HP Business Service Management

For the Linux and Windows® operating systems

Software Version: 09.20

Monitoring Automation for HP Operations Manager i Installation Guide

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Chapter 1

Introduction

Monitoring of your composite applications deployed across physical, virtual and private/public cloud infrastructures in modern Hybrid IT environments is crucial to your business. Using traditional management tools and paradigms, the resulting monitoring configuration in such dynamic environments is complex, time-consuming to establish, and often error-prone.

Monitoring Automation is designed from the ground up to simplify and automate monitoring configuration, while hiding irrelevant environment details. It uses one consistent method to configure your entire environment, independent of the monitoring technologies used (for example, agent-based or agentless monitoring). Monitoring Automation's parameterization concepts enable easy tuning by subject matter experts. Finally, built-in configuration reporting simplifies auditing, completely saving the time usually required to record configurations, and improves compliance, reducing risks by an orders of magnitude compared to manual methods.

Monitoring Automation functionality is available in two versions:

- **Monitoring Automation for Servers**

  For all customers using HP Operations Manager i with at least the Event Management Foundation License, installing Monitoring Automation provides you with the above described capabilities from a server-centric perspective. Monitoring Automation for Servers focuses on virtual and physical systems and server-centric applications.

- **HP Monitoring Automation for Composite Applications**

  For all customers using HP Operations Manager i with the HP Monitoring Automation for Composite Applications license, installing Monitoring Automation provides extended capabilities, specifically targeting the new challenges of dynamic datacenters, including integration into the RTSM to provide topology information. It automates topology-based monitoring configuration for complex, multi-tier applications, for example, automatically adapting monitoring configurations when application instances or parameters are adjusted as a result of business or environmental needs.

Note: Instant-on License — after installing the OMi Event Management Foundation License, you have 60 days to explore all the features of Monitoring Automation. If during this time you do not install the HP Monitoring Automation for Composite Applications license, Monitoring Automation will revert to Monitoring Automation for Servers functionality when the instant-on license expires.

OMi Management Packs and Content Packs

To help you to get up and running with the minimum of effort with Monitoring Automation, there are optionally-available management packs and associated content packs, providing the essential management templates, aspects and content to automatically monitor the following systems and applications:

- **Infrastructure**

  Availability and performance of servers, virtual environments and cluster environments in your system infrastructure.

- **Oracle Database**

  Availability and performance of core Oracle Database components, including the system infrastructure of Oracle Database nodes, which can be monitored agent-less or in conjunction with the HP Operations Agent (licensed separately).

- **Apache Hadoop**

  Availability and performance of the two core Hadoop components, MapReduce and Hadoop Distributed Files System (HDFS), including monitoring of the the system infrastructure of Hadoop Linux nodes. The nodes with special Hadoop roles, such as DataNode, NameNode, and Job- and TaskTracker can also be managed out-of-the-box.

- **Vertica**

  Availability and performance of core Vertica core components, including monitoring the system infrastructure of each Vertica node.

The management packs for HP Operations Manager i are available on the HP OMi Management Packs DVD.

The associated Content packs are available from the following locations:

- The Content Pack for Oracle Database is available with the BSM 9.x media.
- The Infrastructure, Hadoop and Vertica Content Packs are available from HP Live Network. Visit `https://hpln.hp.com/group/content-packs-bsm` for further details.

The OMi Management Packs are licensed separately.

HP Operations Agent and SiteScope

You can monitor systems in conjunction with the HP Operations Agent or without agents using SiteScope.

HP Operations Agent is a server performance monitoring application that resides on a server and collects detailed information about system metrics related to faults and performance. The agent can take autonomous action if a metric breaches a threshold value, adjusting those values based on actual performance that it tracks over time. HP Operations Agent can send alerts or events to HP Operation Manager i (BSM). HP Operations Agent is designed to provide information about servers used to run critical business applications, enables outage troubleshooting, performance optimization and capacity planning.

The HP Operations Agent is available on the HP Operations Agent v11.12 media DVD.

HP SiteScope is an agentless application monitoring software solution that collects server and application health across physical, virtual and cloud infrastructures - including HP Cloud Services.

