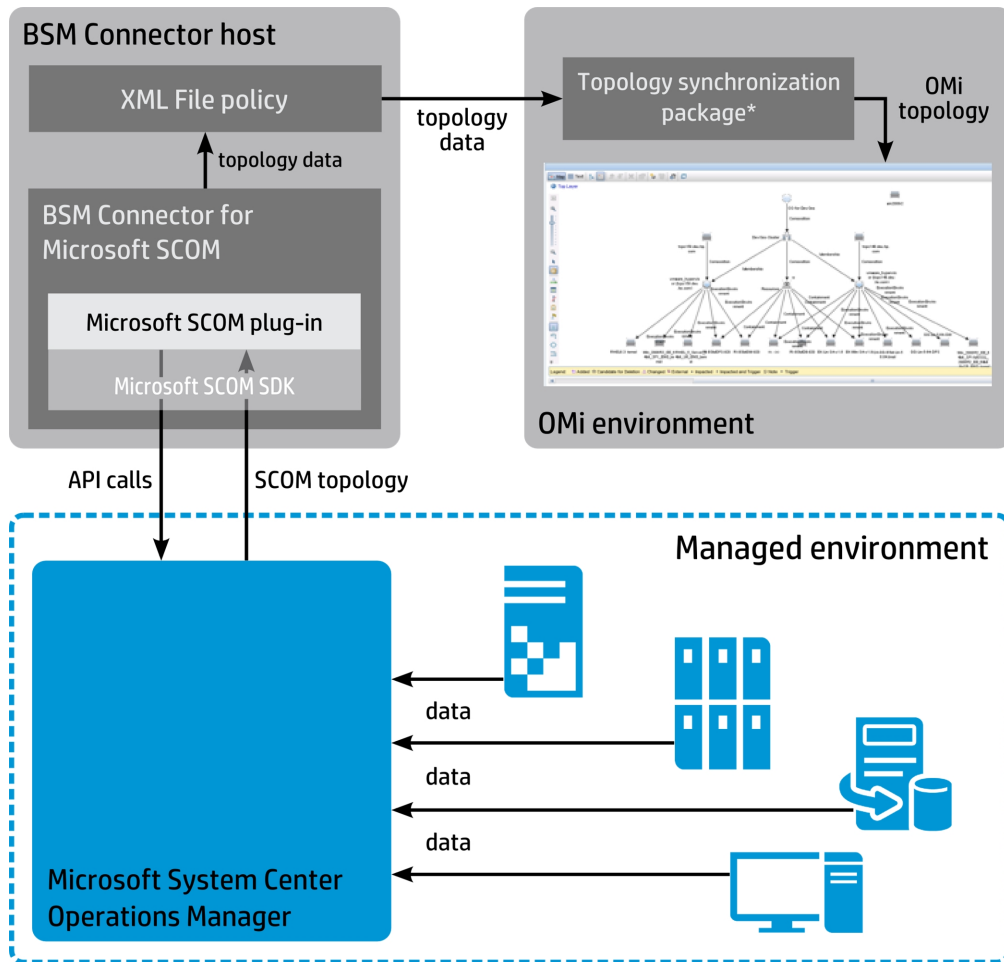
Topology Collection and Forwarding

BSM Connector for Microsoft SCOM makes Microsoft SCOM topology available to OMi as follows¹:

1. Topology structures are collected from Microsoft SCOM through the API provided by the Microsoft System Center Operations Manager SDK.
2. In BSM Connector for Microsoft SCOM, the collected topology is stored in an XML file on the BSM Connector host.
3. In BSM Connector, the stored topology is processed by a policy of the XML File type, and then forwarded to OMi.
4. In OMi, the topology data is mapped by using the topology synchronization package of BSM Connector for Microsoft SCOM. The package is used by the Discovery Server of OMi.

¹The process is repeated regularly.

Figure 2. Architectural overview of the Microsoft SCOM topology integration with OMi



*Used in the Discovery Server

Microsoft SCOM topology structure is mapped to an equivalent structure in OMi. The topology structure is constructed from three topology entity types:

- Configuration items (CIs) (**monitored objects** in Microsoft SCOM)
- CI attributes (**object attributes** in Microsoft SCOM)
- Relations between CIs (**relations between objects** in Microsoft SCOM)

The scope of objects that Microsoft SCOM can discover and monitor is managed through Microsoft SCOM groups and their associated management packs (MPs). By default, Microsoft SCOM only monitors some basic operating system-related services, but you can import new MPs and monitor services such as DNS Server, Active Directory Domain Services, Exchange Server, SQL Server, and so on. Although this customization is made within Microsoft SCOM, it also changes the scope of the topology data and metrics that can be collected by BSM Connector for Microsoft SCOM. Therefore, installation of a MP in Microsoft SCOM is a prerequisite to make object information available in OMi.

Several MPs are bundled in BSM Connector for Microsoft SCOM, and you can install them by using the product's Configuration Utility.

In scope of topology collection, BSM Connector for Microsoft SCOM also acquires and forwards Microsoft SCOM identification data to OMi. In consequence, Microsoft System Center Operations Manager is presented in the OMi web interface as the origin of the collected topology data.

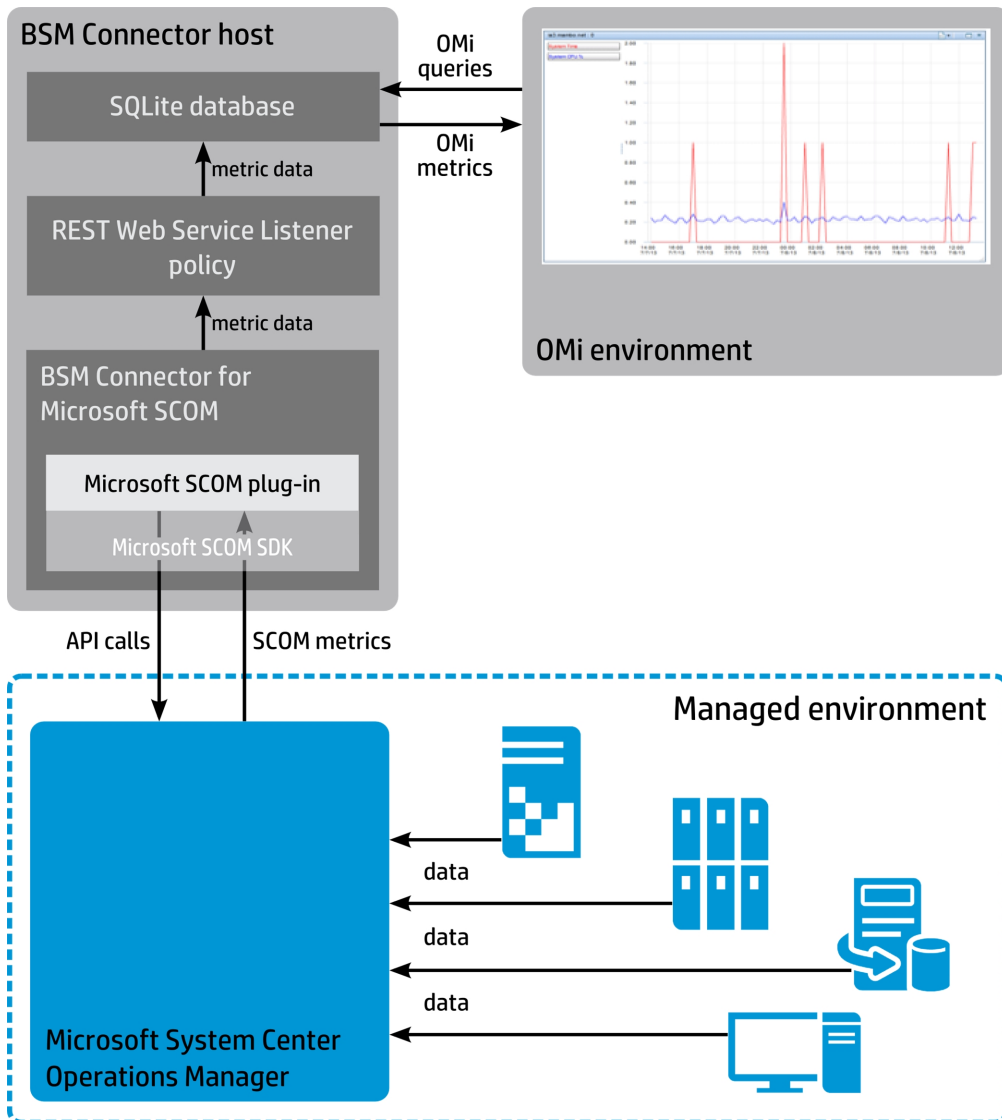
Metric Collection and Forwarding

BSM Connector for Microsoft SCOM makes Microsoft SCOM metrics available to OMi as follows¹:

1. Metric structures are collected from Microsoft SCOM through the API provided by the Microsoft System Center Operations Manager SDK.
2. In BSM Connector for Microsoft SCOM, the collected metrics are sent to the REST Web Service endpoint of BSM Connector.
3. The preprocessed metrics are mapped by using a BSM Connector policy of the REST Web Service Listener type, and then saved to the database in BSM Connector.
4. The stored metrics are forwarded to OMi upon request from the OMi side.

¹The process is repeated regularly.

Figure 3. Architectural overview of the Microsoft SCOM metric integration with OMi



Integration with OMi adheres to the general principle that only alerts should impact the health state of a CI. Therefore, collected metric values do not directly affect the health state of a CI in OMi. The state can be determined by means of the CI hint.

The metrics collected and mapped by the metric integration are shown in the Performance Perspective view of the OMi web interface. With the help of graph templates provided by BSM Connector for Microsoft SCOM, they are visually presented in the OMi web interface at Workspaces > Operations Console > Performance Perspective > Performance > Graphs.

Chapter 3: Installation

Before installing BSM Connector for Microsoft SCOM, go through a list of the supported operating systems ("[Supported Operating Systems](#)" on page 18) and consider the prerequisites ("[Installation Prerequisites](#)" on page 18). Before you start with the installation process, familiarize yourself with the conventions listed in the table in this section.

Installation of BSM Connector for Microsoft SCOM consists of several tasks. Complete them in the following order:

1. Obtain the assembly files from the Microsoft System Center Operations Manager SDK. See "[Obtaining the Microsoft SCOM SDK Assembly Files](#)" on page 21.
2. *Optional:* Install the Microsoft SCOM Built-In Diagnostics Loader Stub. See "[Installing the Microsoft SCOM Built-In Diagnostics Loader Stub](#)" on page 23.
3. Obtain and install BSM Connector for Microsoft SCOM. See "[Installing BSM Connector for Microsoft SCOM](#)" on page 24.
4. Install the event backward synchronization script. See "[Installing the Event Backward Synchronization Script](#)" on page 25.

This task is mandatory only if you plan to collect Microsoft SCOM events.

5. Install the OMi topology synchronization package and the OMi content pack for metrics. See "[Installing the Topology Synchronization Package and the Metrics Content Pack](#)" on page 26.

Although this task is mandatory only if you plan to collect Microsoft SCOM topology or Microsoft SCOM metrics, or if you intend to enrich the collected Microsoft SCOM events with topology-related information, HP strongly recommends that you perform it in any case.

Caution: BSM Connector for Microsoft SCOM does not support upgrade scenarios. If you have a previous product version installed on the target host, remove it first. HP recommends that all relevant data is backed up prior to the removal.

Conventions Used in the Installation, Configuration, and Other Procedures

The following placeholders are used in the instructions throughout this document. When performing the steps specify the actual value in place of each placeholder.

Placeholder	Meaning	(Default) Values, Example, Notes
<Version>	Product version string of BSM Connector for Microsoft SCOM: major version, minor version, and build number. It is embedded in the filename of the installation package.	Example: 03.00.041 This string represents the version 3.00 and the build number 41.
<OvInstalLDir>	Program installation directory of HP Operations Agent that is jointly used by BSM Connector and BSM Connector for Microsoft SCOM.	Default value: C:\Program Files\HP \ \HP BTO Software
<OvDataDir>	Data installation directory of HP Operations Agent that is jointly used by BSM Connector and BSM Connector for Microsoft SCOM.	Default value: C:\ProgramData\HP\HP BTO Software Tip: The C:\ProgramData directory is hidden by default.
<SCOMHome>	Program installation directory of Microsoft System Center Operations Manager.	Default value (Microsoft SCOM 2012): C:\Program Files\System Center \ Operations Manager 2012 Default value (Microsoft SCOM 2007): C:\Program Files\System Center \ Operations Manager 2007
<SDKAssemblyFilesDir>	Directory on the BSM Connector host where you temporarily store the Microsoft SCOM SDK assembly files.	There is no default value.
<OMiHome>	Directory where Operations Manager i is installed.	Default value (Windows): C:\HPBSM Value (Linux): /opt/HP/BSM

Supported Operating Systems

BSM Connector for Microsoft SCOM is available for the following operating systems (a subset of the operating systems BSM Connector supports):

Supported Operating Systems
Microsoft Windows Server 2012
Microsoft Windows Server 2008 (64-bit)

Installation Prerequisites

The sections that follow list the prerequisites that need to be fulfilled to enable installation of BSM Connector for Microsoft SCOM and use of all the functionality it provides.

Application Software

Before you install BSM Connector for Microsoft SCOM, the following software applications must be installed and configured:

Application	Supported Versions
Microsoft System Center Operations Manager	2012 R2, 2012 SP1, 2012, 2007 R2.
HP Operations Manager i	10.00 or later, patched with the hotfix QCCR8D36212; the minimum requirement is the Event Management Foundation License.
HP BSM Connector	10.00 or later Note: HP BSM Connector must be configured as a connected server in HP Operations Manager i and properly integrated into HP Operations Manager i. HP recommends that Microsoft System Center Operations Manager and HP BSM Connector are installed on different host systems. If you are using an HP BSM Connector version earlier than 10.00, upgrade it first. For instructions, see the <i>BSM Connector Installation and Upgrade Guide</i> .

For installation and configuration information, see the corresponding documentation.

Additionally, the following auxiliary software must be installed on the HP BSM Connector host:

Auxiliary Software	Required Version, Notes
Microsoft System Center Operations Manager SDK <div style="background-color: #f0f0f0; padding: 5px;"> Note: The SDK is bundled with the base product and is covered by the Microsoft System Center Operations Manager license. </div>	2012 or 2007 R2, depending on your Microsoft System Center Operations Manager version; a subset of the SDK assembly files is required.
Microsoft .NET Framework	4 or later; full installation of the Windows Server feature. You can download the extended version of Microsoft .NET Framework 4 from the web site http://www.microsoft.com/en-us/download/details.aspx?id=17718 . For installation instructions, see the Microsoft Windows Server documentation.

For visual representation of metrics in OMi by using the bundled graph templates, the following OMi management packs must be installed:

Management Pack	Required Version
OMi Management Pack for Infrastructure	1.10 or later
OMi Management Pack for Microsoft Active Directory	1.00 or later
OMi Management Pack for Microsoft SQL Server	1.00 or later

Network Load Balancing for Microsoft SCOM 2012

If you deploy multiple servers in a distributed Microsoft SCOM 2012 installation, Microsoft recommends to configure Network Load Balancing (NLB). NLB is a Windows Server feature that enables high availability for the Operations Manager Data Access service in your Microsoft SCOM environment. It achieves this by automatically redirecting clients to another management server if the connection to the Operations Manager Data Access service fails. For more information about NLB, see the Microsoft web site <http://msdn.microsoft.com/en-us/library/bb742455.aspx>. For instructions on how to install and configure NLB, see the Microsoft web site <http://technet.microsoft.com/en-us/library/hh316108.aspx>.

TCP/IP Ports

The following table lists the ports that BSM Connector for Microsoft System Center Operations Manager uses by default. In your HP BSM Connector environment, these ports may not be used by other software applications.

Port Number	Port Description
30005 ¹	Default port of BSM Connector policies of the REST Web Service Listener type Used for dispatching Microsoft SCOM events and metrics to the respective BSM Connector policies.
30030 or higher ²	Default Microsoft SCOM event backward synchronization port Used for synchronizing the resolution state of events in the Microsoft SCOM instance with the state in HP Operations Manager i.

¹ If you cannot ensure the default port is free, you can still change the port number while configuring BSM Connector for Microsoft SCOM. Keep in mind that changing the port number includes mandatory actions also in BSM Connector.

² For the second and each additional integrated Microsoft SCOM instance, BSM Connector for Microsoft SCOM uses an increased default port number. If the target port is occupied, the port number is further increased until a free port is found.

Caution: If Microsoft SCOM and BSM Connector communicate through a firewall, make sure the firewall rules allow connections through the listed ports.

Other Prerequisites and Requirements

The following is a list of additional prerequisites and the requirements you must consider before installing the product:

- The BSM Connector and Microsoft SCOM host systems must be members of the same domain.
- Previous versions of BSM Connector for Microsoft SCOM may not be installed on the BSM Connector host.
- To be able to configure and administer BSM Connector for Microsoft SCOM, familiarize yourself with HP BSM Connector and its web interface. For example, you can learn how to import, activate, and reconfigure policies. For information on these and other relevant topics, see the *BSM Connector User Guide*.

Obtaining the Microsoft SCOM SDK Assembly Files

To make the required assembly files (dynamic link libraries) of the Microsoft System Center Operations Manager SDK available to BSM Connector for Microsoft SCOM, perform the following steps:

1. Depending on whether you have access to the Microsoft SCOM host, proceed as follows:
 - If you have access:
 - i. Locate the following files in the `<SCOMHome>\SDK Binaries` directory on the Microsoft SCOM host:

Microsoft SCOM 2012:

```
Microsoft.EnterpriseManagement.Core.dll  
Microsoft.EnterpriseManagement.OperationsManager.dll  
Microsoft.EnterpriseManagement.Runtime.dll
```

Microsoft SCOM 2007:

```
Microsoft.EnterpriseManagement.OperationsManager.Common.dll  
Microsoft.EnterpriseManagement.OperationsManager.dll
```

- ii. Copy the files to a temporary directory on the BSM Connector host. This directory is referred to as `<SDKAssemblyFilesDir>` in the remainder of the document.

Caution: If you are copying assembly files for multiple Microsoft SCOM versions, choose a different temporary directory for each file group to prevent overwriting the file with the same name.

- If you do not have access:

Microsoft SCOM 2012:

- i. Open a web browser and navigate to the web site <http://www.microsoft.com/en-us/evalcenter/evaluate-system-center-2012-r2>.
- ii. In the System Center 2012 R2 > Download part, click **Sign In**.
- iii. On the Sign in to your Microsoft account web page, enter the e-mail address and password of your Microsoft account, and click **Sign in**. If you do not have a free Microsoft account, click Sign Up to get one.
- iv. On the Technet Evaluation Center web page, in the System Center 2012 R2 > Download part, click **Register to continue**.
- v. Enter the required data and click **Continue**.

- vi. In the line next to SC2012_R2_SCOM.exe, click **Download**, and save the self-extracting archive SC2012_R2_SCOM.exe to a temporary location. If prompted, allow saving the file.
- vii. Run SC2012_R2_SCOM.exe. If prompted, click **Run** to allow opening the file.
- viii. If prompted, click **Yes** to allow the program to make changes to your system. The SC2012 R2 SCOM Setup Wizard window opens.
- ix. In the Setup Wizard, click **Next**.
- x. *Optional:* To select a different directory for extracted contents, click **Browse**, navigate to the chosen directory, and then click **OK**.
- xi. Click **Next** and then click **Extract** on the next page.
- xii. When the process completes, close the Setup Wizard by clicking **Finish**.
- xiii. Launch Windows Explorer and navigate to the directory you extracted the files to. From this directory, navigate to the setup\AMD64 subdirectory.
- xiv. Copy the files to a temporary directory on the BSM Connector host. This directory is referred to as *<SDKAssemblyFilesDir>* in the remainder of the document.

Caution: If you are copying assembly files for multiple Microsoft SCOM versions, choose a different temporary directory for each file group to prevent overwriting the file with the same name.

Microsoft SCOM 2007:

- i. Open a web browser and navigate to the web site <http://www.microsoft.com/en-us/download/details.aspx?id=9524>.
- ii. Click **Continue** and save the self-extracting archive OPSMGR2007R2EVAL.exe, linked as System Center Operations Manager 2007 R2 – Evaluation Edition, to a temporary location. If prompted, allow saving the file.
- iii. Run OPSMGR2007R2EVAL.exe. If prompted, click **Run** to allow opening the file.
- iv. Click **OK** to dismiss the welcome window. The WinZip Self-Extractor window opens.
- v. Click **Browse**, select a temporary location to extract the contents to, and click **OK**.
- vi. Clear the **When done unzipping open: .\evalcdimage\setupom.exe** option.
- vii. To extract the archive contents, click **Unzip**. When the process completes, close WinZip Self-Extractor by clicking **Close**.
- viii. Launch Windows Explorer and navigate to the directory you extracted the files to. From this directory, navigate to the evalcdimage\Server\AMD64 subdirectory.

- ix. Double-click the `OMCore.Cab` cabinet file to open it, and extract the following files to a temporary directory:

```
F_Microsoft.EnterpriseManagement.OperationsManager.Common.dll \
.41712086_AFA9_408D_84D8_5884F692B6CD
```

```
F_Microsoft.EnterpriseManagement.OperationsManager.dll.41712086 \
_AFA9_408D_84D8_5884F692B6CD
```

- x. Rename the file

```
F_Microsoft.EnterpriseManagement.OperationsManager.Common.dll \
.41712086_AFA9_408D_84D8_5884F692B6CD
```

to

```
Microsoft.EnterpriseManagement.OperationsManager.Common.dll
```

- xi. Rename the file

```
F_Microsoft.EnterpriseManagement.OperationsManager.dll.41712086 \
_AFA9_408D_84D8_5884F692B6CD
```

to

```
Microsoft.EnterpriseManagement.OperationsManager.dll
```

- xii. Copy the files to a temporary directory on the BSM Connector host. This directory is referred to as `<SDKAssemblyFilesDir>` in the remainder of the document.

Caution: If you are copying assembly files for multiple Microsoft SCOM versions, choose a different temporary directory for each file group to prevent overwriting the file with the same name.

Installing the Microsoft SCOM Built-In Diagnostics Loader Stub

To prevent specific warnings from getting logged into the operating system event log, make the Microsoft SCOM Built-In Diagnostics (BID) Loader Stub available to BSM Connector for Microsoft SCOM. To do this, perform the following steps:

1. Depending on whether you have access to the Microsoft SCOM host, obtain the `MomBidLdr.dll` file as follows:

- If you do have access, locate the file in the `<SCOMHome>` directory on the Microsoft SCOM host.
 - If you do not have access, download the file from the Microsoft Download Center web site in a similar way as described in "[Obtaining the Microsoft SCOM SDK Assembly Files](#)" on page 21.
2. Copy `MomBidLdr.dll` to the `%windir%\System32` directory on the BSM Connector host.

Note: The `windir` operating system variable is automatically resolved in Windows Explorer and Command Prompt windows.

Installing BSM Connector for Microsoft SCOM

To obtain and install BSM Connector for Microsoft SCOM, perform the following steps:

1. From the web site www.hp.com/go/livenetwork download the BSM Connector for Microsoft SCOM product installation package (product image archive).
2. Store the product image archive at a temporary location on the BSM Connector for Microsoft SCOM host.
3. Check if there are BSM Connector complements for other systems management applications already installed on the BSM Connector host. If such complements are present, stop their data collection (integration) services. For instructions, see the corresponding documentation.

Note: BSM Connector for Microsoft SCOM may include a newer version of GenInt from the already installed BSM Connector complements. In this case, the installed GenInt is upgraded. GenInt is backward compatible.

4. Install BSM Connector for Microsoft SCOM on the BSM Connector host as follows:
 - a. Launch Windows Explorer and locally unpack the product image archive `ProductImage-HPBsmIntScom-<Version>-Win5.2_64-release.zip`.
 - b. To start HP Software Installer, change the current directory to `ProductImage-HPBsmIntScom-<Version>-Win5.2_64-release` and double-click the following file:

`HPBsmIntScom_<Version>_setup.exe`
 - c. To start the installation, follow the instructions displayed by HP Software Installer. If all prerequisite checks pass, click **Install**.
 - d. To close HP Software Installer, click **Done** after the installation completes.
5. If there are BSM Connector complements for other third-party system management applications

already installed on the BSM Connector host, start the integration services of these complements again.

Installing the Event Backward Synchronization Script

For backward synchronization of event resolution states, BSM Connector for Microsoft SCOM uses two Perl scripts for deletion of alerts in Microsoft SCOM. While the Microsoft SCOM-specific script is automatically installed by BSM Connector for Microsoft SCOM during configuration of the integration services, the generic script must be manually copied to the location where BSM Connector can find it.

To make the generic script available to BSM Connector, perform these steps on the BSM Connector host:

1. Open a Command Prompt window with administrative privileges.
2. Check if there are BSM Connector complements for other systems management applications already installed:
 - If other BSM Connector complements are *not* present, do the following:
 - i. Copy the `OmBackSync.pl` file from `<OvDataDir>\installation\genint` to the `<OvDataDir>\conf\backsync` directory (and allow the copy process to overwrite the file at the target location).
 - ii. To restart the backward synchronization process, run the following command:

```
ovc -restart ombacksync
```
 - If other BSM Connector complements are present, do the following:
 - i. Compare contents of the following files:

```
<OvDataDir>\installation\genint\OmBackSync.pl
```

```
<OvDataDir>\conf\backsync\OmBackSync.pl
```

If the file contents match, no further action is required and you must skip all remaining steps. If the contents *do not* match, proceed with the next step.
 - ii. Make a copy of the `OmBackSync.pl` file located in the `<OvDataDir>\conf\backsync` directory. The suggested name for the file copy is `OmBackSync.pl_orig`.
 - iii. Copy the `OmBackSync.pl` file from `<OvDataDir>\installation\genint` to the `<OvDataDir>\conf\backsync` directory (and allow the copy process to overwrite the file at the target location).

- iv. To restart the backward synchronization process, run the following command:

```
ovc -restart ombacksync
```

Installing the Topology Synchronization Package and the Metrics Content Pack

BSM Connector for Microsoft SCOM can only forward Microsoft SCOM topology to OMi when a required topology synchronization package is registered with OMi. This package is included in the BSM Connector for Microsoft SCOM product image archive. Additionally, visual representation of metrics in the OMi web interface (at Workspaces > Operations Console > Performance Perspective > Performance > Graphs) is only available when the bundled graph templates are imported into OMi as a content pack.

To install and register the topology synchronization package with OMi, perform these steps:

1. On the BSM Connector host, locate the HPBsmIntSCOM_OMi_Content.zip file at the following location:

```
<OvDataDir>\installation\HPBsmIntSCOM\omi-content
```

2. Copy the archive file from its directory on the BSM Connector host to a location of your choice on the OMi Gateway Server host, and unpack the archive.
3. On the OMi Gateway Server host, open a Command Prompt window (command shell) with administrative privileges.
4. Change the current directory to the HPBsmIntSCOM subdirectory within the temporary directory where you unpacked the archive.
5. Considering the hosting operating system, run the following command :

Windows:

```
install-toposync
```

Linux:

```
./install-toposync.sh
```

After completing the procedure for installation and registration of the topology synchronization package, to import the content pack with metric graph templates into OMi, perform these steps:

1. On the OMi Gateway Server host, open a Command Prompt window (command shell) with administrative privileges.
2. Considering the hosting operating system, run the following command:

Windows:

```
<OMiHome>\bin\ContentManager -import \  
<PathToContentPack>\HPBsmIntSCOM_ContentPack.zip -username <OMiUserName> \  
-password <OMiUserPassword>
```

Linux:

```
<OMiHome>/bin/ContentManager.sh -import \  
<PathToContentPack>/HPBsmIntSCOM_ContentPack.zip -username <OMiUserName> \  
-password <OMiUserPassword>
```

In these instances, *<OMiUserName>* and *<OMiUserPassword>* must belong to a user account that has the privileges for importing content packs into OMI.

After you successfully complete the installation procedures described in this chapter, continue with the configuration as described in ["Configuration" on page 28](#).

Chapter 4: Configuration

Essential Configuration

Essential configuration of BSM Connector for Microsoft SCOM consists of several tasks. Complete them in the following order:

1. Adjust a few OMi settings. See ["Adjusting OMi Settings" on the next page](#).

This task is mandatory only if you plan to collect Microsoft SCOM topology.

2. Create the integration services. See ["Creating the Integration Services" on page 31](#).

This common task is mandatory for any type of data you plan to collect.

3. Configure the connection between BSM Connector for Microsoft SCOM and the Microsoft SCOM instance. See ["Configuring the Connection" on page 34](#).

This common task is mandatory for any type of data you plan to collect.

4. Configure the event integration. See ["Configuring the Event Integration" on page 37](#).

This task is mandatory for collecting events.

5. Configure the topology integration. See ["Configuring the Topology Integration" on page 39](#).

This task is mandatory for collecting topology. If you intend to enrich the collected Microsoft SCOM events with topology-related information, you must configure the topology integration *before* the event integration.

6. Configure the metric integration. See ["Configuring the Metric Integration" on page 42](#).

This task is mandatory for collecting metrics.

7. Activate the BSM Connector policies. See ["Activating the Policies in BSM Connector" on page 44](#).

This common task is mandatory for any type of data you plan to collect.

8. Start the configured integration services. See ["Starting the Integration Services" on page 45](#).

This common task is mandatory for any type of data you plan to collect.

Tip: If BSM Connector for Microsoft SCOM will not be used to integrate all supported types of Microsoft SCOM entities, you can omit irrelevant configuration tasks.

After the initial configuration, you can make changes to the configuration by following the instructions in the appropriate section.

Advanced Configuration

Advanced configuration of BSM Connector for Microsoft SCOM is not mandatory. It includes the following tasks:

- Configure the behavior of the event, topology, and metric integrations in BSM Connector for Microsoft SCOM. See "[Configuration Options](#)" on page 71.
- Customize the default Microsoft SCOM event, topology, and metric mappings available in BSM Connector for Microsoft SCOM. See "[Entity Mappings](#)" on page 81.

Caution: HP recommends advanced configuration tasks are performed only by users with sufficient knowledge of Microsoft SCOM.

Integration with Multiple Microsoft SCOM Instances

Configuration of BSM Connector for Microsoft SCOM for collection of data from the second and each additional instance of Microsoft SCOM is the same as for the single-instance setup. To integrate the product with such an instance:

1. Complete the applicable configuration tasks in the order presented in the Essential Configuration passage.
2. *Optional:* To customize BSM Connector for Microsoft SCOM behavior, perform tasks listed in the Advanced Configuration passage.

Adjusting OMi Settings



To increase robustness of your Microsoft SCOM topology integration with OMi, you must adjust the setting for a particular configuration type attribute in OMi. Additionally, to avoid problems caused by a complex monitored infrastructure, you may want to adjust an OMi setting for data chunking.

Note: HP recommends that you perform the procedure for adjustment of the External ID attribute in any case.

Configuration Type Attribute: External ID


Fully qualified domain names (FQDNs) of the monitored systems might be relatively long. To accommodate longer FQDNs, adjust the size of the External ID attribute of the Data configuration item (CI) type in OMi. Follow the steps:

1. Log on to the OMi web interface.
2. Navigate to **Administration > Setup and Maintenance > Infrastructure Settings**.

3. Click the **Foundations** button.
4. From the Foundations drop-down list, select **RTSM**.
5. In the RTSM - General Settings part, click the  (**Edit**) icon on the right-hand side of the Object Root line.
6. In the Edit Setting window, replace the content of the Value text box with the root string.
7. To apply changes and close the window, click **Save**.
8. Navigate to **Administration > RTSM Administration > Modeling > CI Type Manager**.
9. In the CI Types pane, in the Root part, select **Data**.
10. In the toolbar, click **Attributes**.
11. In the Display Name column, select **External ID**.
12. Click the  (**Edit**) icon in the toolbar.
13. In the Details page of the Edit Attribute window, replace the default value in the Value Size text box (50) with a suitably higher value. For example, you can specify the value 100.
14. To apply changes and close the window, click **OK**.

RTSM Setting: Data Push Chunk Size

If the infrastructure monitored by Microsoft SCOM is relatively large, the quantity of the forwarded topology data is also large, at least the content sent in response to the initial collection query. In such circumstances, to avoid disruptions in topology forwarding, increase the data push chunk size in OMi. Follow the steps:

1. Log on to the OMi web interface.
2. Navigate to **Administration > Setup and Maintenance > Infrastructure Settings**.
3. Click the **Foundations** button.
4. From the Foundations drop-down list, select **RTSM Fuses**.
5. In the RTSM Fuses - Fuses Settings part, click the  (**Edit**) icon on the right-hand side of the Data Push Chunk Size.
6. In the Edit Setting window, in the Value text box, replace the default value (2000) with a suitably higher value. For example, you can specify the value 20000.

Tip: When the entire Microsoft SCOM topology is available in OMi, you can revert the Data Push

Chunk Size option to its predefined value to avoid potential decrease in OMi performance.

Creating the Integration Services

To create the integration services for a Microsoft SCOM instance and register their components with HP Operations Agent, perform the following steps:

1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

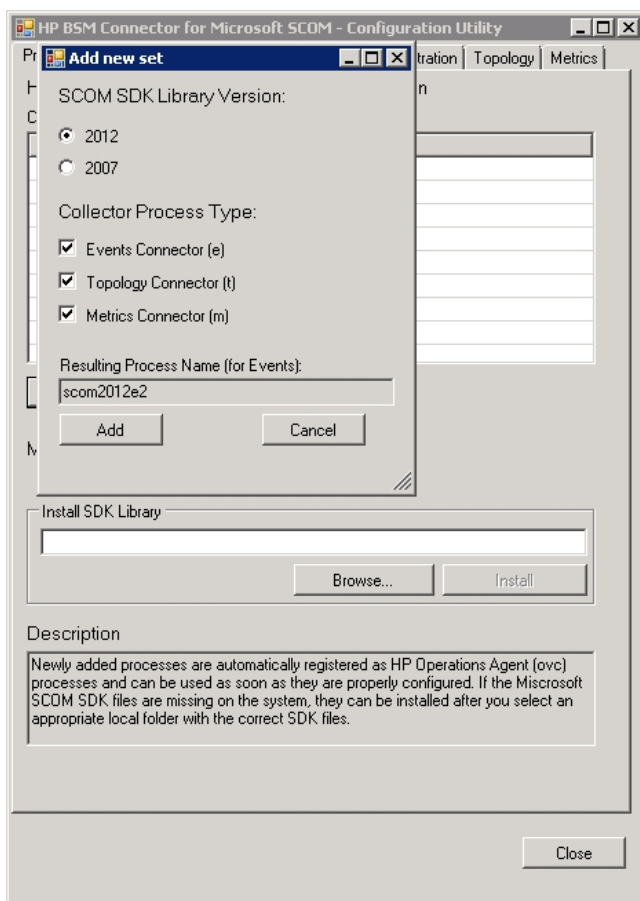
Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.

Note: The application is automatically launched with administrative privileges. Upon launching, a command prompt window appears for a short while. Only one instance of the Configuration Utility can run at a moment. If you attempt to launch a second instance, the window of the already running instance is brought to the front.

Caution: The rest of this procedure may not apply if you use the Configuration Utility in a language other than English. For instructions on how to launch the Configuration Utility in a non-English language, see "[Launching the Configuration Utility in a Non-English Language](#)" on page 50.

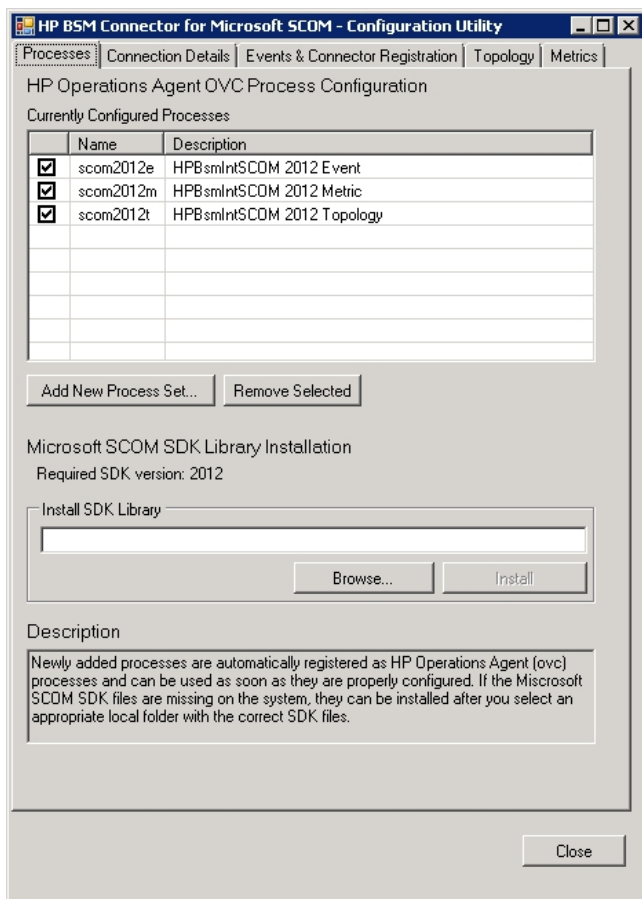
2. In the Processes page, in the HP Operations Agent OVC Process Configuration part, click **Add New Process Set**.
3. In the Add new set window, in the SCOM SDK Library Version part, select the option corresponding to the version of your Microsoft SCOM instance.



4. In the Collector Process Type part, select the integration service type:
 - **Events Connector (e)**—to create the event integration service for collecting Microsoft SCOM events
 - **Topology Connector (t)**—to create the topology integration service for collecting Microsoft SCOM topology
 - **Metrics Connector (m)**—to create the metric integration service for collecting Microsoft SCOM metrics

Tip: The Resulting Process Name (for Events) text box shows the projected name of the event integration service. Integration services for other data types follow the same template. For more information, see ["Integration Services" on page 58](#).

5. To create the selected integration services and register the corresponding components, click **Add**. This also closes the window.



6. Click **Close** to close the Configuration Utility.
7. Open a Command Prompt window with administrative privileges.
8. To verify successful creation of the integration services and registration of the corresponding components, run the following command:

```
ovc -status
```

The created integration services are listed with the status Stopped.

Configuring the Connection

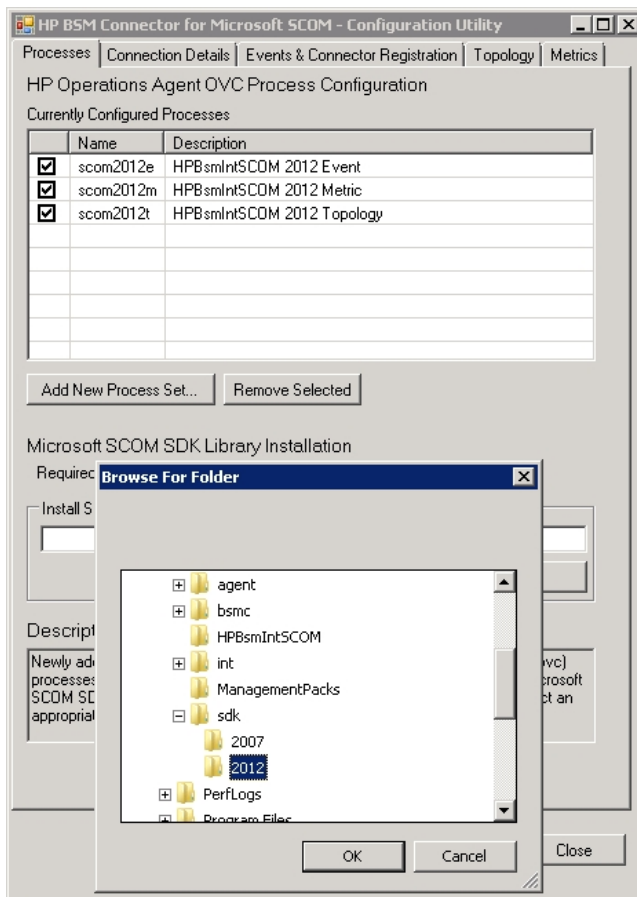
To configure the connection that BSM Connector for Microsoft SCOM will use to collect data from a Microsoft SCOM instance, proceed as follows:

1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.

2. In the Processes page, in the Currently Configured Processes part, select a process set from the currently configured processes.
3. In the Microsoft SCOM SDK Library Installation part, click **Browse**.



4. In the Browse For Folder window, navigate to the `<SDKAssemblyFilesDir>` directory (used in the corresponding installation task) and select it. To confirm your selection and close the window, click **OK**.
5. In the Microsoft SCOM SDK Library Installation part, to install the required Microsoft SCOM SDK assembly files on the BSM Connector host, click **Install**.

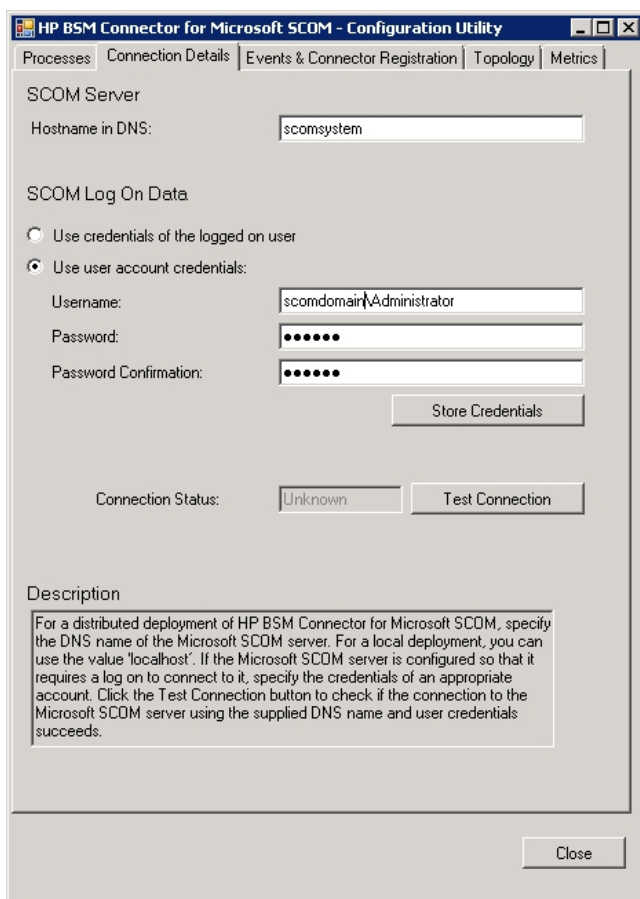
Tip: Installation of the Microsoft SCOM assembly files is required only once per version of the integrated Microsoft SCOM instances. For example, if you are configuring connection to the second Microsoft SCOM instance of the same product version, you can skip the steps 3 to 5 of this procedure.

6. Click the **Connection Details** tab.
7. In the **Hostname in DNS** text box, enter the DNS name of the host where the integrated Microsoft SCOM instance resides. If BSM Connector and BSM Connector for Microsoft SCOM are installed on the Microsoft SCOM host, enter the value `localhost`.
8. Choose a user account whose credentials will be used for logging on to the Microsoft SCOM instance.

BSM Connector for Microsoft SCOM must connect to the integrated Microsoft SCOM instance by using a user account with proper access privileges to be able to collect events, topology data, or metrics. The chosen user account must belong to the `Operations Manager Administrators` user role. For instructions on how to configure a Microsoft SCOM user role, see "[Configuring Microsoft SCOM User Roles](#)" on the next page.

9. Based on the decision you made in the previous step, select an option in the SCOM Log On Data part: **Use credentials of the logged on user** or **Use user account credentials**.
10. If you selected the **Use user account credentials** option, enter the appropriate information in the **Username**, **Password**, and **Password Confirmation** text boxes.

Note: In case you have chosen a domain user account, specify it in the `<Domain>\<Username>` or `<Username>@<Domain>` format.



11. To make sure you are allowed to log on to the Microsoft SCOM instance with the specified credentials, click **Test Connection**. If the credentials are valid, a message appears informing you that the connection was successful, and the value of the **Connection Status** text box changes from Unknown to Success. If the connection failed, a message notifies you so and the value of the **Connection Status** text box changes to Failure. This indicates that the credentials you provided are invalid and you must re-enter them.
12. To store connection configuration data after a successful connectivity test, click **Store Credentials**.
13. Click **OK** to close the Configuration Utility.


Configuring Microsoft SCOM User Roles

A Microsoft SCOM user role is a virtual entity in Microsoft SCOM that consists of a group of Active Directory (AD) users. The Microsoft SCOM groups assigned to the user role define the set of topology objects a user can view and manage. They also define the set of operations in Microsoft SCOM a user can perform.