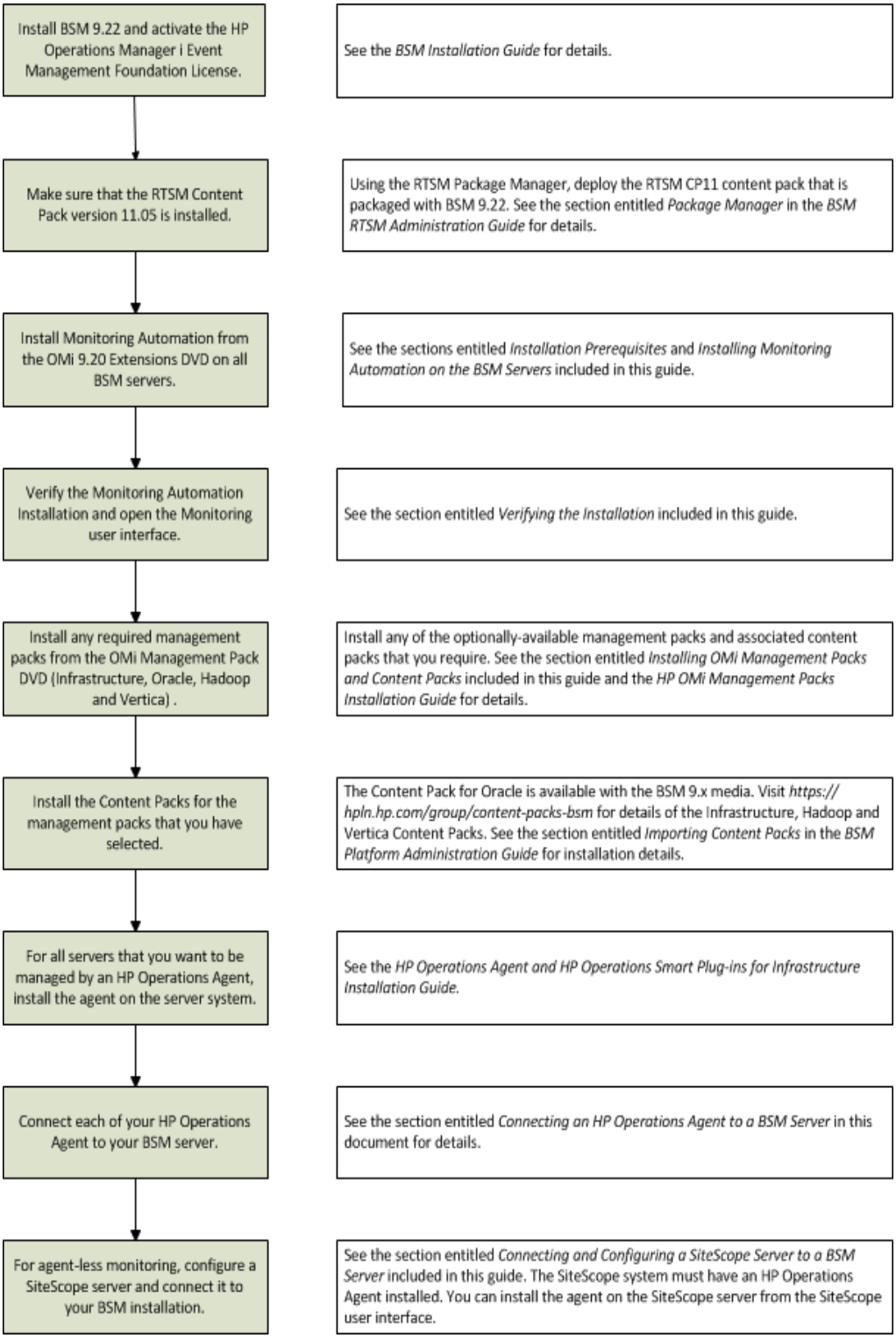
For further details about HP SiteScope, visit:

https://http://www8.hp.com/us/en/software-solutions/software.html?compURI=1174244&jumpid=hpr_r1002_usen_link1#.UZ9QJZz4JrU

Note: The HP Operations Agent and HP SiteScope are separate products with their own license structures.

Installation Workflow

The following diagram highlights the high-level steps required to install the components required for monitoring using Monitoring Automation:



Related Documentation

For more information about Business Service Management and Operations Manager i, you can refer to the following documents:

- Monitoring Automation Release Notes
- HP OMi Management Packs Installation Guide
- Infrastructure Content Pack User Guide
- Hadoop Content Pack User Guide
- Vertica Content Pack User Guide
- HP Operations Agent and HP Operations Smart Plug-ins for Infrastructure Installation Guide
- Operations Manager i Concepts Guide
- BSM Release Notes
- BSM Installation Guide
- BSM Hardening Guide
- BSM Database Guide
- BSM Application Administration Guide
- BSM Platform Administration Guide
- BSM User Guide
- BSM Online Help

Chapter 2

Installation Prerequisites

The following section lists the hardware and software prerequisites for installing Monitoring Automation on Linux and Windows BSM servers.

Hardware Requirements

Monitoring automation requires the same general hardware requirements as a BSM installation for HP Operations Manager i. If you have not already installed HP Business Service Management, refer to the following documents for detailed information:

- BSM Installation Guide
- BSM Hardening Guide

Software Requirements

Before installing Monitoring Automation, the following components must be installed and configured. For information about installing and configuring BSM, see the BSM documentation.