A user role is based on a Microsoft SCOM profile, which defines a subset of operations that are allowed to be performed in Microsoft SCOM by the assigned AD users.

Example: A user role based on the `Read-only operator` profile contains the AD user **Tester**. Any user logged in as **Tester** can view all data in scope, but cannot modify it.

By default Microsoft SCOM has one user role for each Microsoft SCOM profile. You can use these default roles or define new roles and add AD users to the profiles. To add a new role, follow the steps:

1. Access the Microsoft SCOM Operations console.
2. Navigate to **Administration > Security > User Roles**, and double-click a user role. The User Role Properties window opens.
3. Click the  (**Add**) icon. The Select Group window opens.
4. Enter the user name of chosen user account and click **Check Names**. If the details are correct, the corresponding AD name displays. Click **OK** to close the Select Group window.
5. Click **OK** to close the User Role Properties window.

Note: You cannot add user roles to the Administrators profile. To define Administrator-based user roles, add the user account to the predefined Operations Manager Administrators user role.

Configuring the Event Integration

To configure the event integration with the selected Microsoft SCOM instance, perform the following:

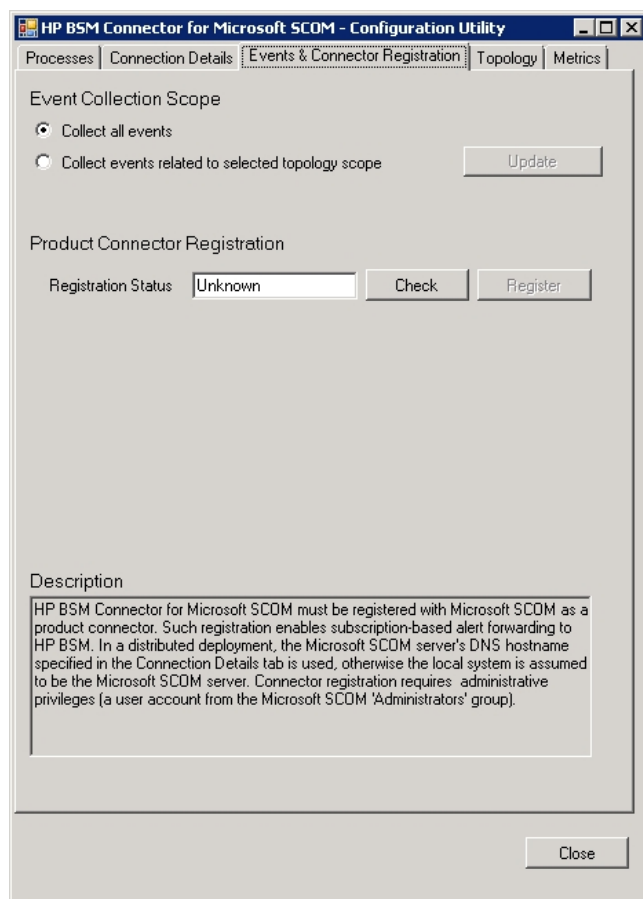
1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:
 - Windows Server 2012:** On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.
 - Windows Server 2008:** Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.
2. In the Processes page, in the Currently Configured Processes part, select a process set from the currently configured processes.
3. Click the **Events & Connector Registration** tab.
4. In the Event Collection Scope part, select one of the following:
 - **Collect all events**—to collect all available events
 - **Collect events related to selected topology scope**—to collect the events that originate from

the selected topology only (this option is available when the topology integration is already configured with a defined topology collection scope)

If you changed the selection event collection scope, click **Update**.

Caution: When **Collect events related to selected topology scope** is selected, click the **Update** button to align the event collection scope with your topology collection changes after you modify the list of the selected configuration topology groups on the Topology page.

5. To enable collection of events, you must register BSM Connector for Microsoft SCOM as a product connector with the integrated Microsoft SCOM instance:
 - a. To check current registration state and to verify that no other instances of BSM Connector for Microsoft SCOM 3.00 are registered as product connectors with the same Microsoft SCOM instance, click **Check**



- o If the value of the Registration Status text box changes from Unknown to Not registered, proceed to the next substep.

- If BSM Connector for Microsoft SCOM reports that the connector is already registered from a different system, and the value of the Registration Status text box changes from Unknown to Registered, cancel registration of the product connector on the remote host, and then repeat this substep.

Note: If multiple product connectors are connected to the same Microsoft SCOM instance, and at least one of these connectors is registered with Microsoft SCOM, the events are distributed between all connectors, and they steal each other's events.

If the value of the Registration Status text box changes to Registered after you click **Check**, a connector is already registered with the specified Microsoft SCOM instance. If this is not intentional and you expect your connector to receive all events from Microsoft SCOM, you must investigate the purpose of the other connector to make one of the following decisions:

- Stop and cancel registration of the existing connector
 - Use the existing connector instead of the connector you are trying to register
 - Let the connectors steal each other's events.
- b. To register your BSM Connector for Microsoft SCOM as a product connector with the Microsoft SCOM instance, click **Register**.
- When the product connector is successfully registered, the label of the Register button changes to Deregister. Clicking **Deregister** enables you to cancel the registration in the future.
- c. Verify that BSM Connector for Microsoft SCOM is listed as a product connector in Microsoft SCOM:
- i. Log on to the Microsoft SCOM web console.
 - ii. To display a list of registered product connectors, navigate to **Administration > Product Connectors > Internal Connectors**. The connector HPSCOMConnector is listed.
6. Click **OK** to close the Configuration Utility.

Configuring the Topology Integration

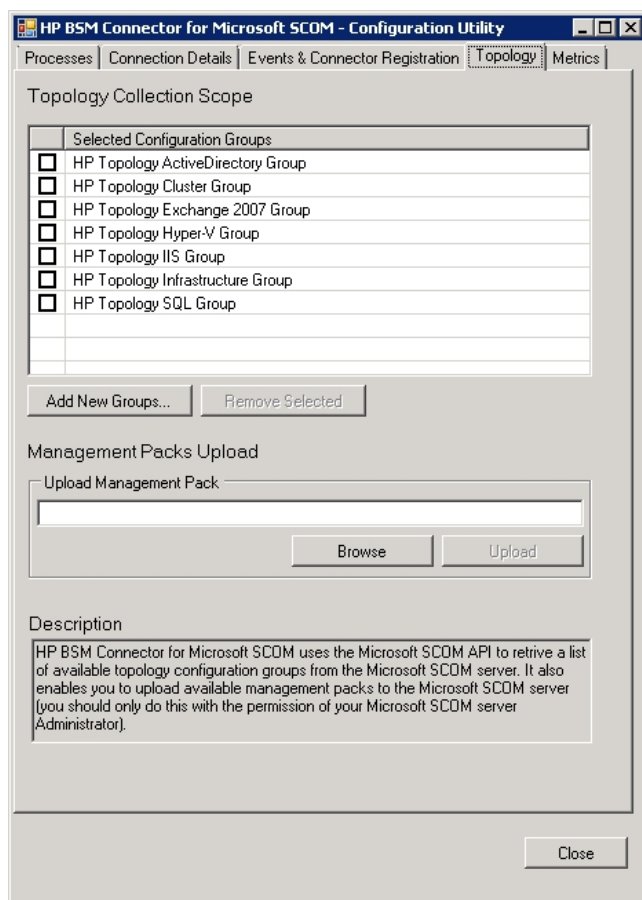
To configure the topology integration with the selected Microsoft SCOM instance, perform the following:

1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

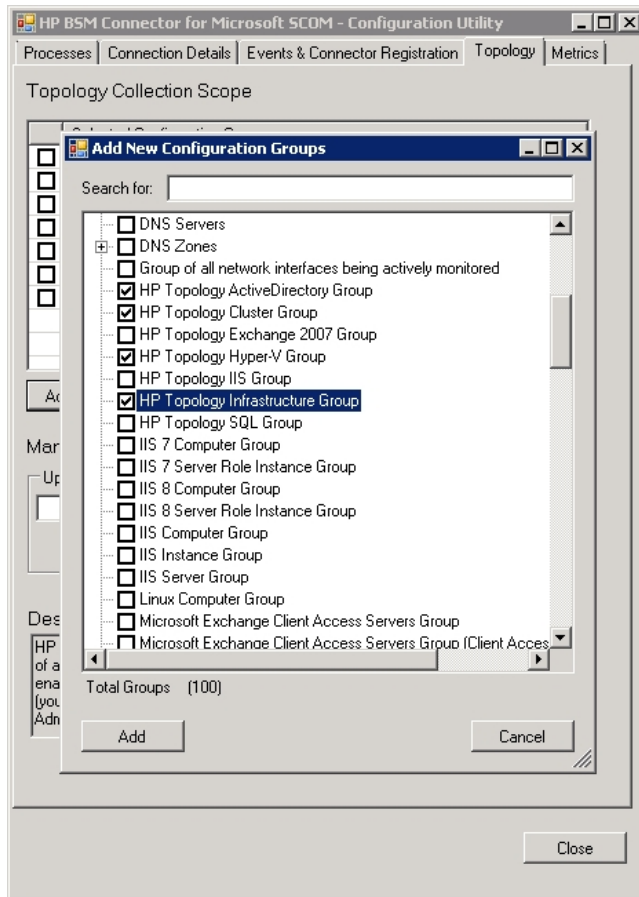
Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.

2. In the Processes page, in the Currently Configured Processes part, select a process set from the currently configured processes.
3. Click the **Topology** tab.
4. In the Topology Collection Scope part, review the list of the topology groups selected to be forwarded to OMi.



5. To add new items to the list:
 - a. Click **Add New Groups**.
 - b. In the Add New Configuration Groups window, select each topology object of interest.

Caution: Only the topology objects that are provided with the Microsoft SCOM management packs bundled with BSM Connector for Microsoft SCOM are properly mapped to OMi configuration items. You can recognize such objects by the HP_ prefix in their filenames.



- c. To add the selected items and close the window, click **Add**.
6. If you do not find the topology groups of interest in the list in the Add New Configuration Groups window, the reason might be that a corresponding Microsoft SCOM management pack is missing in the integrated Microsoft SCOM instance. To import a management pack to Microsoft SCOM, proceed as follows:
 - a. In the Upload Management Pack part, click **Browse**.
 - b. In the Open window, Navigate to the `<OvDataDir>\installation\HPBsmIntSCOM\ManagementPacks` directory.
 - c. From the drop-down list next to the Filename text box, select **All files (*.*)**.

- d. Select a management pack file and click **Open** to close the window.

For a list of the management packs provided by BSM Connector for Microsoft SCOM, see ["Bundled Management Packs" on page 68](#).

- e. In the Upload Management Pack part, click **Upload**.

Return to the step 5 to add new topology groups.

7. To remove items from the list of selected configuration groups, select the topology objects and then click **Remove Selected**.
8. Click **OK** to close the Configuration Utility.

Configuring the Metric Integration

To configure the metric integration with the selected Microsoft SCOM instance, perform the following:

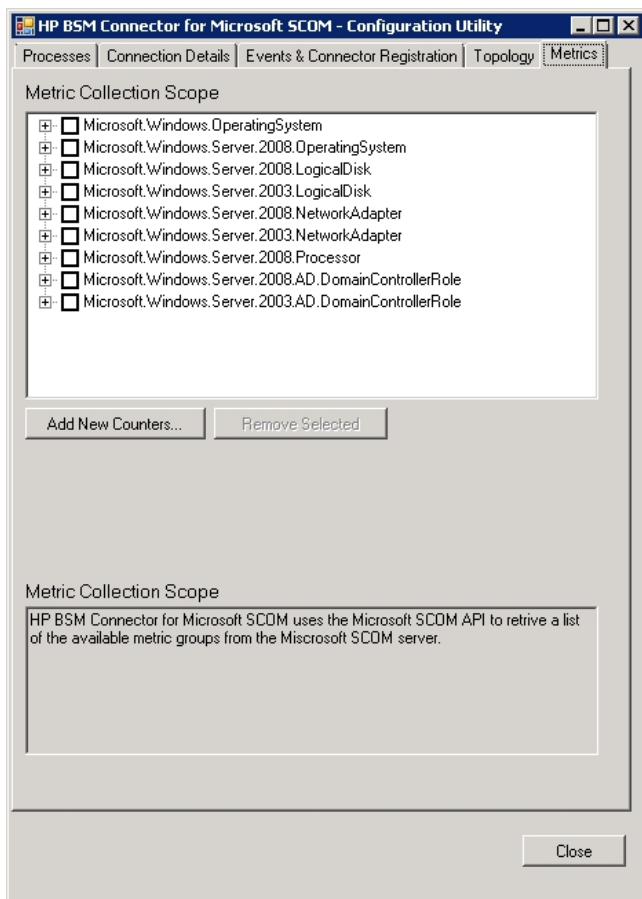
1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

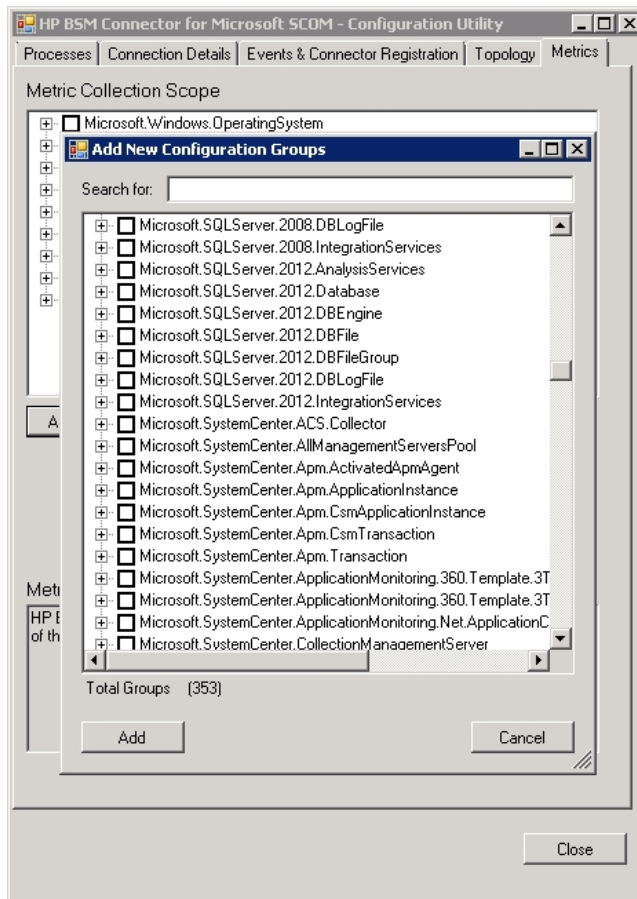
Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.

2. In the Processes page, in the Currently Configured Processes part, select a process set from the currently configured processes.
3. Click the **Metrics** tab.
4. In the Metric Collection Scope part, expand the entries and add select the metrics to be forwarded to OMi.

Tip: Keep the number of selected metrics within reasonable boundaries so as not to overload the collection process.



5. To add new items to the list:
 - a. Click **Add New Counters**.
 - b. In the Add New Configuration Groups window, expand the entries and select each metric group or metric of interest.



- c. To add the selected items and close the window, click **Add**.
6. To remove items from the list, expand the entries, select the metric groups or metrics, and then click **Remove Selected**.
7. Click **OK** to close the Configuration Utility.

Activating the Policies in BSM Connector

To activate the policies that were imported into BSM Connector during configuration of the integration services, complete the procedure:

1. Log on to the BSM Connector web interface.
2. Perform the following substep for each applicable policy:

- To activate a policy, select it and click the  (**Activate**) icon in the toolbar, or right-click it and select **Activate** from the context menu.

Depending on which integration services are configured in BSM Connector for Microsoft SCOM, a subset of the following policies are applicable:

- HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Event Integration
- HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Metric Integration
- HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Topology Integration

The <InstanceID> string contains the version and consecutive number of the integrated Microsoft SCOM instance. Example value: SCOM2007_3.

If the topology integration service is configured, perform the substep also for the following policy:

- HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Self Discovery

Tip: You can activate several policies at once by holding the **Ctrl** key and selecting multiple policies.

3. Repeat the step 2 for each additional Microsoft SCOM instance that BSM Connector for Microsoft SCOM is integrated with.

Note: If you deactivate a policy for collecting Microsoft SCOM data, the data continue to be collected while the policy remains inactive. The processing and forwarding of the accumulated data resumes when you reactivate the policy.

Starting the Integration Services

To start the integration services you configured for a Microsoft SCOM instance with the Configuration Utility, perform the following:

1. Open a Command Prompt window with administrative privileges.
2. Do *one* of the following:
 - To start all configured integration services for all Microsoft SCOM instances that BSM Connector for Microsoft SCOM is integrated with, run the following command:

```
ovc -start SCOM
```
 - To start the chosen configured integration services for a Microsoft SCOM instance, follow the

steps:

- i. Run the following command:

```
ovc -start <ServiceName>
```

In this instance, *<ServiceName>* is the proper actual value. For information about the integration services and their naming convention, see ["Integration Services" on page 58](#).

- ii. Repeat the previous step for each integration service you want to start.

3. To make sure the integration services are running, run the following command:

```
ovc -status SCOM
```

The command reports the Running status for each service you started.

Startup of the services initiates data collection from the integrated Microsoft SCOM instance and forwarding of the data to OMi.

Backing up and Restoring the Configuration

HP recommends that you regularly back up the configuration of BSM Connector for Microsoft SCOM—copy the changes that you made to the predefined BSM Connector for Microsoft SCOM settings to a safe location. You can later use the backup copies to:

- Revert to a working configuration in case of a wrong or non-functioning configuration
- Preserve configuration history for future reference
- Migrate the settings after a product reinstallation or upgrade

Backing up the Configuration

To back up the BSM Connector for Microsoft SCOM configuration, follow the steps:

1. To prevent changes to the BSM Connector policies, log out from the BSM Connector web interface.
2. To prevent changes to the integration services configuration, close the Configuration Utility.
3. Choose a safe location to store the backup copies. Write down the absolute path of the backup directory.

Note: Although you can create the backup copies in the original directories or, for example, in the `<OvDataDir>\installation\HPBsmIntSCOM\userconf` directory, HP recommends that you choose a location outside the `<OvInstalLDir>` and `<OvDataDir>` directories for safety reasons.

4. Copy the following items to the backup directory:

Item	Filesystem Objects to Copy
Integration services configuration	Entire <code><OvDataDir>\conf\HPBsmIntSCOM\genint</code> directory
Metric filter configuration	File <code>MetricFilterConfig.xml</code> from each of the directories <code><OvDataDir>\datafiles\HPBsmIntSCOM\<InstanceId></code>
BSM Connector policies	For each applicable policy: the <code><PolicyUUID>_data</code> and <code><PolicyUUID>_header.xml</code> files from the <code><OvDataDir>\datafiles\policymangement\store</code> directory

Restoring the Configuration

Prerequisites for restore:

- The integration services configuration must be the same as it was at the time of the backup process:
 - BSM Connector for Microsoft SCOM integration services for the same Microsoft SCOM instances (hosts, versions) must exist and their components must be registered. For details, see ["Creating the Integration Services" on page 31](#)
 - The integration service groups for individual Microsoft SCOM instances must be created in the same order as they were before the configuration backup.
- The integration services must be stopped.

To restore the BSM Connector for Microsoft SCOM configuration, follow the steps:

1. Copy the following items from the backup directory (and allow the copy process to overwrite the objects at the target locations):

Item	Target Location
Contents of the <code>genint</code> directory	Directory <code><OvDataDir>\conf\HPBsmIntSCOM\genint</code>

Item	Target Location
File MetricFilterConfig.xml of each Microsoft SCOM instance	Directory <OvDataDir>\datafiles\HPBsmIntSCOM\<InstanceId>
Files <PolicyUUID>_data and <PolicyUUID>_header.xml of each policy	Directory <OvDataDir>\datafiles\policymanagement\store

2. Activate the BSM Connector policies. For instructions, see ["Activating the Policies in BSM Connector" on page 44.](#)
3. Start the configured integration services. For instructions, see ["Starting the Integration Services" on page 45.](#)

Managing the Integration Services

BSM Connector for Microsoft SCOM enables you to manage its event, topology, and metric integration services.

Note: The integration service names in this section apply to a BSM Connector for Microsoft SCOM configuration where the first integrated instance is Microsoft SCOM 2012. In case of a different configuration, adjust the command arguments accordingly. For more information, see ["Integration Services" on page 58.](#)

Starting and Stopping the Services

While you do not need to manually start or stop the integration services in normal circumstances once BSM Connector for Microsoft SCOM is configured, there may be cases when this action is required. To start or stop the integration services, perform these steps:

1. Open a Command Prompt window with administrative privileges.
2. To start or stop the event, topology, or metric integration service for a Microsoft SCOM instance, run the appropriate command:

```
ovc -start <ServiceName>
```

```
ovc -stop <ServiceName>
```

In these instances, <ServiceName> is scom2012e, scom2012t, or scom2012m.

3. To start or stop all integration services for all Microsoft SCOM instances that are integrated with BSM Connector for Microsoft SCOM, run the appropriate command:


```
ovc -start SCOM
```

```
ovc -stop SCOM
```

Restarting the Services

After reconfiguring BSM Connector for Microsoft SCOM, you must restart its integration services. You can restart either all integration services or a specific service if only a specific configuration file has changed. Perform these steps:

1. Open a Command Prompt window with administrative privileges.
2. To restart the event, topology, and metric integration services for a Microsoft SCOM instance, run the following commands:

```
ovc -restart scom2012e
```

```
ovc -restart scom2012t
```

```
ovc -restart scom2012m
```

3. To restart all integration services for all Microsoft SCOM instances that are integrated with BSM Connector for Microsoft SCOM, run the following command:

```
ovc -restart SCOM
```

Checking the Services States

Using the BSM Connector for Microsoft SCOM command-line interface, you can also check whether the integration services are running. Perform these steps:

1. Open a Command Prompt window with administrative privileges.
2. To check the individual status of the event, topology, and metric integration services for a Microsoft SCOM instance, run the following commands:

```
ovc -status scom2012e
```

```
ovc -status scom2012t
```

```
ovc -status scom2012m
```

3. To check the states of all integration services for all Microsoft SCOM instances that are integrated with BSM Connector for Microsoft SCOM, run the following command:

```
ovc -status SCOM
```

Launching the Configuration Utility in a Non-English Language

The Configuration Utility is available in eight languages. To use a language other than English, you must launch the Configuration Utility from a Command Prompt window instead of using the application shortcut.

To launch the Configuration Utility in a non-English language, follow the steps:

1. Open a Command Prompt window with administrative privileges.
2. Change the current directory to the following directory:

```
<OvInstalLDir>\bin\win64\HPBsmIntSCOM
```

3. Run the following command:

```
HPSCOMConfig -l <LanguageCode>
```

In this instance, *<LanguageCode>* is an appropriate value from the following table:

Code	Language
de	German
en	English
es	Spanish
fr	French
ja	Japanese
ko	Korean
ru	Russian
zh-cn	Simplified Chinese

Chapter 5: Removal

Removal of BSM Connector for Microsoft SCOM consists of several tasks. Complete them in the following order (depending on your setup, some of the tasks might not apply):

1. Cancel the product connector registration in Microsoft SCOM. See ["Deregistration of the Product Connector" on the next page](#).
2. Shut down the integration services and cancel their component registration. See ["Stopping and Canceling Registration of the Integration Services" on page 53](#).
3. Deactivate the data collection policies and remove them from BSM Connector. See ["Removing the Policies from BSM Connector" on page 53](#).
4. Remove the topology synchronization package and the metrics content pack from OMi. See ["Removing the Topology Synchronization Package and the Metrics Content Pack" on page 54](#).
5. Remove BSM Connector for Microsoft SCOM. See ["Removing BSM Connector for Microsoft SCOM" on page 55](#).
6. Manually remove the remnants. See ["Removing Remnant Directories and Files" on page 55](#).
7. Remove the Microsoft SCOM Built-In Diagnostics Loader Stub. See ["Removing the Microsoft SCOM Built-In Diagnostics Loader Stub" on page 56](#).
8. Remove the Microsoft System Center Operations Manager SDK assembly files. See ["Removing the Microsoft SCOM SDK Assembly Files" on page 56](#).

You must skip this task if Microsoft SCOM and HP BSM Connector are installed on the same host.

Caution: If you intend to reuse the current configuration of BSM Connector for Microsoft SCOM as part of a future reinstall or upgrade of the product, back up all relevant data before starting the removal process. In the backup image, make sure to include the integration configuration files, the applicable BSM Connector policies, and the metric filter configuration files. For details, see ["Backing up the Configuration" on page 46](#).

Deregistration of the Product Connector

To cancel registration of BSM Connector for Microsoft SCOM as a product connector in an integrated Microsoft SCOM instance, perform these steps:

1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.

Note: The application is automatically launched with administrative privileges. Upon launching, a command prompt window appears for a short while. Only one instance of the Configuration Utility can run at a moment. If you attempt to launch a second instance, the window of the already running instance is brought to the front.

Caution: The rest of this procedure may not apply if you use the Configuration Utility in a language other than English. For instructions on how to launch the Configuration Utility in a non-English language, see "[Launching the Configuration Utility in a Non-English Language](#)" on page 50.

2. Click the **Processes** tab. In the Processes page, in the Currently Configured Processes part, select the appropriate process set.
3. Click the **Connection Details** tab and check the value of the Hostname in DNS option to verify that the correct Microsoft SCOM host is selected.
4. Click the **Events & Connector Registration** tab.
5. In the Product Connector Registration part, click **Deregister**.
6. Repeat the steps 2 to 5 for all Microsoft SCOM instances that BSM Connector for Microsoft SCOM is integrated with.
7. Click **Close** to close the Configuration Utility.

Stopping and Canceling Registration of the Integration Services

To stop the integration services you configured with the Configuration Utility, and cancel the registration of their components, perform the following:



1. Launch the Configuration Utility of BSM Connector for Microsoft SCOM:

Windows Server 2012: On the Start screen, click the application shortcut **HPSCOMConfig**. In the Apps view, you can find it in the HP group.

Windows Server 2008: Navigate to **Start > All Programs > HP > HPBsmIntSCOM** and then double-click **HPSCOMConfig**.
2. In the Processes page, in the Currently Configured Processes part, select the appropriate process set.
3. Click **Remove Selected**.
4. Repeat the steps 2 and 3 for each additional Microsoft SCOM instance that BSM Connector for Microsoft SCOM is integrated with.
5. Click **Close** to close the Configuration Utility.

Removing the Policies from BSM Connector

To dispose of the policies that you imported into BSM Connector during configuration of BSM Connector for Microsoft SCOM, complete the procedure:


1. Log on to the BSM Connector web interface.
2. Perform the following substeps for each applicable policy:
 - a. To deactivate a policy, select it and click the  (**Deactivate**) icon in the toolbar, or right-click it and select **Deactivate** from the context menu.
 - b. To remove a policy, select it and click the  (**Delete**) icon in the toolbar.

Depending on which types of data were collected from the integrated Microsoft SCOM instance, a subset of the following policies is applicable:

- HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Event Integration
 - HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Metric Integration
 - HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Self Discovery
 - HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Topology Integration
3. Repeat the step 2 for each additional Microsoft SCOM instance that BSM Connector for Microsoft SCOM is integrated with.

Removing the Topology Synchronization Package and the Metrics Content Pack

To cancel registration of the topology synchronization package in OMi and remove it from the OMi Gateway Server host, perform these steps:

1. Log on to the OMi web interface.
2. Navigate to **Administration > Setup and Maintenance > Infrastructure Settings**.
3. From the Applications drop-down list, select **Operations Management**.
4. In the Operations Management - HPOM Topology Synchronization Settings part, click the  **(Edit)** icon on the right-hand side of the Packages for Topology Sync line.
5. In the Edit Setting window, remove the ;HPBsmIntSCOM string from the Value text box.
6. To apply changes and close the window, click **Save**.
7. On the OMi Gateway Server host, considering the host operating system, remove the HPBsmIntSCOM directory from the following location:

Windows: %topaz_home%\conf\opr\topology-sync\sync-packages

Tip: topaz_home and other operating system variables are automatically resolved in the Windows Explorer and Command Prompt windows.

Linux: /opt/HP/BSM/conf/opr/topology-sync/sync-packages

To remove the content pack with metric graph templates from OMi, perform these steps:

1. Log on to the OMi web interface.
2. Navigate to **Administration > Setup and Maintenance > Content Packs**.
3. In the Content Pack Definitions pane, right-click **HP BSM Connector for SCOM Content Pack (3.00)** and select **Delete Item**.

Removing BSM Connector for Microsoft SCOM

To remove BSM Connector for Microsoft SCOM, complete the procedure on the BSM Connector host:

1. Do *one* of the following:
 - Remove the application by using the Windows Control Panel:
 - i. Go to **Start > Control Panel > Uninstall a program**.
 - ii. In the list of the installed programs, right-click **HP BSM Connector for SCOM** and select **Uninstall**.
 - iii. To start the removal, follow the instructions displayed by HP Software Installer, and click **Uninstall**.
 - iv. To close HP Software Installer, click **Done** after the removal completes.
 - Remove the application by directly invoking HP Software Installer again:
 - i. To start HP Software Installer, launch Windows Explorer, locate the following file, and double-click it:

`HPBsmIntScom_<Version>_setup.exe`
 - ii. To start the removal, follow the instructions displayed by HP Software Installer, and click **Uninstall**.
 - iii. To close HP Software Installer, click **Done** after the removal completes.

Removing Remnant Directories and Files

To manually remove the directories and files that HP Software Installer retains on the system, complete these steps:

1. On the BSM Connector host, as the *administrator* user, open a Command Prompt window or launch Windows Explorer.

2. Remove the HPBsmIntSCOM subdirectory from each of the following directories:

`<OvDataDir>\conf`

`<OvDataDir>\datafiles`

3. If the subdirectory HPBsmIntSCOM also exists in the directory `<OvDataDir>\installation`, remove the subdirectory from this location as well.
4. Delete the BSM Connector for Microsoft SCOM log files. If the product used the default log file location, the log files reside in the `<OvDataDir>\log` directory.

Removing the Microsoft SCOM Built-In Diagnostics Loader Stub

To remove the copy of the Microsoft SCOM Built-In Diagnostics (BID) Loader Stub that you created during installation of BSM Connector for Microsoft SCOM, on the BSM Connector host, remove the `MomBidLdr.dll` file from the `%windir%\System32` directory.

Note: The `windir` operating system variable is automatically resolved in Windows Explorer and Command Prompt windows.

Removing the Microsoft SCOM SDK Assembly Files

To remove copies of the Microsoft SCOM SDK assembly files from the BSM Connector host, perform the following steps:

1. On the BSM Connector host, open a Command Prompt window with administrative privileges.
2. Change the current directory to `%windir%\Microsoft.NET\assembly`.

Note: The `windir` operating system variable is automatically resolved in Command Prompt windows.

3. Considering the version of Microsoft SCOM that BSM Connector for Microsoft SCOM was integrated with, right-click each of the following assemblies and select **Uninstall** to remove it:

Microsoft SCOM 2012:

`Microsoft.EnterpriseManagement.Core.dll`

`Microsoft.EnterpriseManagement.OperationsManager.dll (version: 7.0.5000.0)`

`Microsoft.EnterpriseManagement.Runtime.dll`

Microsoft SCOM 2007:

Microsoft.EnterpriseManagement.OperationsManager.Common.dll
Microsoft.EnterpriseManagement.OperationsManager.dll (version: 6.0.4900.0)

Chapter 6: Troubleshooting

If you encounter problems while using BSM Connector for Microsoft SCOM, you can often solve them yourself. This chapter is intended to help you with resolving some common problems.

General Troubleshooting Guidelines

When investigating an issue, first verify that:

- Your issue is not related to the third-party software or hardware. Otherwise, contact the corresponding vendor for assistance.
- You have the latest operating system and software application patches installed on the affected systems.
- Settings in the configuration files of BSM Connector for Microsoft System Center Operations Manager are correct: the file structure and syntax are preserved, the values are valid.

Product Services and Processes

Before you start inspecting the BSM Connector for Microsoft SCOM log files, check which of the product's services are started and how many of their core processes are running.

Integration Services

The event, topology, and metric integration services use different names which indicate their purpose. The service names contain the version of the Microsoft SCOM instance from which data is collected and the data type indicator. If BSM Connector for Microsoft SCOM is integrated with multiple Microsoft SCOM instances, the service names of the second and each additional integrated Microsoft SCOM instance also contain the consecutive number of the integrated instance. The following example excerpt taken from the `ovc -status` command output indicates that:

- The metric integration service is running for the second integrated Microsoft SCOM instance, which belongs to the product version 2007.
- The event and topology integration services are running for the first integrated Microsoft SCOM instance, which belongs to the product version 2012.

The integration service names are listed in the leftmost column:

[...]

scom2007e2	HPBsmIntSCOM 2007 Event	BSMINT,SCOM	Stopped
------------	-------------------------	-------------	---------

scom2007m2	HPBsmIntSCOM 2007 Metric	BSMINT,SCOM	(4723)	Running
scom2007t2	HPBsmIntSCOM 2007 Topology	BSMINT,SCOM		Stopped
scom2012e	HPBsmIntSCOM 2012 Event	BSMINT,SCOM	(4619)	Running
scom2012m	HPBsmIntSCOM 2012 Metric	BSMINT,SCOM		Stopped
scom2012t	HPBsmIntSCOM 2012 Topology	BSMINT,SCOM	(4865)	Running
[...]				

The genintd Process

The core process of each BSM Connector for Microsoft SCOM integration service is `genintd`. The following example excerpt taken from the operating system process table shows two running `genintd` processes, indicating one of the following is currently taking place:

- Collection of *two* kinds of Microsoft SCOM entities (from a *single* Microsoft SCOM instance)
- Collection of *one* kind of Microsoft SCOM entities (from *each of the two* Microsoft SCOM instances)

[...]

genintd.exe	SYSTEM	02	123.632 K	HP BSM Connector - Generic Integrator
genintd.exe	SYSTEM	01	115.947 K	HP BSM Connector - Generic Integrator

[...]

Product Log Files

BSM Connector for Microsoft SCOM records actions performed by its event, topology, and metric integration services into log files. Occurrences of unexpected behavior are also added as entries into the log files. You can use the logged information to investigate issues.

Log Files Location

BSM Connector for Microsoft SCOM creates and maintains log files in the `<OvDataDir>\log` directory. There is one log file for each integrated Microsoft SCOM aspect (events, topology, metrics) of each integrated Microsoft SCOM instance. The log file names contain the version of the Microsoft SCOM instance from which data is collected, the data type indicator, and the log file creation date. For the second and each additional integrated Microsoft SCOM instance, the consecutive number of the instance is added to the filenames. For example:

- The name of the log file of the event integration with the first (only) Microsoft SCOM instance, whose version is 2007, is `scom2007e.<Date>.log`.
- The name of the log file of the topology integration with the second Microsoft SCOM instance, whose version is 2012, is `scom2012t2.<Date>.log`.

To change location of the log file for an integrated Microsoft SCOM entity type, perform these steps:

1. Change the current directory to `<OvDataDir>\conf\HPBsmIntSCOM\genint` and open the appropriate integration configuration file in a plain text editor.
2. In the `genintd` section, change the value of the `log-file` option. Preserve the `%d` placeholder in the log file name.
3. Save your changes.
4. Restart the affected integration service as described in ["Restarting the Services" on page 49](#).

Logging Severity Levels

Log entries have different severity levels. In BSM Connector for Microsoft SCOM, the following levels are available:

Severity Level	Keyword	Meaning
0	No Log	logging is disabled
1	Error, Config	errors, current values of integration configuration options
2	Info, Warning	information messages, warnings
3	Trace	tracing (debugging) messages

By default, the logging severity level is set to 1, which means only errors and configuration-related messages are logged. For troubleshooting purposes, you can change the level.

Note: When a particular logging level is set, it causes messages with lower severity level to be recorded as well. For example, if the severity level is set to 2, information messages, warnings, errors, and configuration-related messages are logged, but tracing messages are not.

To change the logging severity level for an integrated Microsoft SCOM entity type, perform these steps:

1. Change the current directory to `<OvDataDir>\conf\HPBsmIntSCOM\genint` and open the appropriate integration configuration file in a plain text editor.
2. In the `genintd` section, perform the following:

- a. Uncomment the line with the `log-level` option.
- b. In the same line, replace the value placeholder in quotation marks with the chosen logging severity level.

For example, to change the logging severity level from the default level to 2, change the line

```
//, "log-level" : "3"
```

to

```
, "log-level" : "2"
```

3. Save your changes.
4. Restart the affected integration service as described in ["Restarting the Services" on page 49](#).

Troubleshooting the Collection of Events and Metrics

When unexpected events (alerts) or metrics appear in OMI or you miss specific Microsoft SCOM entities, the root cause of the problem may be improper integration configuration, inadequate definition of entity mapping or rules in the corresponding BSM Connector policies, or some other reason. To ease the inspection of data flow between Microsoft SCOM and BSM Connector, BSM Connector for Microsoft SCOM can create output files with collected events (alerts) and metrics. Such output files contain the XML formatted data acquired from the integrated Microsoft SCOM instance, but they are not used in data forwarding to BSM Connector.

Note: Because the topology integration of BSM Connector for Microsoft SCOM uses a different data relaying pipeline, this troubleshooting method is not available for Microsoft SCOM topology.

To generate the event or metric output file on the BSM Connector host, perform the following steps:

1. Change the current directory to `<OvDataDir>\conf\HPBsmIntSCOM\genint` and open the appropriate integration configuration file in a plain text editor. To determine which configuration file to modify, see ["Integration Configuration Files" on page 71](#).
2. In the `processor` subsection of the `nodes` section, change the value of the `copy-count` option to 1.
3. In the `pipe` section, uncomment the line with the following definition:
 - For the event integration: `splitter -1-> eventxmlsink`
 - For the metric integration: `splitter -1-> metricxmlsink`
4. *Optional:* To fine-tune the output file generation, adjust the options in the following subsection of

the nodes section:

- For the event integration: sink (eventxmlsink)
- For the metric integration: sink (metricxmlsink)

5. Save your changes.
6. Restart the affected integration service as described in ["Restarting the Services" on page 49](#).

The output file with the XML-formatted event or metric data is created at the location defined with the filename option in the integration configuration file.

Known Issues and Workarounds

Integration services are missing from the ovc command output

Symptom

Not all entries related to the BSM Connector for Microsoft SCOM integration services (HPBsmIntSCOM <Version> Event, HPBsmIntSCOM <Version> Topology, HPBsmIntSCOM <Version> Metrics) are present in the output of the ovc -status command.

Action

Registration of some integration services might not have been successful. To manually register a missing integration service, follow the steps:

1. Open a Command Prompt window with administrative privileges.
2. Run the following command:

```
ovcreg %OvDataDir%datafiles\HPBsmIntSCOM\<InstanceID>\<ServiceName>.xml
```

In these command, in places of <InstanceID> and <ServiceName>, specify the actual values. For information about the integration services and their naming convention, see ["Integration Services" on page 58](#).

Integration service stops immediately after it is started

Symptom

When you attempt to start a BSM Connector for Microsoft SCOM integration service, it starts for a moment and then stops.

Action

Configuration file of this integration might have been manually edited and contains syntax errors. Proceed as follows:

1. Check the validity of the configuration file. For basic syntax guidelines, see "[Integration Configuration Files](#)" on page 71.
2. Correct the errors accordingly.
3. To start the affected integration service, run the `ovc -start <ServiceName>` command.

In this instance, `<ServiceName>` is the actual value. For information about the integration services and their naming convention, see "[Integration Services](#)" on page 58.

An integration service status is "Stopped" instead of "Running"

Symptom

When you run the `ovc -status` command, the command output indicates some BSM Connector for Microsoft SCOM services are not running.

Action

For each integration service that is not running, run the following command to start it:

```
ovc -start <ServiceName>
```

In this instance, `<ServiceName>` is the actual value. For information about the integration services and their naming convention, see "[Integration Services](#)" on page 58.

Event integration component appears registered with a wrong hostname

Symptom

In the Events & Connector Registration page of the Configuration Utility, before registering your product connector for collection of events, when you check for the product connector's registration status, BSM Connector for Microsoft SCOM reports the connector as already registered from a different system.

Action

Another instance of the event integration component seems to be already registered as a product connector with your Microsoft SCOM server. Product connectors cannot share Microsoft SCOM data. Cancel registration of the already registered product connector on the remote host.

Some events are not forwarded from Microsoft SCOM to OMi

Symptom

While the event integration of BSM Connector for Microsoft SCOM properly collects and forwards events in general, some of them are missing in the OMi web interface when a large number of events are generated in a very short period of time.

Action

Increase the amount of time allowed for the events to be processed in Microsoft SCOM. For instructions, see the Microsoft knowledge base article available on the web page <http://support.microsoft.com/kb/2277825>.

Delays in data forwarding to BSM Connector, excessive CPU usage on the BSM Connector for Microsoft SCOM host

Symptom

The data relayed from Microsoft SCOM reaches BSM Connector with a noticeable delay. BSM Connector for Microsoft SCOM processes take up unreasonably high proportion of the CPU time.

Action

Inspect the corresponding BSM Connector for Microsoft SCOM log file. If there are entries related to frequent poll retries, they might indicate a too short polling interval. Data cannot be passed on and the integration keeps retrying until it succeeds. In this case, increase the data polling interval by modifying the value of the `interval` option in the integration configuration file.

Events relayed to OMi do not have the External ID property set

Symptom

In the Event Perspective context of the OMi web interface, when you inspect the events forwarded to OMi from a Microsoft SCOM instance, there are values missing in the External ID column of the Forwarding Information pane.

Action

Configure BSM Connector as a connected server for OMi by adding it to the connector servers group in OMi.

Even though the topology integration is correctly configured, the topology data is not visible in OMi

Symptom

When you start the topology integration service, the topology data seems not to be relayed to OMi even though installation of the topology synchronization package, its registration with OMi, and configuration of the topology integration were properly performed.

Action

Wait for a few topology collection intervals (the intervals are defined in the `interval` option of the topology integration configuration file). If topology data does not show up in the OMi web interface, the topology synchronization package might not have been registered successfully. To resolve the issue, restart OMi.

Configuration items for some objects monitored by Microsoft SCOM are not created in OMi

Symptom

There are configuration items (CIs) missing in the Microsoft SCOM topology that is presented in the OMi web interface.

Action

Adjust the size of the External ID attribute of the Data configuration item (CI) type in OMi. For instructions, see ["Adjusting OMi Settings" on page 29](#).

Configuration items related to OMi have the Monitored By property incorrectly set to [OMi]

Symptom

In the CIT Instance window of the Administration > RTSM Administration > Modeling > CI Type Manager context of the OMi web interface, the Monitored By column contains the value [OM] instead of the proper identification of the connected server which is [BSM Connector:<Hostname>:<FQDN>].

Action

Configure BSM Connector as a connected server for OMi by adding it to the connector servers group in OMi.

Changes made to the Microsoft SCOM topology are not reflected correctly in OMi

Symptom

In the OMi web interface, unusual topology hierarchy is presented. For example, some configuration items (CIs) might appear isolated from the rest of the collected topology, although they should not because they are related to other monitored Microsoft SCOM objects.

Action

By default, the Detect deltas option is selected in the BSM Connector policy for Microsoft SCOM topology. With such a configuration, only recent changes in the Microsoft SCOM topology are propagated to OMi. In some cases these changes provide insufficient information resulting in incorrect representation of the topology in OMi. Perform the following steps:

1. Log on to the BSM Connector web interface.
2. Right-click the **HP BSM Connector for Microsoft SCOM <InstanceID> (3.0) - Topology Integration** policy and select **Edit**.
3. Click the **Source** tab.
4. In the Source page, clear the **Detect deltas** option.
5. Click **Save and Close** to apply the change.

Required metrics are not available in the Configuration Utility after import of the Microsoft SCOM management packs

Symptom

The metrics that you intend to collect are not available in the Configuration Utility in the Metric Collection Scope part of the Metrics page, even though you imported the bundled Microsoft SCOM management packs and the corresponding monitoring rule is enabled in Microsoft SCOM.

Action

Manually edit the metric filter configuration file and add the required metrics to it. For instructions, see ["Adding Custom Metrics to the Collection Scope" on page 119](#).

There are visual glitches in the Configuration Utility when non-English language is used in its interface

Symptom

After you launch the Configuration Utility in a non-English language, minor visual inconsistencies are visible on the pages: labels overlapping boxes, cropped button labels, and similar. These problems are particularly apparent on Windows Server 2012 systems.

Action

Launch the Configuration Utility so that it displays its interface text in English.

Warnings keep getting logged into the operating system event log

Symptom

When you inspect the Windows event log using Event Viewer, there are entries of the warning level that originate from the Bid source.

Action

The Microsoft SCOM Built-In Diagnostics (BID) Loader Stub might not be available to BSM Connector for Microsoft SCOM. For instructions on how to obtain and install it, see "[Installing the Microsoft SCOM Built-In Diagnostics Loader Stub](#)" on page 23.

Configuration Utility reports an error in the Command Prompt window from where it is launched

Symptom

When you launch the Configuration Utility by running a command in a Command Prompt window (for example, to launch it in a non-English language), and then select a process set on the Processes page, the following error is reported in the Command Prompt window:

```
genintcrypt: Failed to load credential store!
```

Action

None. You can safely ignore the error message.

Before Contacting HP Software Support

If you cannot solve your issue, report it. Before contacting HP Software Support, make sure that:

- You have performed the general checks. See "[General Troubleshooting Guidelines](#)" on page 58.
- You have verified your problem is not described in this chapter. See "[Known Issues and Workarounds](#)" on page 62.
- You have collected relevant data that might be required to send to HP Software Support: a description of your problem, characteristics of your environment, related entries logged in the operating system event log or in the BSM Connector for Microsoft SCOM log files.

The HP Software Support personnel will then provide you with further instructions. Among other things, you may be asked to change the BSM Connector for Microsoft SCOM logging severity level, to repeat or perform particular operations in your BSM Connector for Microsoft SCOM environment, and to collect specific data from your system and send them to HP.

Note: The HP Software Support personnel are *not* qualified to solve the issues related to third-party software or hardware.

To contact HP Software Support, see the web site at <https://softwaresupport.hp.com>.

Appendix A: Bundled Management Packs

The table that follows lists the Microsoft SCOM management packs (MPs) that BSM Connector for Microsoft SCOM provides out-of-the-box. Before you can use the provided MPs for collecting the topology, you must import them into Microsoft SCOM. The MP files are located in the `<OvDataDir>\installation\HPBsmIntSCOM\ManagementPacks` directory.

Management Pack	Filename
HP Topology ActiveDirectory	HP.Topology.ActiveDirectory.xml
HP Topology Cluster	HP.Topology.Cluster.xml
HP Topology Exchange 2007	HP.Topology.Exchange.2007.xml
HP Topology Exchange 2010	HP.Topology.Exchange.2010.xml
HP Topology Hyper-V	HP.Topology.HyperV.xml
HP Topology IIS	HP.Topology.IIS.xml
HP Topology Infrastructure	HP.Topology.Infrastructure.xml
HP Topology SQL	HP.Topology.SQL.xml
HP Topology	HP.Topology.xml
HPScomMP	HPScomMP.xml

The table that follows lists the classes of Microsoft SCOM objects that the topology integration extracts by default for each Microsoft SCOM configuration group, and the required MP parts and their versions.

Group	Required MP Parts, Minimum Versions	Monitored Classes
any	HPScomMP: Microsoft.SystemCenter.Library (6.1.7221.0)	any
	HP Topology: Microsoft.SystemCenter.InstanceGroup.Library (6.1.7221.0)	
HP Topology ActiveDirectory Group	Microsoft.Windows.Server.AD.Library (6.0.7065.0)	<ul style="list-style-type: none"> • AD Topology Root • AD Forest • AD Site • AD Domain
	Microsoft.Windows.DNSServer.Library (6.0.6480.0)	<ul style="list-style-type: none"> • DNS Server

Group	Required MP Parts, Minimum Versions	Monitored Classes
HP Topology Cluster Group	Microsoft.Windows.Cluster.Library (6.1.7221.0)	<ul style="list-style-type: none"> • Windows Cluster • Windows Cluster Service
	Microsoft.Windows.Library (6.1.7221.0)	<ul style="list-style-type: none"> • Windows Computer • Windows OS
	Microsoft.Windows.Cluster.Management.Library (6.0.6720.0)	<ul style="list-style-type: none"> • Cluster Resource Group
HP Topology Exchange 2007 Group	Microsoft.Exchange.Server.2007.Library (6.0.6702.0)	<ul style="list-style-type: none"> • Organization • Common Components • Client Access Role • Standalone Mailbox Role • Edge Transport Role • Hub Transport Role • Unified Messaging Role • Mailbox Database
	Microsoft.Windows.Server.LDS.Library (6.0.7220.0)	<ul style="list-style-type: none"> • Services Instance
HP Topology Exchange 2010 Group	Microsoft.Exchange.2010 (14.0.650.8)	<ul style="list-style-type: none"> • Organization • Microsoft Exchange 2010 Server • Client Access • Edge Transport • Hub Transport • Mailbox Unified Messaging • Mailbox Database Mounted • Mailbox Database Availability Group • Microsoft.Exchange.2010 \ .CommonDomainController • Microsoft.Exchange.2010 \ .CommonRole
	Microsoft.Windows.Server.LDS.Library (6.0.7220.0)	<ul style="list-style-type: none"> • Services Instance
HP Topology Hyper-V Group	Microsoft.Windows.HyperV.Library (6.0.6633.0)	<ul style="list-style-type: none"> • Server running Hyper-V
HP Topology IIS Group	Microsoft.Windows.InternetInformationServices \ .CommonLibrary (6.0.6658.0)	<ul style="list-style-type: none"> • IIS Web Server • IIS Web Server Role • IIS Web Site • IIS Application Pool

Group	Required MP Parts, Minimum Versions	Monitored Classes
HP Topology Infrastructure Group	Microsoft.Windows.Library (6.1.7221.0)	<ul style="list-style-type: none">• Windows Computer• Windows OS
HP Topology SQL Group	Microsoft.SQLServer.Library (6.1.314.36)	<ul style="list-style-type: none">• SQL DB Engine• SQL Database

Appendix B: Configuration Options

This appendix describes configurable options that affect the behavior of the Microsoft SCOM event, topology, and metric integrations in BSM Connector for Microsoft SCOM. All options are preconfigured with default values that you can modify. While basic options have their default values specified in the configuration files, the default values of advanced options are implicitly defined. To modify the value of an advanced option, manually add the option and its chosen value to a configuration file.

Integration Configuration Files

You can find integration configuration files in the `<OvDataDir>\conf\HPBsmIntSCOM\genint` directory on the BSM Connector host. They are plain text files. Their filenames contain the version of the Microsoft SCOM instance from which data is collected and the data type indicator. For the second and each additional integrated Microsoft SCOM instance, the consecutive number of the instance is added to the filenames. Examples:

- The configuration file of the topology integration with the first (only) Microsoft SCOM instance, whose product version is 2012, is named `scom_2012_topology_integration.conf`.
- The configuration file of the metric integration with the second Microsoft SCOM instance of the same product version 2007 is named `scom_2007_metric_2_integration.conf`.

In a configuration file, in the `nodes` section, each option has a value that is assigned by using the following syntax:

```
"<OptionName>" : "<Value>"
```

When adding an advanced option to the configuration file, make sure to add it to the appropriate subsection of the `nodes` section. Use the following syntax:

```
,"<AdvancedOptionName>" : "<Value>"
```

After reconfiguring a BSM Connector for Microsoft SCOM integration, restart the integration service as described in ["Restarting the Services" on page 49](#).

Caution: Some option descriptions inside the configuration files might be incomplete or incorrect.

Default values of several basic options documented in this appendix contain one of the following placeholders: `<InstanceID>` or `<BacksyncPort>`. In the actual configuration files, these placeholders are resolved into literal strings. When reconfiguring such a basic option, you may *not* change the strings that result from the placeholder substitution.

Event Integration Options

The following tables list options in an event integration configuration file of BSM Connector for Microsoft SCOM.

Basic Options

Option Name	Description, (Default) Value
Subsection for collecting: source (eventsource)	
interval	Time period (in seconds) that defines the intervals at which the accumulated events (alerts) are acquired from the integrated Microsoft SCOM instance. Default value: 40
collect-actual-health-state	The option that, when set to true, causes BSM Connector for Microsoft SCOM to obtain the health state of a monitored Microsoft SCOM object by querying the object directly, rather than deriving it from the alert data. Default value: false
Subsection: processor	
copy-count	You may alter this option only to locally generate an event output file in the XML format for troubleshooting purposes. Follow the instructions in "Troubleshooting the Collection of Events and Metrics" on page 61 . Afterward, adjust the options in the sink (eventxmlsink) section to fine-tune the output file generation. Default value: 0
Subsection for collecting: sink (eventwssink)	
uri	String that specifies the web address to use in the REST Web Service communication between BSM Connector for Microsoft SCOM and BSM Connector. Specify a valid URL string without the scheme name (protocol), hostname, and port. Default value: /bsmc/rest/events/HPBsmInt<InstanceID>
server-name	Fully qualified domain name (FQDN) of your BSM Connector host. Default value: localhost
port	Default port of BSM Connector policies of the REST Web Service Listener type. As long as you do not reconfigure BSM Connector, you may <i>not</i> alter this option. Default value: 30005

Option Name	Description, (Default) Value
use-ssl	<p>This option enables or disables secure communication using the SSL protocol.</p> <p>Default value: true</p>
root-element	<p>You may <i>not</i> alter this option.</p> <p>Value: scom_event_message</p>
use-persistency	<p>This option enables or disables a local file-based message buffering mechanism. When the mechanism is enabled, messages are delivered in any circumstance.</p> <p>Default value: true</p>
persistency-dir	<p>Path of the directory for persistency data files: an internal buffer for the not-yet-dispatched messages. You must create the directory in advance with the read and write access enabled.</p> <p>Default value: \${OvDataDir}/tmp/HPBsmIntSCOM</p>
persistency-prefix	<p>You may <i>not</i> alter this option.</p> <p>Value: <InstanceID>_events</p>
Subsection for debugging: sink (eventxmlsink)	
root-element	<p>Name of the root element in the event output XML file.</p> <p>Default value: scom_event_message</p>
filename	<p>Path of the event output file to which BSM Connector for Microsoft SCOM writes data. You do not have to create this file in advance.</p> <p>Default value: \${OvDataDir} \\ \datafiles\HPBsmIntSCOM\<InstanceID>\output\scom_events.xml</p>
rollover-size	<p>Size (in kilobytes) that an output XML file must exceed to initiate an output file rollover (that is, creating a new file and redirecting output into it).</p> <p>Default value: 1024</p>
rollover-count	<p>Maximum number of output XML files the rollover mechanism may maintain.</p> <p>Default value: 5</p>
rollover-wait	<p>Time period (in seconds) that BSM Connector for Microsoft SCOM waits before retrying the rollover.</p> <p>Default value: 30</p>
Subsection for backward synchronization: source (backsyncsource)	

Option Name	Description, (Default) Value
port	You may <i>not</i> alter this option. Value: <BacksyncPort>
Subsection for backward synchronization: sink (backsyncsink)	
enable-backsync	The option that, when set to <code>false</code> , disables resolution state backward synchronization for all Microsoft SCOM events (alerts). Default value: <code>true</code>
close-monitor-alerts	The option that, when set to <code>true</code> , causes resolution state backward synchronization to include also the events (alerts) that originate from Microsoft SCOM monitors. This option is ignored if the <code>enable-backsync</code> basic option is set to <code>false</code> . Default value: <code>false</code>

Advanced Options

Option Name	Description, Default Value
Subsection for collecting: sink (eventwssink)	
connection-count	This option defines how many concurrent connections BSM Connector for Microsoft SCOM should use for transferring event data to BSM Connector. Default value: 5
bulk-size	Maximum number of messages that BSM Connector for Microsoft SCOM should put into a single REST Web Service request. Default value: 10
ssl-cert	Path of the file that stores a valid CA certificate in the PEM format and which is used to verify the identity of the remote server. The certificate must contain the private key and the public key. This option must be set when the <code>use-ssl</code> option is set to <code>true</code> . Default value: (empty)
use-auth	The option that, when set to <code>true</code> , causes BSM Connector for Microsoft SCOM to use the credentials specified for the <code>auth-username</code> and <code>auth-password</code> options to authenticate against the remote REST Web Service endpoint. Enable secure communication by using the SSL protocol to prevent the authentication credentials from being sent unencrypted to the BSM Connector host. Default value: <code>false</code>

Option Name	Description, Default Value
use-store	<p>The option that, when set to true, causes BSM Connector for Microsoft SCOM to obtain the authentication credentials from the GenInt keystore rather than from the integration configuration file. In this case, the values of the auth-username and auth-password options are used as the credential string IDs inside the keystore.</p> <p>Enable secure communication by using the SSL protocol to prevent the authentication credentials from being sent unencrypted to the BSM Connector host.</p> <p>Default value: false</p>
auth-username	<p>User name used for authenticating against the REST Web Service endpoint on the BSM Connector host.</p> <p>Default value: (empty)</p>
auth-password	<p>Password used for authenticating against the REST Web Service endpoint on the BSM Connector host.</p> <p>Default value: (empty)</p>
persistence-max-size	<p>Size (in bytes) that a persistence data file must exceed to initiate the creation of a new data file.</p> <p>Default value: 10240</p>
persistence-max-files	<p>Maximum number of persistence data files the message buffering mechanism maintains.</p> <p>Default value: 10</p>
retry-wait	<p>Time period (in seconds) that BSM Connector for Microsoft SCOM waits before retrying to send the REST Web Service request. This option is ignored if the use-persistence basic option is set to false.</p> <p>Default value: 30</p>

Topology Integration Options

The following tables list options in a topology integration configuration file of BSM Connector for Microsoft SCOM.

Basic Options

Option Name	Description, Default Value
Subsection: source (toposource)	

Option Name	Description, Default Value
interval	<p>Time period (in seconds) that defines the intervals at which the topology data is acquired from the integrated Microsoft SCOM instance.</p> <p>Default value: 3600</p>
configuration-groups	<p>You may <i>not</i> alter this option directly. To define the set of Microsoft SCOM groups from which the monitoring objects are collected to create topology data in OMi, use the Configuration Utility of BSM Connector for Microsoft SCOM.</p> <p>Default value: HP Topology Infrastructure Group</p>
execute-transformations	<p>The option that, when set to <code>false</code>, disables general enrichment of the topology data acquired from Microsoft SCOM. The enrichment (topology transformation) takes place before the data is relayed to BSM Connector.</p> <p>Default value: <code>true</code></p>
transformations-file	<p>Path of the file with the custom definition of topology transformation that BSM Connector for Microsoft SCOM uses to enrich topology data. When the value is left empty, the default topology transformation is used.</p> <p>You can find a template of the custom transformation definition at the location <code><OvDataDir>\installation\HPBsmIntSCOM\templates\</code> in the <code>recommended_transformations.xml</code> file.</p> <p>Default value: (empty)</p>
create-hostkeys	<p>This option enables or disables creation of Operations Manager i-conforming host keys based on the systems' MAC or IP addresses. If set to <code>true</code>, BSM Connector for Microsoft SCOM scans all network interface adapters of each discovered system to acquire their MAC addresses and IP addresses.</p> <p>Default value: <code>true</code></p>
allow-nslookup-for-hostkey	<p>The option that, when set to <code>false</code>, disables reverse DNS lookup of the IP addresses of hostnames collected from the integrated Microsoft SCOM instance.</p> <p>Default value: <code>true</code></p>
ip-collection-mode	<p>This option specifies the IP format that BSM Connector for Microsoft SCOM uses when artificially creating IP addresses. The allowed values are <code>ipv4</code>, <code>ipv6</code>, and <code>both</code>.</p> <p>Default value: <code>both</code></p>

Option Name	Description, Default Value
ip-create-mode	<p>This option defines how discovery of network interface controllers (NICs) is conducted. If the option is set to <code>nic</code>, BSM Connector for Microsoft SCOM discovers all NICs of a discovered system (Microsoft SCOM object) and adds them to it. If the option is set to <code>computer</code>, NICs are not discovered.</p> <p>Default value: <code>nic</code></p>
enrich-ips	<p>This option enables or disables enrichment of IP addresses with the data from the network interface controllers (NICs). The option is ignored if the <code>ip-create-mode</code> basic option is set to <code>computer</code>.</p> <p>Default value: <code>true</code></p>
discovery-domain	<p>Domain in which Microsoft SCOM object discovery is run.</p> <p>Default value: <code>DefaultDomain</code></p>
allow-nslookup-for-app-ip	<p>The option that, when set to <code>false</code>, disables reverse DNS lookup of the IP addresses of hostnames collected from the integrated Microsoft SCOM instance. Reverse DNS lookup requires the BSM Connector host and the Microsoft SCOM host to be members of the same domain.</p> <p>Default value: <code>true</code></p>
Subsection: sink (toposink)	
filename	<p>Path of the topology output file to which BSM Connector for Microsoft SCOM writes data. You do not have to create this file in advance. This value must match the value of the <code>Topology XML File</code> option of the BSM Connector policy for Microsoft SCOM topology. In the BSM Connector web interface, you can find it in the <code>Source</code> page of the policy.</p> <p>Default value: <code>\${OvDataDir}\datafiles\HPBsmIntSCOM \\ <InstanceID>\output\scom_topology.xml</code></p>
Subsection: sink (discoverysink)	
filename	<p>Path of the self-discovery topology output file to which BSM Connector for Microsoft SCOM writes data. You do not have to create this file in advance. This value must match the value of the <code>Topology XML File</code> option of the BSM Connector policy for Microsoft SCOM self-discovery topology. In the BSM Connector web interface, you can find it in the <code>Source</code> page of the policy.</p> <p>Default value: <code>\${OvDataDir}\datafiles\HPBsmIntSCOM \\ <InstanceID>\output\scom_topology_discovery.xml</code></p>

Advanced Options

Option Name	Description, Default Value
Subsection: sink (toposink)	
tmp-filename	<p>Name of the temporary file used as a buffer while waiting for the next topology data block. If the time period configured with the message-timeout option expires before the next data block arrives, the buffered data overwrites the topology output file, and the buffer is flushed.</p> <p>The <filename> variable is automatically replaced with the value of the filename option.</p> <p>Default value: <filename>.tmp</p>
message-timeout	<p>Time period (in seconds) that BSM Connector for Microsoft SCOM waits for the next topology data block before overwriting the topology output file with the received data that is already in the buffer.</p> <p>Default value: 10</p>
Subsection: sink (discoverysink)	
tmp-filename	<p>Name of the temporary file used as a buffer while waiting for the next self-discovery topology data block. If the time period configured with the message-timeout option expires before the next data block arrives, the buffered data overwrites the self-discovery topology output file, and the buffer is flushed.</p> <p>The <filename> variable is automatically replaced with the value of the filename option.</p> <p>Default value: <filename>.tmp</p>
message-timeout	<p>Time period (in seconds) that BSM Connector for Microsoft SCOM waits for the next self-discovery topology data block before overwriting the self-discovery topology output file with the received data that is already in the buffer.</p> <p>Default value: 10</p>

Metric Integration Options

The following tables list options in a metric integration configuration file of BSM Connector for Microsoft SCOM.

Basic Options

Option Name	Description, (Default) Value
Subsection: source	
interval	Time period (in seconds) that defines the intervals at which the metrics are acquired from the integrated Microsoft SCOM instance. Default value: 300
filter-file	Path of the file that contains settings for filtering the Microsoft SCOM metric data. Default value: \${OvDataDir}\datafiles\HPBsmIntSCOM \\ <InstanceID>\MetricFilterConfig.xml
Subsection: processor	
copy-count	You may alter this option only to locally generate a metric output file in the XML format for troubleshooting purposes. Follow the instructions in "Troubleshooting the Collection of Events and Metrics" on page 61 . Afterward, adjust the options in the sink (metricxmlsink) section to fine-tune the output file generation. Default value: 0
Subsection for collecting: sink (metricwssink)	
uri	String that specifies the web address to use in the REST Web Service communication between BSM Connector for Microsoft SCOM and BSM Connector. Specify a valid URL string without the scheme name (protocol), hostname, and port. Default value: /bsmc/rest/metrics/HPBsmInt<InstanceID>
server-name	See "Event Integration Options" on page 72 .
port	See "Event Integration Options" on page 72 .
use-ssl	See "Event Integration Options" on page 72 .
root-element	You may <i>not</i> alter this option. Value: scom_metric_message

Option Name	Description, (Default) Value
use-persistency	See "Event Integration Options" on page 72.
persistency-dir	See "Event Integration Options" on page 72.
persistency-prefix	You may <i>not</i> alter this option. Value: <InstanceID>_metrics
Subsection for debugging: sink (metricxmlsink)	
root-element	Name of the root element in the metric output XML file. Default value: scom_metric_message
filename	Path of the metric output file to which BSM Connector for Microsoft SCOM writes data. You do not have to create this file in advance. Default value: \${OvDataDir}\datafiles\HPBsmIntSCOM \\ \<InstanceID>\output\scom_metrics.xml
rollover-size	See "Event Integration Options" on page 72.
rollover-count	See "Event Integration Options" on page 72.
rollover-wait	See "Event Integration Options" on page 72.

Advanced Options

Option Name	Description, Default Value
Subsection for collecting: sink (metricwssink)	
connection-count	See "Event Integration Options" on page 72.
bulk-size	See "Event Integration Options" on page 72.
ssl-cert	See "Event Integration Options" on page 72.
use-auth	See "Event Integration Options" on page 72.
use-store	See "Event Integration Options" on page 72.
auth-username	See "Event Integration Options" on page 72.
auth-password	See "Event Integration Options" on page 72.
persistency-max-size	See "Event Integration Options" on page 72.
persistency-max-files	See "Event Integration Options" on page 72.
retry-wait	See "Event Integration Options" on page 72.

Appendix C: Entity Mappings

The following sections list and describe the preconfigured mappings of the Microsoft SCOM entity types in BSM Connector for Microsoft SCOM. These mappings suit most use cases. If necessary, you can manually modify them in the BSM Connector web interface.



- ["Mappings Used in the Event Integration" on the next page](#)
- ["Mappings Used in the Topology Integration" on page 94](#)
- ["Mappings Used in the Metric Integration" on page 118](#)

Tip: HP recommends to initially test the preconfigured mappings provided with BSM Connector for Microsoft SCOM before adapting or enhancing them.

Modifying BSM Connector Policies

Each integrated Microsoft SCOM entity type has its own policies in BSM Connector for Microsoft SCOM. You can modify them or create new ones to cover additional objects by using the policy editor of BSM Connector. A list of policies is accessible from the BSM Connector web interface.

Caution: HP recommends to back up the policy files before modifying a policy. Alternatively, you can copy the files and make changes to the copies instead of modifying the originals. For instructions on how to back up the BSM Connector for Microsoft SCOM configuration, see ["Backing up the Configuration" on page 46](#).

- To change a policy, do *one* of the following:
 - Select the policy and click the  (**Edit**) icon in the toolbar.
 - Right-click the policy and select **Edit**.
- To create a new policy, click the  (**New**) icon in the toolbar.

Tip: Keep track of any rules you have added to or changed in an existing default policy provided as part of the product. This will help to keep the behavior of the integrations consistent after future product upgrades.

For comprehensive information about the BSM Connector web interface and the policy editor, see the *BSM Connector User Guide*.

Mappings Used in the Event Integration

BSM Connector for Microsoft SCOM comes with preconfigured event mappings that you can customize. The event mappings are defined in the BSM Connector policy for Microsoft SCOM events. To reconfigure them, make sure the policy is imported into BSM Connector, and then edit it in the BSM Connector web interface. For basic instructions, see ["Modifying BSM Connector Policies" on the previous page](#).

For each of the listed Microsoft SCOM management packs (**management packs**), the policy forwards events from a default set of Microsoft SCOM monitors. The Microsoft SCOM object that the event relates to is mapped to a OMi configuration item (CI) of a specific type. The policy sets event type indicators (ETIs) that HP Operations Manager i can use to calculate the status of the CI that is related to the Microsoft SCOM object.

Note: Other events are forwarded as well, but do not have the ETI set. Nevertheless, a relation to the CI or node that caused the event is created in most cases.

The following sections list default mappings available in the event forwarding package of BSM Connector for Microsoft SCOM for different Microsoft SCOM management packs:

- ["Windows Core Library Management Pack" below](#)
- ["Windows Server Operating System Management Pack" on the next page](#)
- ["Active Directory Domain Services Management Pack" on page 84](#)
- ["Exchange Server 2010 Management Pack" on page 85](#)
- ["Exchange Server 2007 Management Pack" on page 90](#)
- ["SQL Server Management Packs" on page 93](#)
- ["Internet Information Services Management Packs" on page 94](#)

Windows Core Library Management Pack

Events Forwarded From the Windows Core Library Management Pack

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.SCOM.NodeUnreachable	Computer Not Reachable	Node	PingAvailability
MS.WinServer.MemoryAvailable	Available Megabytes of Memory	Windows	MemoryUsageLevel

Events Forwarded From the Windows Core Library Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.WinServer.AvgDiskSecsPTransfer	Average Disk Seconds Per Transfer	DiskDevice	DiskServiceTime
MS.WinServer.DNSClientService	DNS Client Service Health	Windows	DNSService
MS.WinServer.FSFreeSpace	Logical Disk Free Space	FileSystem	DiskUsageLevel
MS.WinServer.PctMemInUse	Percentage of Committed Memory in Use	Windows	MemoryUsageLevel
MS.WinServer.RPCService	RPC Service Health	Windows	RPCService
MS.WinServer.TotalCPUUtilization	Total CPU Utilization Percentage	Windows	CPUload
MS.WinServer.EventLogService	Windows Event Log Service Health	Windows	EventLoggingService
MS.HACluster.RGMonitor	Resource Group Monitor	Cluster Resource Group	ClusterResource GroupStatus
MS.HACluster.ClusterService	Cluster service status	Cluster Software	ClusterSoftwareService
MS.HyperV.VMMSService	Monitors the state of Virtual Machine Management Service	Hypervisor	VirtualizationService

Windows Server Operating System Management Pack

The set of forwarded events and their mapping is the same as with the management pack for Windows Core Library. See ["Windows Core Library Management Pack" on the previous page.](#)

Active Directory Domain Services Management Pack

Events Forwarded From the Active Directory Domain Services Management Pack

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.AD.ADDBFreeSpace	AD Database Free Space Monitor	DomainController	DITDiskSpace Availability
MS.AD.GeneralResponse	AD General Response Monitor	DomainController	DCLDAPQuery ResponseTime
MS.AD.LogfileFreeSpace	AD Logfile Free Space Monitor	DomainController	DITLogFilesDisk SpaceAvailability
MS.AD.LSASSOverload	AD Processor Overload (lsass) Monitor	DomainController	LSASS ProcessorTime
MS.AD.DFSRService	DFSР Service Health	DomainController	DFSРService State
MS.AD.FRSservice	File Replication Service Health	DomainController	FRSStatus
MS.AD.ISMService	ISM Service Health	DomainController	ISMService Status
MS.AD.KDCService	KDC Service Health	DomainController	KDCService Status
MS.AD.NetLogonService	Net Logon Service Health	DomainController	NetLogon ServiceState
MS.AD.08.NTDSservice	NTDS Service Health	DomainController	NTDS ServiceState
MS.AD.NTFRSService	NTFRS Service Health	DomainController	FRSStatus
MS.AD.SysVol	SysVol Share Health	DomainController	Sysvol Connectivity

Exchange Server 2010 Management Pack

Events Forwarded From the Exchange Server 2010 Management Pack

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10.ActiveSyncConnectivity	KHI: ActiveSync connectivity (Internal) transaction failures.	Exchange Client Access Server	ActiveSyncConnectivity
MS.Exch10.IMAP4ConnectivityTransaction	KHI: IMAP4 connectivity transaction failures.	Exchange Client Access Server	IMAP4Connectivity
MS.Exch10.MailboxReplicationServiceStatus	KHI: The Microsoft Exchange Mailbox Replication service isn't running.	Exchange Mail Server	ReplicationServiceStatus
MS.Exch10.OutlookWebAppConnectivity	KHI: Outlook Web App connectivity (External) transaction failures.	Exchange Client Access Server	OWAConnectivity
MS.Exch10.POP3Connectivity	KHI: POP3 connectivity transaction failures.	Exchange Client Access Server	POP3Connectivity
MS.Exch10.MSExchangeFDSServiceStatus	KHI: The Microsoft Exchange File Distribution service (MSExchangeFDS) isn't running.	ms_exchange_role	FileDistributionServiceStatus
MS.Exch10.MSExchangeIMAP4ServiceStatus	KHI: The Microsoft Exchange IMAP4 service (MSExchangeIMAP4) isn't running.	Exchange Client Access Server	IMAP4ServiceStatus
MS.Exch10.MSExchangeMailboxReplicationServiceStatus	KHI: The Microsoft Exchange Mailbox Replication Service (MSExchangeMailboxReplication) isn't running.	Exchange Mail Server	ReplicationServiceStatus
MS.Exch10.POP3ServiceStatus	KHI: The Microsoft Exchange POP3 service (MSExchangePOP3) isn't running.	Exchange Client Access Server	POP3ServiceStatus

Events Forwarded From the Exchange Server 2010 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10.MExchangeProtectedServiceHostServiceStatus	KHI: The Microsoft Exchange Protected Service Host service (MExchange-ProtectedServiceHost) isn't running.	ms_exchange_role	ExchangeServiceHostStatus
MS.Exch10.ADServerResponse	KHI: Every Active Directory server in the domain failed to respond.	Microsoft Exchange Server	ActiveDirectoryAccess
MS.Exch10.LDAPSearchTime	KHI: LDAP Search Time - sustained for 5 minutes - Red (>100msec).	Microsoft Exchange Server	GCSearchTime
MS.Exch10.ISADConnectivity	KHI: The Exchange Information Store cannot contact Active Directory.	Microsoft Exchange Server	ActiveDirectoryAccess
MS.Exch10.LDAPSearchTimeouts	KHI: LDAP Searches timed out per minute - sustained for 5 minutes - Red(>20).	Microsoft Exchange Server	GCSearchTime
MS.Exch10.MExchangeADTopologyServiceStatus	KHI: The Microsoft Exchange Active Directory Topology Service (MExchange-ADTopology) isn't running.	Microsoft Exchange Server	ADTopologyServiceStatus
MS.Exch10.MExchangeServiceHostServiceStatus	KHI: The Microsoft Exchange Service Host service (MExchangeServiceHost) isn't running.	ms_exchange_role	ExchangeServiceHostStatus
MS.Exch10.MExchangeEdgeSyncServiceStatus	KHI: The Microsoft Exchange EdgeSync Service (MExchangeEdgeSync) isn't running.	Exchange Hub Server	EdgeSyncServiceStatus
MS.Exch10.MExchangeTransportServiceStatus	KHI: The Microsoft Exchange Transport Service (MExchangeTransport) isn't running.	Exchange Transport Server	TransportServiceStatus
MS.Exch10.EdgeDelayedDSN	KHI: Delay DSNs - increase over 60 minutes - Red(>20) - Edge Transport.	Exchange Transport Server	DelayedDSNCount

Events Forwarded From the Exchange Server 2010 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10. ADAM_ MSExchange	KHI: The Microsoft Exchange ADAM service (ADAM_MSExchange) isn't running.	Exchange Edge Server	ADAM ServiceStatus
MS.Exch10. MSExchange EdgeCredential	KHI: The Microsoft Exchange Credential service (MSExchangeEdgeCredential) isn't running.	Exchange Edge Server	EdgeCredential ServiceStatus
MS.Exch10. HubDelayedDSN	KHI: Delay DSNs - increase over 60 minutes - Red(>20) - Hub Transport.	Exchange Transport Server	DelayedDSN Count
MS.Exch10. EdgeSyncEHF Failures	KHI: EdgeSync EHF synchronization failures.	Exchange Hub Server	Edge Synchronization Status
MS.Exch10. EdgeSync EnterpriseFailures	KHI: EdgeSync Enterprise synchronization failures.	Exchange Hub Server	Edge Synchronization Status
MS.Exch10. EdgeSync MSERVFailures	KHI: EdgeSync MSERV synchronization failures.	Exchange Hub Server	Edge Synchronization Status
MS.Exch10. EHFSyncFailures	KHI: Failed to sync entries to EHF.	Exchange Hub Server	Edge Synchronization Status
MS.Exch10. HubTransport AggregateDelivery QueueLength	KHI: Aggregate Delivery Queue Length (All Queues) - sustained for 15 minutes - Red (>5000) - Hub Transport.	Exchange Transport Server	Aggregate Delivery QueueLength
MS.Exch10. HubTransport LargestDelivery QueueLength	KHI: Largest Delivery Queue Length - sustained for 30 minutes - Red(>250) - Hub Transport.	Exchange Transport Server	LargestDelivery QueueLength
MS.Exch10. HubTransport RetryMBDelivery QueueLength	KHI: Retry Mailbox Delivery Queue Length - sustained for 30 minutes - Red(>1) - Hub Transport.	Exchange Transport Server	ActiveMailbox DeliveryQueue Length

Events Forwarded From the Exchange Server 2010 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10. HubTransport RetryNonSMTP Delivery QueueLength	KHI: Retry Non-Smtp Delivery Queue Length - sustained for 30 minutes - Red(>1) - Hub Transport.	Exchange Transport Server	RetryNonSmtp DeliveryQueue Length
MS.Exch10. HubTransport RetryRemote Delivery QueueLength	KHI: Retry Remote Delivery Queue Length - sustained for 30 minutes - Red(>1) - Hub Transport.	Exchange Transport Server	RemoteDelivery QueueLength
MS.Exch10. MDBVolSpace CritLow	KHI: The database copy is low on database volume space. The volume has reached critical levels (8% free).	Exchange Mailbox Database	Available Database DiskSpace
MS.Exch10. MDBVolSpace ErrLow	KHI: The database copy is low on database volume space. The volume has reached error levels (16% free).	Exchange Mailbox Database	Available Database DiskSpace
MS.Exch10. MDBVolSpace WarnLow	KHI: The database copy is low on database volume space. The volume is 25% free.	Exchange Mailbox Database	Available Database DiskSpace
MS.Exch10. MDBLogVolSpace CritLow	KHI: The database copy is low on log volume space. The volume has reached critical levels (15% free).	Exchange Mailbox Database	Available Transaction LogDiskSpace
MS.Exch10. MDBLogVolSpace ErrLow	KHI: The database copy is low on log volume space. The volume has reached error levels (35% free).	Exchange Mailbox Database	Available Transaction LogDiskSpace
MS.Exch10. MDBLogVolSpace WarnLow	KHI: The database copy is low on log volume space. The volume has reached warning levels (50% free).	Exchange Mailbox Database	Available Transaction LogDiskSpace
MS.Exch10. MailSubmission MessagesQueued	KHI: Mail Submission Service is experiencing issues: Messages Queued For Submission - sustained for 15 minutes - Red (>25).	Exchange Mail Server	MailSubmission Status

Events Forwarded From the Exchange Server 2010 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10. MailSubmission Service	KHI: The Microsoft Exchange Mail Submission service isn't running. Mail submission to the Hub Transport server won't occur until service is started.	Exchange Mail Server	MailSubmission ServiceStatus
MS.Exch10. PFDBVolSpace CritLow	KHI: The database copy is low on database volume space. The volume has reached critical levels (8% free).	Exchange Mail Server	Available Database DiskSpace
MS.Exch10. PFDBVolSpace ErrLow	KHI: The database copy is low on database volume space. The volume has reached error levels (16% free).	Exchange Mail Server	Available Database DiskSpace
MS.Exch10. PFDBLogVolSpace CritLow	KHI: The database copy is low on log volume space. The volume has reached critical levels (15% free).	Exchange Mail Server	Available Transaction LogDiskSpace
MS.Exch10. PFDB LogVolSpace ErrLow	KHI: The database copy is low on log volume space. The volume has reached error levels (35% free).	Exchange Mail Server	Available Transaction LogDiskSpace
MS.Exch10. MSEExchange ISServiceStatus	KHI: The Microsoft Exchange Information Store service (MSEExchangeIS) isn't running.	Exchange Mail Server	InformationStore ServiceStatus
MS.Exch10. MSEExchange MailSubmission ServiceStatus	KHI: The Microsoft Exchange Mail Submission service (MSEExchangeMailSubmission) isn't running.	Exchange Mail Server	MailSubmission ServiceStatus
MS.Exch10. MSEExchange SAServiceStatus	KHI: The Microsoft Exchange System Attendant service (MSEExchangeSA) isn't running.	Exchange Mail Server	SystemAttendant Status
MS.Exch10. MSSpeechService ServiceStatus	KHI: The Microsoft Exchange Speech Engine service (MSSpeechService) isn't running.	Exchange Unified Messaging Server	SpeechEngine Status

Events Forwarded From the Exchange Server 2010 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch10. MSExchange UMServiceStatus	KHI: The Microsoft Exchange Unified Messaging service (MSExchangeUM) isn't running.	Exchange Unified Messaging Server	Unified Messaging Status

Exchange Server 2007 Management Pack

Events Forwarded From the Exchange Server 2007 Management Pack

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch07. TestMAPIConnectivity	Exchange 2007 Test MAPI Connectivity Monitor	Exchange Mail Server	MapiConnectivity
MS.Exch07. PFDBStatus	Exchange 2007 Public Folder Database Monitor	Exchange Mail Server	DatabaseInstance Status
MS.Exch07. PFRceiveQueueSize	Public Folder Receive Queue Size Monitor	Exchange Mail Server	PublicReceive QueueLength
MS.Exch07. TestReplicationHealth	Exchange 2007 Test Replication Health Monitor	Exchange Mail Server	Replication ServiceStatus
MS.Exch07. ADTopologyService OnCAS	Exchange 2007 AD Topology Service Monitor on CAS	MicrosoftExchange Server	ADTopology ServiceStatus
MS.Exch07. FileDistServiceOnCAS	Exchange 2007 File Distribution Service Monitor	ms_exchange_role	FileDistribution ServiceStatus
MS.Exch07. IMAP4Service	Exchange 2007 IMAP4 Service Monitor	Exchange Client Access Server	IMAP4Service Status
MS.Exch07. POP3Service	Exchange 2007 POP3 Service Monitor	Exchange Client Access Server	POP3Service Status
MS.Exch07. ExchServiceHost	Exchange 2007 Service Host Service Monitor	ms_exchange_role	ExchangeService HostStatus
MS.Exch07. ADTopologyService OnMailbox	AD Topology Service Monitor	MicrosoftExchange Server	ADTopology ServiceStatus

Events Forwarded From the Exchange Server 2007 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch07. TestExchangeSearch	Exchange 2007 Test Exchange Search Monitor	Exchange Mail Server	SearchStatus
MS.Exch07. ISService	Information Store Service Monitor	Exchange Mail Server	InformationStore ServiceStatus
MS.Exch07. MailSubmissionService	Mail Submission Service Monitor	Exchange Mail Server	MailSubmission ServiceStatus
MS.Exch07. MBAssistantsService	Mailbox Assistants Service Monitor	Exchange Mail Server	MailboxAssistant ServiceStatus
MS.Exch07. MBHubServersInRetry	Mailbox Hub Servers In Retry Monitor	Exchange Mail Server	HubServer Reachability
MS.Exch07. ServiceHost	Service Host Service Monitor	ms_exchange_role	ExchangeService HostStatus
MS.Exch07. SystemAttendantService	System Attendant Service Monitor	Exchange Mail Server	SystemAttendant Status
MS.Exch07. DeliveryQueueLength (aggregated)	Aggregate Delivery Queue Length (All Queues) Monitor	Exchange Transport Server	AggregateDelivery QueueLength
MS.Exch07. DelayDSNs	Delay DSNs Monitor	Exchange Transport Server	DelayedDSNCount
MS.Exch07. TotalDSNFailures	Failure DSNs Total Monitor	Exchange Transport Server	FailedDSNCount
MS.Exch07. LargestDelivery QueueLength	Largest Delivery Queue Length Monitor	Exchange Transport Server	LargestDelivery QueueLength
MS.Exch07. PoisonQueueLength	Poison Queue Length Monitor	Exchange Transport Server	PoisonQueue Length
MS.Exch07. RetryNonSmt DeliveryQueueLength	Retry Non-Smt Queue Length Monitor	Exchange Transport Server	RetryNonSmt DeliveryQueue Length
MS.Exch07. RetryRemote Delivery QueueLength	Retry Remote Delivery Queue Length Monitor	Exchange Transport Server	RemoteDelivery QueueLength

Events Forwarded From the Exchange Server 2007 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch07.SubmissionQueueLength	Submission Queue Length Monitor	Exchange Transport Server	Submission QueueLength
MS.Exch07.TransportService	Transport Service Monitor	Exchange Transport Server	TransportService Status
MS.Exch07.UnreachableQueueLength	Unreachable Queue Length Monitor	Exchange Transport Server	Unreachable QueueLength
MS.Exch07.ADAMService	ADAM MExchange Service Monitor	Exchange Edge Server	ADAMService Status
MS.Exch07.EdgeCredentialService	Edge Credential Service Monitor	Exchange Edge Server	EdgeCredential ServiceStatus
MS.Exch07.ActiveMailboxDeleiveryQueueLength	Active Mailbox Delivery Queue Length Monitor	Exchange Transport Server	ActiveMailbox DeliveryQueue Length
MS.Exch07.ADTopologyServiceOnHub	AD Topology Service Monitor	MicrosoftExchange Server	ADTopology ServiceStatus
MS.Exch07.EdgeSyncService	EdgeSync Service Monitor	Exchange Hub Server	EdgeSync ServiceStatus
MS.Exch07.ADTopologyServiceOnUM	AD Topology Service Monitor	MicrosoftExchange Server	ADTopology ServiceStatus
MS.Exch07.TestUMConnectivityLocalFax	Exchange 2007 Test UM Connectivity Local Fax Monitor	Exchange Unified Messaging Server	UnifiedMessaging Connectivity
MS.Exch07.TestUMConnectivityLocalVoice	Exchange 2007 Test UM Connectivity Local Voice Monitor	Exchange Unified Messaging Server	UnifiedMessaging Connectivity
MS.Exch07.TestUMConnectivityRemoteVoice	Exchange 2007 Test UM Connectivity Remote Voice Monitor	Exchange Unified Messaging Server	UnifiedMessaging Connectivity
MS.Exch07.FileDistServiceOnUM	File Distribution Service Monitor	ms_exchange_role	FileDistribution ServiceStatus

Events Forwarded From the Exchange Server 2007 Management Pack, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.Exch07.UMService	MSExchangeUM Service Monitor	Exchange Unified Messaging Server	UnifiedMessaging Status
MS.Exch07.SpeechService	Speech Service Monitor	Exchange Unified Messaging Server	SpeechEngine Status
MS.Exch07.TestActiveSyncConnectivity	Exchange 2007 Test Active Sync Connectivity Monitor	Exchange Client Access Server	ActiveSync Connectivity
MS.Exch07.TestIMAPConnectivity	Exchange 2007 Test IMAP Connectivity Monitor	Exchange Client Access Server	IMAP4Connectivity
MS.Exch07.TestOWExternalConnectivity	Exchange 2007 Test OWA Connectivity External Monitor	Exchange Client Access Server	OWAConnectivity
MS.Exch07.TestInternalConnectivity	Exchange 2007 Test OWA Connectivity Internal Monitor	Exchange Client Access Server	OWAConnectivity
MS.Exch07.TestPOP3Connectivity	Exchange 2007 Test POP3 Connectivity Monitor	Exchange Client Access Server	POP3Connectivity
MS.Exch07.TestCrossOrgMailFlow	Exchange 2007 Test Cross Org Mail Flow Monitor	Exchange Mail Server	MailFlowStatus
MS.Exch07.TestLocalMailFlow	Exchange 2007 Test Local Mail Flow Monitor	Exchange Mail Server	MailFlowStatus
MS.Exch07.TestRemoteMailFlow	Exchange 2007 Test Remote Mail Flow Monitor	Exchange Mail Server	MailFlowStatus

SQL Server Management Packs

Events Forwarded From the Management Packs for Different SQL Server Versions

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.SQLServer.DBStatus	Database Status	SQL Server	DatabaseStatus

Events Forwarded From the Management Packs for Different SQL Server Versions, continued

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
MS.SQLServer.DBFileSpace	DB File Space (rollup)	SQL Server	DatabaseFileGroupSpaceUsageLevel
MS.SQLServer.DBLogFileSpace	DB Log File Space (rollup)	SQL Server	TransactionLogUsageLevel
MS.SQLServer.DBTotalSpace	DB Total Space	SQL Server	DatabaseSpaceUsageLevel
MS.SQLServer.DestLogShipping	Destination Log Shipping	SQL Server	ReplicationStatus
MS.SQLServer.SrcLogShipping	Source Log Shipping	SQL Server	ReplicationStatus
MS.SQLServer.Service	SQL Server Windows Service	SQL Server	SQLServerServiceStatus

Internet Information Services Management Packs

Events Forwarded From the Management Packs for Different Internet Information Services (IIS) Versions

Rule Name	Microsoft SCOM Monitor Name	Mapped CI Type	Mapped ETI
WebServer.NTService.CheckServiceState.Monitor	World Wide Web Publishing service availability	Windows	WebServerService
ServerRole.NTService.CheckServiceState.Monitor	IIS Admin Service availability	Windows	WebServerService
FTPServer.NTService.CheckServiceState.Monitor	FTP service availability	Windows	FTPService

Mappings Used in the Topology Integration

BSM Connector for Microsoft SCOM comes with preconfigured topology mappings that you can customize. The topology mappings are *not* defined in the BSM Connector policy for Microsoft SCOM topology, but rather in the topology synchronization package of BSM Connector for Microsoft SCOM. This package is installed on the Microsoft SCOM host, and is registered with the integrated Microsoft SCOM instance.

The following sections list default mappings available in the topology synchronization package of BSM Connector for Microsoft SCOM for different Microsoft SCOM management packs:

- ["Windows Core Library Management Pack" below](#)
- ["Windows Server Operating System Management Pack" on the next page](#)
- ["Windows Cluster Library Management Pack" on page 99](#)
- ["Windows Server Hyper-V Management Pack" on page 101](#)
- ["Windows DNS Server Management Pack" on page 104](#)
- ["Active Directory Domain Services Management Pack" on page 105](#)
- ["Active Directory Lightweight Directory Services Management Pack" on page 107](#)
- ["Exchange Server 2010 Management Pack" on page 108](#)
- ["Exchange Server 2007 Management Pack" on page 112](#)
- ["SQL Server Management Packs" on page 115](#)
- ["Internet Information Services Management Packs" on page 116](#)

Windows Core Library Management Pack

The topology synchronization package maps the following classes of Microsoft SCOM objects from the Windows Core Library management pack to the RTSM database of OMi.

Windows Computer

Microsoft SCOM objects of this class are mapped to CIs of the `Windows` type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Windows Computer Attribute Mapping

CI Attribute Name	CI Attribute Value
Domain Name	Microsoft SCOM object attribute: DNS Domain Name
Host Key	Microsoft SCOM object ID
Discovered OS Name	Display Name attribute from the child Microsoft SCOM object of the Windows Operating System class
Discovered OS Version	Operating System Version attribute from the child Microsoft SCOM object of the Windows Operating System class
Discovered OS Vendor	Microsoft

Windows Computer Attribute Mapping, continued

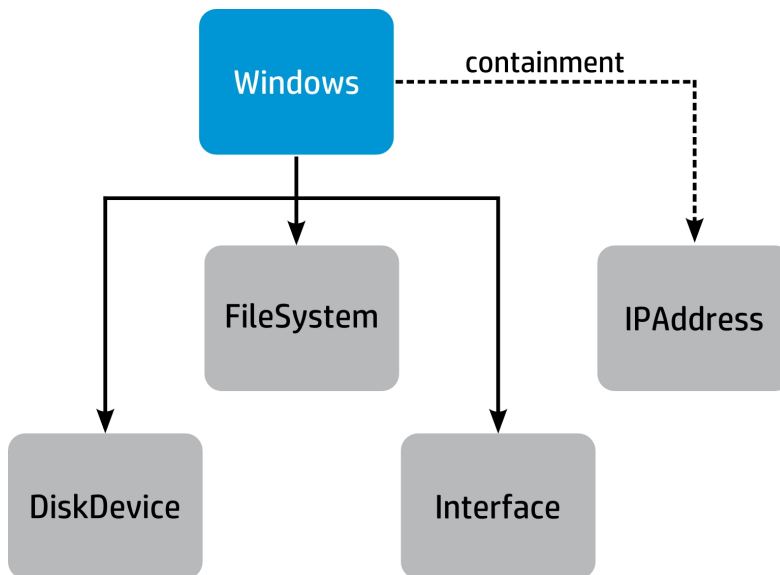
CI Attribute Name	CI Attribute Value
Host OS Release	Build Number attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Service Pack	Service Pack Version attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Physical Memory	Physical Memory (KB) attribute from the child Microsoft SCOM object of the Windows Operating System class
Memory Size	Physical Memory (KB) attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Processors Number	Logical processors attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Main Processor Speed	Speed attribute from the child Microsoft SCOM object of the <WindowsOperatingSystem> Processor class
NT Main Processor Type	Based on the Data Width attribute from the child Microsoft SCOM object of the <WindowsOperatingSystem> Processor class: if the value of Data Width equals 32 the value of this CI attribute is x86, otherwise the value is x86_64
Name	Microsoft SCOM object attribute NetBIOS Computer Name if available, otherwise Display Name
Net Bios Name	Microsoft SCOM object attribute NetBIOS Computer Name if available, otherwise Display Name
Primary DNS Name	Microsoft SCOM object attribute DNS Name if available, otherwise Display Name

No relations are mapped for Microsoft SCOM objects of this class.

Windows Server Operating System Management Pack

The topology synchronization package maps all Windows operating system objects deriving their class from the Windows Core Library Management Pack.

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Windows Server Operating System management pack.



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Windows Server Operating System management pack to the RTSM database of OMI.

LogicalDisk

Microsoft SCOM objects of this class are mapped to CIs of the `FileSystem` type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

LogicalDisk Attribute Mapping

CI Attribute Name	CI Attribute Value
Mount Point	Microsoft SCOM object attribute <code>Device ID</code> with colons (:) removed
Name	Microsoft SCOM object attribute <code>Device Name</code> with colons (:) removed
Disk Size	Microsoft SCOM object attribute: <code>Size (Bytes)</code>
Disk Type	Microsoft SCOM object attribute: <code>Device Description</code>
Filesystem Type	Microsoft SCOM object attribute: <code>FileSystem</code>

CIs that represent Microsoft SCOM objects of this class have a parent relation from a `Windows` CI.

PhysicalDisk

Microsoft SCOM objects of this class are mapped to CIs of the `DiskDevice` type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

PhysicalDisk Attribute Mapping

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Model Name	Microsoft SCOM object attribute: Caption
Vendor	Microsoft SCOM object attribute: Manufacturer
Description	Microsoft SCOM object attribute: Device Description

CIs that represent Microsoft SCOM objects of this class have a parent relation from a windows CI.

NetworkAdapter

Microsoft SCOM objects of this class are mapped to CIs of the Interface type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

NetworkAdapter Attribute Mapping

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Device Name
MAC Address	Microsoft SCOM object attribute MAC Address with hyphens (-) removed
Interface Description	Microsoft SCOM object attribute: Device Description
Interface Index	Microsoft SCOM object attribute: Index
Interface Name	Microsoft SCOM object attribute: Display Name

For this type of Microsoft SCOM objects, the topology synchronization package also creates CIs of the IpAddress type. These CIs become children of the CI that is related to the Microsoft SCOM object of the NetworkAdapter class. The following table shows the mappings between Microsoft SCOM object attributes and attributes of the children CIs:

IPAddress Attribute Mapping

CI Attribute Name	CI Attribute Value
Name	One IP address from the IP Address(es) Microsoft SCOM object attribute
Routing Domain	DefaultDomain
IP Address	One IP address from the IP Address(es) Microsoft SCOM object attribute
IP Address Value	One IP address from the IP Address(es) Microsoft SCOM object attribute
User Label	One IP address from the IP Address(es) Microsoft SCOM object attribute
IP Netmask	Microsoft SCOM object attribute: IP Subnet

IPAddress Attribute Mapping, continued

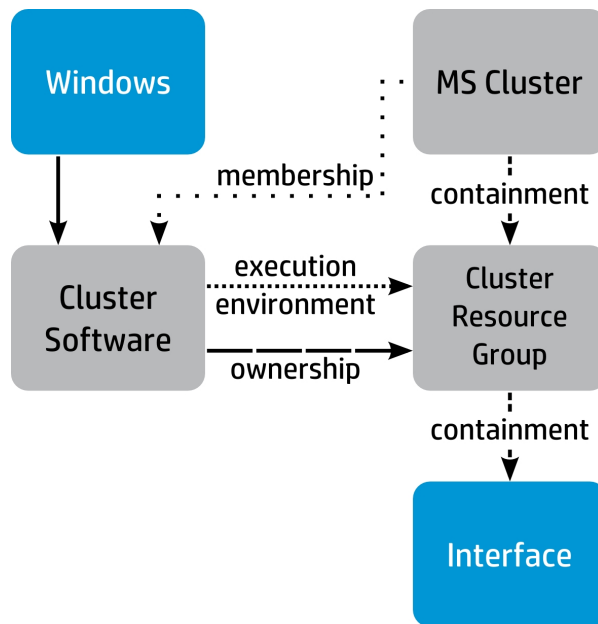
CI Attribute Name	CI Attribute Value
IP Netclass	Either A, B, or C
IP Netaddr	Network address calculated from the subnet and IP address
IP Address Type	Either IPv4 or IPv6, depending on the IP address

CIs that represent Microsoft SCOM objects of the NetworkAdapter class have a parent relation from a Windows CI.

CIs that represent Microsoft SCOM objects of the IPAddress class have a containment relation from a Windows CI.

Windows Cluster Library Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Windows Cluster Library management pack.



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Windows Cluster Library management pack to the Run-Time Service Model database in OMi.

Windows Cluster

Microsoft SCOM objects of this class are mapped to CIs of the MS Cluster type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Windows Cluster Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Vendor	Microsoft SCOM object attribute: Vendor ID
Version	Microsoft SCOM object attribute: Highest Version

CIs that represent Microsoft SCOM objects of this class have a membership relation to a Cluster Software CI.

Windows Cluster Service

SCOM objects of this class are mapped to CIs of the Cluster Software type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Windows Cluster Service Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Fully qualified domain name (FQDN) of the parent Windows Computer object
Discovered Product Name	Microsoft Cluster Service
Application Category	Cluster
Vendor	Microsoft Corp.

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Windows CI
- execution environment relation to a Cluster Resource Group CI
- ownership relation to a Cluster Resource Group CI

Windows Computer (Child of Windows Cluster Resource Group)

Microsoft SCOM objects of the Windows Computer class that are children of a Windows Cluster Resource Group object are mapped to CIs of the Cluster Resource Group type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Windows Computer (Child of Windows Cluster Resource Group) Attribute Mappings

CI Attribute Name	CI Attribute Value
Domain Name	Microsoft SCOM object attribute: DNS Domain Name
Host Key	Microsoft SCOM object ID

Windows Computer (Child of Windows Cluster Resource Group) Attribute Mappings, continued

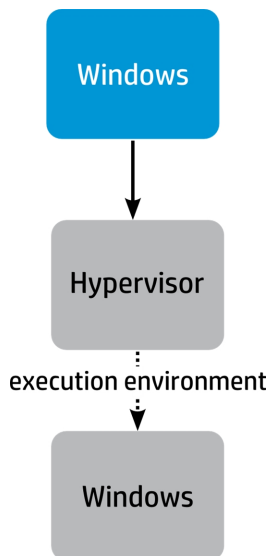
CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: NetBIOS Computer Name
Net Bios Name	Microsoft SCOM object attribute: NetBIOS Computer Name
Primary DNS Name	Microsoft SCOM object attribute: DNS Name
User label	Parent Windows Cluster Resource Group Microsoft SCOM object attribute: Original Group Name
Discovered OS Name	Display Name attribute from the child Microsoft SCOM object of the Windows Operating System class
Discovered OS Vendor	Microsoft Corp.
Discovered OS Version	Operating System Version attribute from the child Microsoft SCOM object of the Windows Operating System class
Host OS Release	Build Number attribute from the child Microsoft SCOM object of the Windows Operating System class

CIs that represent Microsoft SCOM objects of this class have the following relations:

- containment relation from an MS Cluster CI
- containment relation to a NetworkAdapter CI

Windows Server Hyper-V Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Windows Server Hyper-V management pack (its Library part: Microsoft.Windows.HyperV.Library).



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Windows Server Hyper-V management pack to the RTSM database of OMi.

Server Running Hyper-V

Microsoft SCOM objects of this class are mapped to CIs of the Hypervisor type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Server Running Hyper-V Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Server Name
Discovered Product Name	Hyper-V hypervisor
Vendor	Microsoft Corp.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Windows CI.

Windows Computer (Child of Hyper-V Virtual Machine)

Microsoft SCOM objects of the Windows Computer class that are children of a Hyper-V Virtual Machine Microsoft SCOM object are mapped to CIs of the Windows type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Windows Computer (Child of Hyper-V Virtual Machine) Attribute Mappings

CI Attribute Name	CI Attribute Value
Domain Name	Microsoft SCOM object attribute: DNS Domain Name
Host Key	Microsoft SCOM object ID

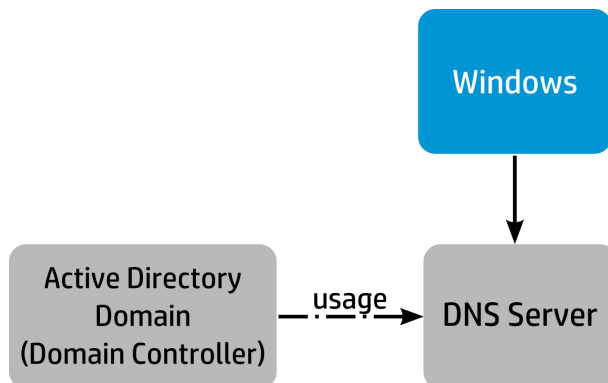
Windows Computer (Child of Hyper-V Virtual Machine) Attribute Mappings, continued

CI Attribute Name	CI Attribute Value
Discovered OS Name	Display Name attribute from the child Microsoft SCOM object of the Windows Operating System class
Discovered OS Version	Operating System Version attribute from the child Microsoft SCOM object of the Windows Operating System class
Discovered OS Vendor	Microsoft
Host OS Release	Build Number attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Service Pack	Service Pack Version attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Physical Memory	Physical Memory (KB) attribute from the child Microsoft SCOM object of the Windows Operating System class
Memory Size	Physical Memory (KB) attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Processors Number	Logical processors attribute from the child Microsoft SCOM object of the Windows Operating System class
NT Main Processor Speed	Speed attribute from the Microsoft SCOM child object of the <WindowsOperatingSystem> Processor class
NT Main Processor Type	Based on the Data Width attribute from the Microsoft SCOM child object of the <WindowsOperatingSystem> Processor class: if the value of Data Width equals 32 the value of this CI attribute is x86, otherwise the value is x86_64
Name	NetBIOS Computer Name Microsoft SCOM object attribute if available, otherwise Display Name
Net Bios Name	NetBIOS Computer Name Microsoft SCOM object attribute if available, otherwise Display Name
Primary DNS Name	DNS Name Microsoft SCOM object attribute if available, otherwise Display Name
Discovered Model	Virtual Machine
Host Is Virtual	True
Serial Number	Parent Hyper-V Virtual Machine Microsoft SCOM object attribute Virtual Machine Id
User Label	Parent Hyper-V Virtual Machine Microsoft SCOM object attribute Display Name

CI's that represent Microsoft SCOM objects of this class have the execution environment relation with a Hypervisor CI.

Windows DNS Server Management Pack

The following diagram presents an overview of the CI's and relations that the topology synchronization package maps in the RTSM database of OMi for the Windows DNS Server management pack (its Library part: Microsoft.Windows.DNS.Server.Library).



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Windows DNS Server management pack to the RTSM database of OMi.

DNS Server

Microsoft SCOM objects of this class are mapped to CI's of the Dns Server type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

DNS Server Attribute Mappings

CI Attribute Name	CI Attribute Value
Discovered Product Name	DNS Server
Application IP	Microsoft SCOM object attribute: Listening IPs
Name	Microsoft SCOM object attribute: Display Name

CI's that represent Microsoft SCOM objects of this class have the following relations:

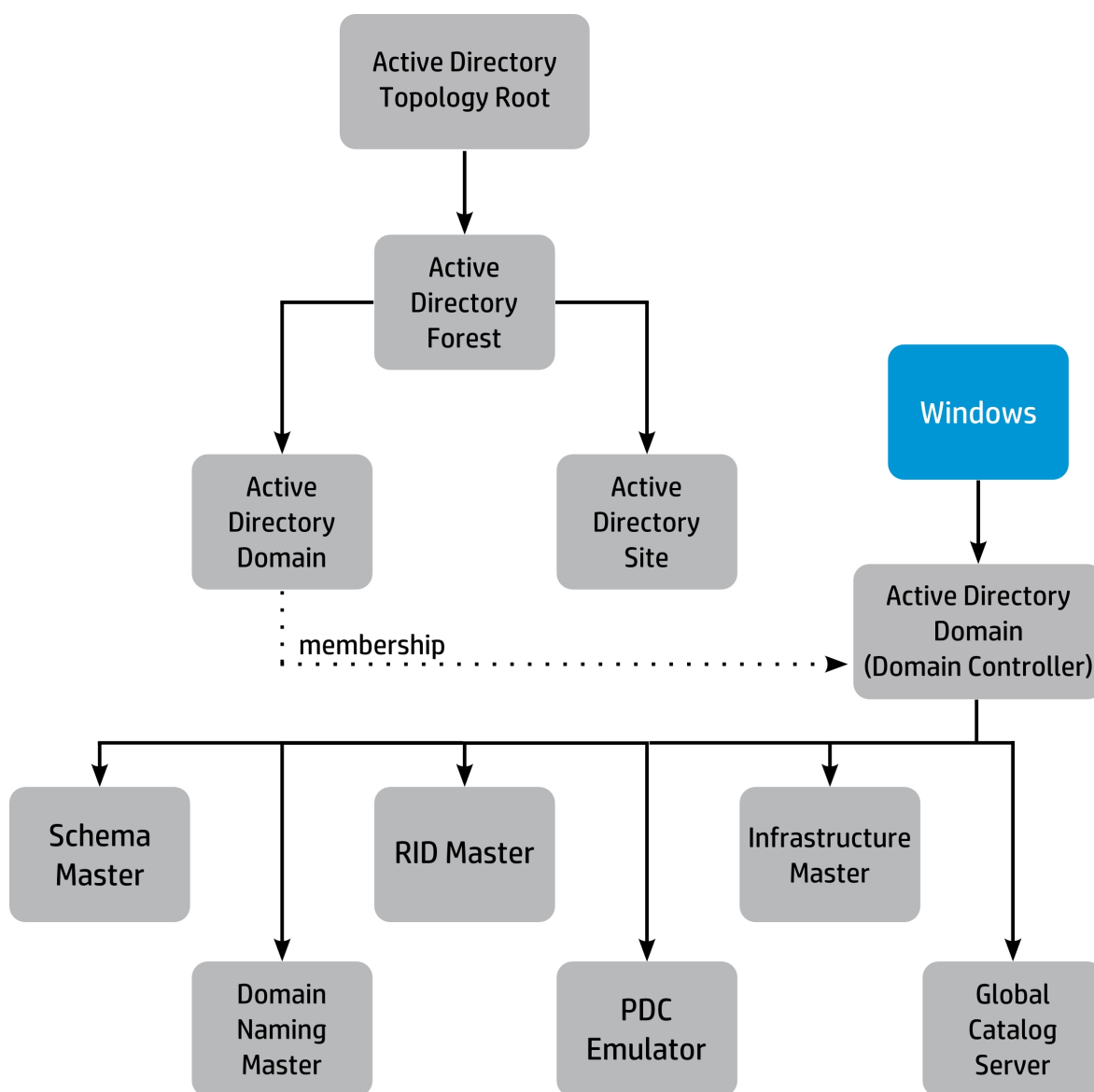
- parent relation from a Windows CI
- usage relation from the corresponding Active Directory Domain CI that represents a domain controller

Active Directory Domain Services Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Active Directory Domain Services management pack.

For the releases 2008 and 2003 of Active Directory Domain Services, one of the following Discovery parts of the management pack is used: `Microsoft.Windows.Server.AD.2008.Discovery` or `Microsoft.Windows.Server.AD.2003.Discovery`.

For other Active Directory Domain Services releases, objects deriving from the `Microsoft.Windows.Server.AD.Library` part are mapped.



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Active Directory Domain Services management pack to the RTSM database of OMI.

Active Directory Topology Root

Microsoft SCOM objects of this class are mapped to CIs of the Active Directory Topology Root type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

No relations are mapped for Microsoft SCOM objects of this class.

Active Directory Forest

Microsoft SCOM objects of this class are mapped to CIs of the Active Directory Forest type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

The CI of type Active Directory Forest is mapped to a parent CI of the Active Directory Topology Root type.

Active Directory Site

Microsoft SCOM objects of this class are mapped to CIs of the Active Directory Site type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

The CI of type Active Directory Site is mapped to a parent CI of the Active Directory Forest type.

Active Directory Domain

Microsoft SCOM objects of this class are mapped to CIs of the Active Directory Domain type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

The CI of type Active Directory Domain is mapped to a parent CI of the Active Directory Forest type.

Active Directory Domain Controller Server 2008 Computer Role, Active Directory Domain Controller Server 2003 Computer Role

Microsoft SCOM objects of these classes are mapped to CIs of the Active Directory Domain type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Active Directory Domain Controller Server Computer Role Attribute Mappings

CI Attribute Name	CI Attribute Value
Discovered Product Name	AD Domain Controller
Name	Microsoft SCOM object attribute: Display Name
DNS Server	Parent Microsoft SCOM object attribute DNS Name
Domain Name	Parent Microsoft SCOM object attribute Domain DNS Name
Site Name	Parent Microsoft SCOM object attribute Active Directory Site

For this type of the Microsoft SCOM object, the topology synchronization package maps some attributes as CIs. The CIs become children of the CI that is related to the Microsoft SCOM object. The following table shows the mappings between Microsoft SCOM object attributes and children CIs:

Active Directory Domain Controller Server Computer Role Child CI Mappings

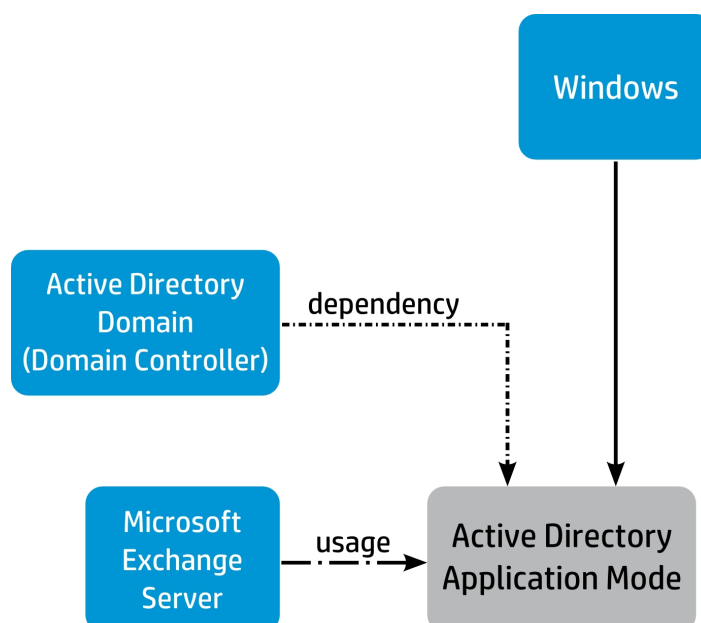
SCOM Object Attribute	Child CI Type
Schema Master	SchemaMaster
Domain Naming Master	DomainNamingMaster
RID Master	RelativeIDMaster
PDC Emulator	PrimaryDomainControllerMaster
Infrastructure Master	InfrastructureMaster
Global Catalog Server	GlobalCatalogServer

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation to a Windows CI
- membership relations from the Active Directory Domain and Active Directory Site CIs

Active Directory Lightweight Directory Services Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Active Directory Lightweight Directory Services management pack (its Library part: Microsoft.Windows.Server.LDS.Library).



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Active Directory Lightweight Directory Services management pack to the RTSM database of OMi.

Services Instance

Microsoft SCOM objects of this class are mapped to CIs of the Active Directory Application Mode type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Services Instance Attribute Mappings

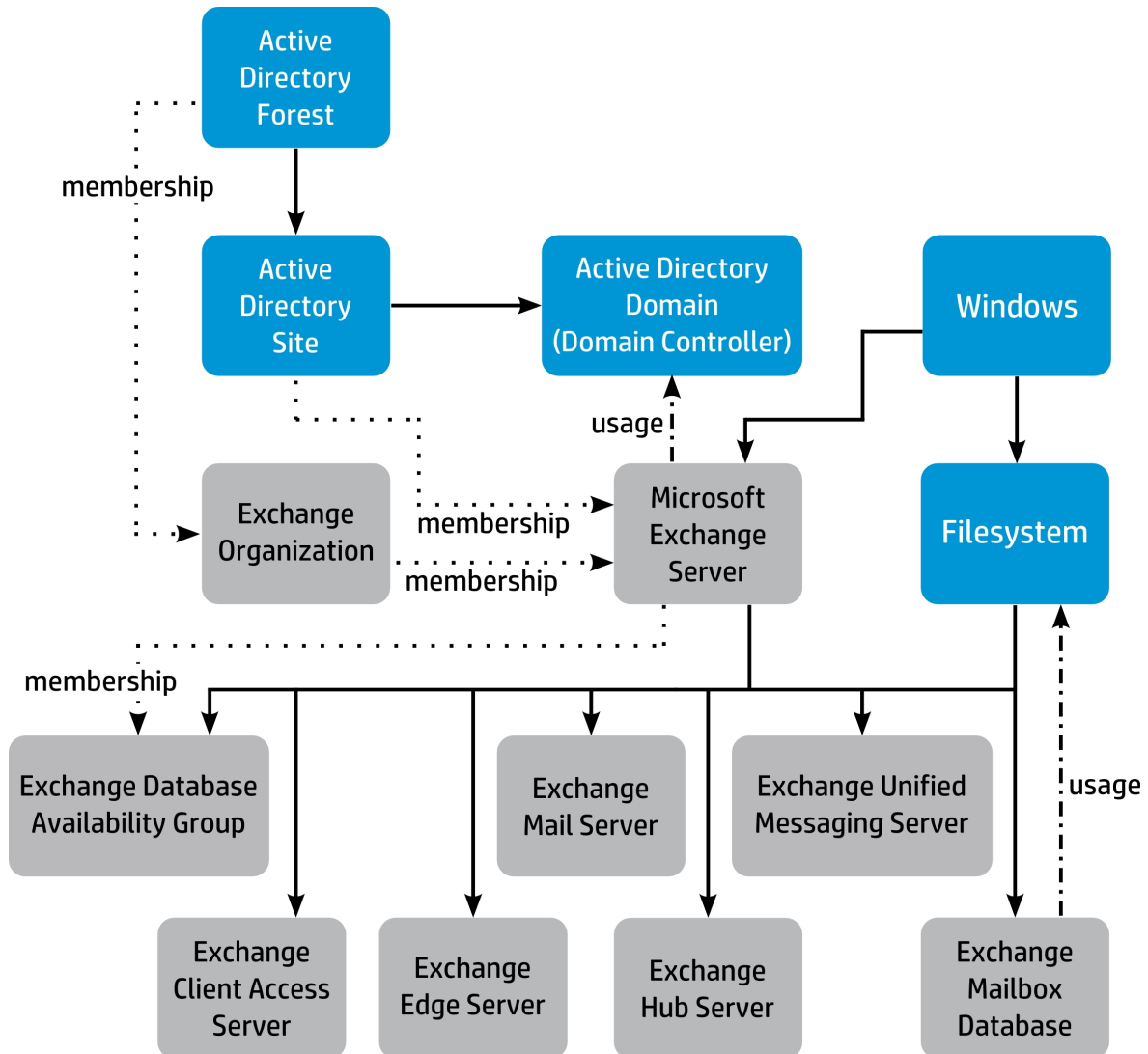
CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Discovered Product Name	ADAM
ADAM Instance Name	Microsoft SCOM object attribute: Display Name
Exchange Server Name	Display Name attribute from the sibling Microsoft SCOM object of the Microsoft Exchange 2010 Server or Exchange 2007 Common Components class
Vendor	Microsoft
Application Category	Enterprise App

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Windows CI
- usage relation from a Microsoft Exchange Server CI
- usage relation to an Active Directory Domain CI that represents a domain controller

Exchange Server 2010 Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Exchange Server 2010 management pack.



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Exchange Server 2010 management pack to the RTSM database of OMi.

Organization

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Organization type.

The Microsoft SCOM object's Organization Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a membership relation from an Active Directory Forest CI.

Microsoft Exchange 2010 Server

Microsoft SCOM objects of this class are mapped to CIs of the MicrosoftExchangeServer type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Microsoft Exchange 2010 Server Attribute Mappings

CI Attribute Name	CI Attribute Value
Discovered Product Name	Microsoft Exchange Server 2010
Exchange Server Name	Microsoft SCOM object attribute: Display Name
FQDN	Microsoft SCOM object attribute: DNS Name
Application Category	Mail
Name	Microsoft SCOM object attribute: Display Name
Vendor	Microsoft Corp.
Version	2010

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Windows CI
- membership relation from an Exchange Organization CI
- membership relation from an Active Directory Site CI
- usage relation to an Active Directory Domain CI that represents a domain controller

Client Access

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Client Access Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Edge Transport

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Edge Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Hub Transport

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Hub Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Mailbox

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Mail Server type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Unified Messaging

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Unified Messaging Server type.

The Microsoft SCOM object's `Display Name` attribute is mapped to the CI's `Name` attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Mailbox Database Mounted

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Mailbox Database type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Mailbox Database Mounted Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Database Name
Data GUID	Microsoft SCOM object ID
Database Path	Microsoft SCOM object attribute: EDB File Path
Transaction Log Path	Microsoft SCOM object attribute: Log Folder Path

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Microsoft Exchange Server CI
- usage relation to a LogicalDisk CI

Mailbox Database Availability Group

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Database Availability Group type.

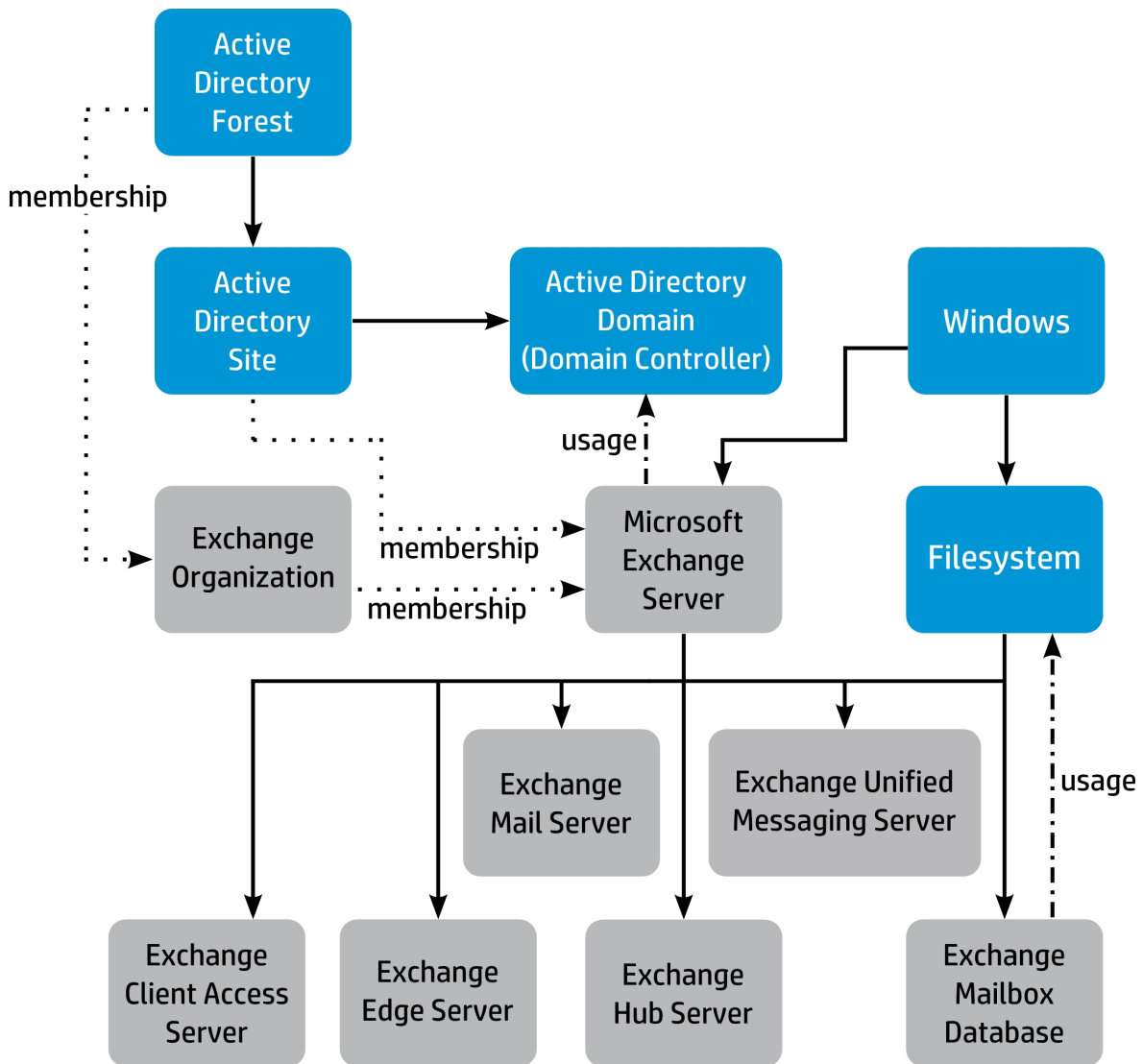
The Microsoft SCOM object's `Instance Name` attribute is mapped to the CI's `Name` attribute.

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Microsoft Exchange Server CI
- membership relation from a Microsoft Exchange Server CI

Exchange Server 2007 Management Pack

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Exchange Server 2007 management pack (its Library part: Microsoft.Exchange.Server.2007.Library).



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Exchange Server 2007 management pack to the RTSM database of OMi.

Exchange 2007 Organization

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Organization type.

The Microsoft SCOM object's Organization Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a membership relation from an Active Directory Forest CI.

Exchange 2007 Common Components

Microsoft SCOM objects of this class are mapped to CIs of the MicrosoftExchangeServer type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Exchange 2007 Common Components Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Discovered Product Name	Microsoft Exchange Server 2007
Exchange Server Name	Microsoft SCOM object attribute: Display Name
FQDN	Fully qualified domain name (FQDN) of the parent Windows Computer object
Application Category	Mail
Vendor	Microsoft
Version	2007

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Windows CI
- membership relation from an Exchange Organization CI
- membership relation from an Active Directory Site CI
- usage relation to an Active Directory Domain CI that represents a domain controller

Exchange 2007 Client Access Role

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Client Access Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Exchange 2007 Standalone Mailbox Role

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Mail Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Exchange 2007 Edge Transport Role

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Edge Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Exchange 2007 Hub Transport Role

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Hub Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Exchange 2007 Unified Messaging Role

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Unified Messaging Server type.

The Microsoft SCOM object's Display Name attribute is mapped to the CI's Name attribute.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Microsoft Exchange Server CI.

Exchange 2007 Mailbox Database

Microsoft SCOM objects of this class are mapped to CIs of the Exchange Mailbox Database type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Exchange 2007 Mailbox Database Attribute Mappings

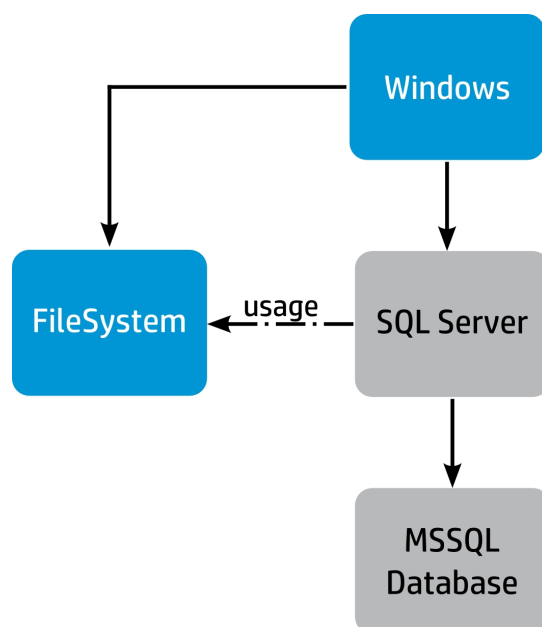
CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Data GUID	Microsoft SCOM object ID
Database Path	Microsoft SCOM object attribute: Database Edb File Path
Transaction Log Path	Microsoft SCOM object attribute: Database Log File Path

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Microsoft Exchange Server CI
- usage relation to a LogicalDisk CI

SQL Server Management Packs

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the SQL Server management packs (their Library part: Microsoft.SQLServer.Library).



The topology synchronization package maps the following classes of Microsoft SCOM objects from the SQL Server management pack to the RTSM database of OMi.

SQL DB Engine

Microsoft SCOM objects of this class are mapped to CIs of the SQL Server type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

SQL DB Engine Attribute Mappings

CI Attribute Name	CI Attribute Value
Discovered Product Name	Microsoft SCOM object attribute: SQL Server
Version	Microsoft SCOM object attribute: Version
Database DB Connection String	Microsoft SCOM object attribute: Connection String
Database DB Install Path	Microsoft SCOM object attribute: Master Database Location
Application Path	Microsoft SCOM object attribute: Install Path

SQL DB Engine Attribute Mappings, continued

CI Attribute Name	CI Attribute Value
Language	Microsoft SCOM object attribute: Language
Name	Microsoft SCOM object attribute: Instance Name
Application User Name	Microsoft SCOM object attribute: Account Name
Application Category	Database
Database DB Type	sqlserver
Vendor	Microsoft Corp.
Application IP	IP address returned by nslookup for the hostname within the Connection String Microsoft SCOM object attribute

CIs that represent Microsoft SCOM objects of this class have the following relations:

- parent relation from a Windows CI
- usage relation to a LogicalDisk CI

SQL Database

Microsoft SCOM objects of this class are mapped to CIs of the MSSQL Database type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

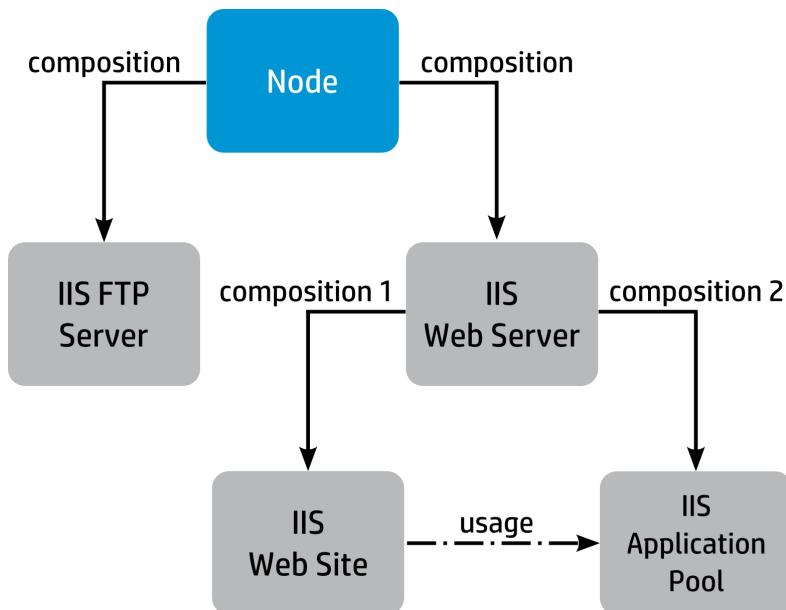
SQL Database Attribute Mappings

CI Attribute Name	CI Attribute Value
User Label	Microsoft SCOM object attribute: Display Name
Name	Microsoft SCOM object attribute: Database Name

CIs that represent Microsoft SCOM objects of this class have a parent relation from an SQL Server CI.

Internet Information Services Management Packs

The following diagram presents an overview of the CIs and relations that the topology synchronization package maps in the RTSM database of OMi for the Internet Information Services management packs.



The topology synchronization package maps the following classes of Microsoft SCOM objects from the Internet Information Services management packs to the Run-Time Service Model (RTSM) database of OMi.

FTP Server Service

Microsoft SCOM objects of this class are mapped to CIs of the IIS FTP Server type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

FTP Server Service Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Discovered Product Name	Node Name
Vendor	Microsoft Corp.

CIs that represent Microsoft SCOM objects of this class have a parent relation from a Windows CI.

Web Server Service

Microsoft SCOM objects of this class are mapped to CIs of the IIS Web Server type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

Web Server Service Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name
Discovered Product Name	Node Name

Web Server Service Attribute Mappings, continued

CI Attribute Name	CI Attribute Value
Vendor	Microsoft Corp.

CI s that represent Microsoft SCOM objects of this class have a parent relation from a windows CI.

IIS Application Pool

Microsoft SCOM objects of this class are mapped to CI s of the IIS Application Pool type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

IIS Application Pool Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Display Name

CI s that represent Microsoft SCOM objects of this class have a parent relation from a windows CI.

IIS Web Site

Microsoft SCOM objects of this class are mapped to CI s of the IIS Web Site type.

The following table shows the mapping between the Microsoft SCOM object attributes and the CI attributes:

IIS Web Site Attribute Mappings

CI Attribute Name	CI Attribute Value
Name	Microsoft SCOM object attribute: Site Id
User Label	Microsoft SCOM object attribute: Display Name

CI s that represent Microsoft SCOM objects of this class have a parent relation to a windows CI.

Mappings Used in the Metric Integration

BSM Connector for Microsoft SCOM comes with preconfigured metric mappings that you can customize. The metric mappings are defined in the BSM Connector policy for Microsoft SCOM metrics. To reconfigure them, make sure the policy is imported into BSM Connector, and then edit it in the BSM Connector web interface. For basic instructions, see ["Modifying BSM Connector Policies" on page 81](#).

The collected metrics are related to the set of objects defined in the BSM Connector policy for Microsoft SCOM topology. To collect additional metrics from Microsoft SCOM, first import the appropriate management pack into Microsoft SCOM. For instructions, see ["Configuring the Topology Integration" on page 39](#). Afterward, select the additional metrics as described in ["Configuring the Metric Integration" on page 42](#).

Note: The Windows Server Operating System management pack consists of several parts. To collect metrics for Windows Server-related objects, import the `Monitoring` part for the operating systems that you plan to monitor:

```
Microsoft.Windows.Server.<OperatingSystemVersion>.Monitoring
```

Adding Custom Metrics to the Collection Scope

The metric filter configuration file (`MetricFilterConfig.xml`) contains entries for the metric counters that are collected from the integrated Microsoft SCOM instance. These counters are selected in the `Metrics` page of the Configuration Utility. If the metrics that you intend to collect are not available with the bundled management packs, you can add them to the metric filter configuration file by directly editing it.

To add custom metrics to the metric collection scope, perform the following:

1. Back up the metric filter configuration file. For instructions, see ["Backing up the Configuration" on page 46](#).
2. On the BSM Connector host, navigate to the `<OvDataDir>\datafiles\HPBsmIntSCOM\<InstanceID>` directory.

The `<InstanceID>` string contains the version of the integrated Microsoft SCOM instance (and its consecutive number if it is not the first instance in a multiple instance configuration). Example value: `SCOM2007_3`.

3. Open the `MetricFilterConfig.xml` file in a plain text editor.
4. Modify the XML file and make sure to preserve the following format:

```
<?xml version="1.0" encoding="UTF-8"?>
<HPSCOMMetricConfig>
  <class name="[Name of Configuration Group 1]">
    <counter>[Counter 1 Name]/counter>
    <counter>[Counter 2 Name]</counter>
  </class>
  <class name="[Name of Configuration Group 2]">
    <counter>[Counter 3 Name]/counter>
    <counter>[Counter 4 Name]</counter>
  </class>
  ...
</HPSCOMMetricConfig>
```

For the `[Name of Configuration Group N]` and `[Counter N Name]` instances specify the actual values.

5. Save your changes.
6. Restart the metric integration service as described in ["Restarting the Services" on page 49](#).

Caution: The metrics that you add by using the previous procedure are removed as soon as you reconfigure the metric collection scope from the Configuration Utility.

The following causes might keep a newly added metric from being propagated to BSM Connector for Microsoft SCOM:

- The last collection happened after the time the metric was refreshed for the last time by Microsoft SCOM. In such a case, the metric does not appear in OMi until Microsoft SCOM refreshes the metric. This may take up to 12 hours, depending on the collection interval set in Microsoft SCOM.
- The rule for collecting the counter is not enabled in Microsoft SCOM. For instructions on how to enable monitoring rules or change their refresh times, see the Microsoft SCOM documentation.

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Feedback on Integration Guide (BSM Connector for Microsoft System Center Operations Manager 3.00)

Just add your feedback to the email and click send.

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We appreciate your feedback!