Component	Version
Business Service Management (BSM) with at least the HP Operations Manager i Event Management Foundation License	9.22
RTSM Content Pack version 11.05 or higher. To check that the latest version is installed, go to: **RTSM Administration > Administration > Package Manager > Install Content Pack** Install version 11.x if it is not already installed.	11.05 (included with BSM 9.22)

Supported Monitoring Platforms

The following monitoring platforms are supported with this version of Monitoring Automation:

Platform	Version
HP Operations Agent – for agent-based monitoring.	11.12 or higher
HP SiteScope – for agentless monitoring. The SiteScope server must be installed on a different system to the BSM/OMi server system.	11.22 or higher
HP ArcSight Logger – if you are using the ArcSight integration.	5.30 or higher

Manually Creating Monitoring Automation Databases (Optional)

You can manually create BSM databases for the storage of data collected by BSM from a system where BSM is installed . For details, see the section appropriate to your database application in the *HP Business Service Management Database Guide*:

- **Microsoft SQL Server:** *Manually Creating the HP Business Service Management Microsoft SQL Server Databases*
- **Oracle Database:** *Creating BSM Schemas Manually*

If you are manually creating the BSM databases and objects, you must create:

- **Databases** — see *Creating Databases* in the *BSM Database Guide*.
- **Objects** — see *Creating the Objects* in the *BSM Database Guide*.

The objects are created using creation scripts. For example, the Event database SQL script is used to create the event-related objects in the Event database. The Monitoring Automation database SQL script is used to create the Monitoring Automation objects in the Event database. The **opr-schema-script-generator** tool is used to generate these scripts.

Creating the Event Database SQL Script

Note: If you have already created the BSM databases and only need to create the Monitoring Automation database, omit this step and go to "Creating the Monitoring Automation Database SQL Script" on next page.

To create the Event database SQL script, enter the following command appropriate for your database application and operating system:

- **Microsoft SQL Server on UNIX:**

```
<BSM Install Directory>/opr/bin/opr-schema-script-generator.sh -d
SQL -o <Event_Script_OutputFile>
```

- **Microsoft SQL Server on Windows:**

```
<BSM Install Directory>\opr\bin\opr-schema-script-generator.bat -d
SQL -o <Event_Script_OutputFile>
```

- **Oracle Database on UNIX:**

```
<BSM Install Directory>/opr/bin/opr-schema-script-generator.sh -d
Oracle -o <Event_Script_OutputFile>
```

- **Oracle Database on Windows:**

```
<BSM Install Directory>\opr\bin\opr-schema-script-generator.bat -d
Oracle -o <Event_Script_OutputFile>
```

Creating the Monitoring Automation Database SQL Script

Note: You require the following information before you can create the Monitoring Automation Database SQL script.

- Name of the database host system
- Name of the Event database
- Database user name
- Database user password
- Database port number

If you have already created the BSM databases and want to manually create the database for Monitoring Automation using the Monitoring Automation database SQL script use the following command appropriate for your database application and operating system:

- **Microsoft SQL Server on UNIX:**

  ```
  <BSM Install Directory>/opr/bin/opr-schema-script-generator.sh –d
  SQL -maOnly -hn <hostname> -dbn <Event database name> -u <user name>
  -pw <password> -p <port number> -o <MA_Script_OutputFile>
  ```

- **Microsoft SQL Server on Windows:**

  ```
  <BSM Install Directory>\opr\bin\opr-schema-script-generator.bat –d
  SQL -maOnly -hn <hostname> -dbn <Event database name> -u <user name>
  -pw <password> -p <port number> -o <MA_Script_OutputFile>
  ```

- **Oracle Database on UNIX:**

  ```
  <BSM Install Directory>/opr/bin/opr-schema-script-generator.sh –d
  Oracle -maOnly -hn <hostname> -dbn <Event database name> -u <user
  name> -pw <password> -p <port number> -o <MA_Script_OutputFile>
  ```

- **Oracle Database on Windows:**

  ```
  <BSM Install Directory>\opr\bin\opr-schema-script-generator.bat –d
  Oracle -maOnly -hn <hostname> -dbn <Event database name> -u <user
  name> -pw <password> -p <port number> -o <MA_Script_OutputFile>
  ```

opr-schema-script-generator Manager Command-Line Interface

This section describes the options and parameters available in the **opr-schema-script-generator** command-line interface.

```
opr-schema-script-generator -d <Oracle | SQL> [-c <ranges> | -maOnly -
hn <host name> -dbn <Event database name> -u <user name> -pw
<password> [-s <sid>] -p <port number>] -o <outputFile>
```

The following table gives more information about the arguments recognized by the **opr-schema-script-generator** command:

Option	Description
-c,--customer <{RANGE}[, {RANGE}, ...]>	*(SAAS environments only)* A {RANGE} is either an INTEGER or a range between two INTEGERS in the form "INTEGER '-' INTEGER" whereas INTEGER must be greater than 1
-d,--databaseType <{Oracle | SQL}>	Selects the database type for which the SQL script is generated. Possible values are: Oracle or SQL
-dbn,--databaseName <Event database name>	Name of the Event database
-h,--help	Print help
-hn,--hostName <host name>	Name of the database host system
-maO,--maOnly	Adds only the Monitoring Automation tables to the generated SQL script
-o,--outputFile <file name>	Name and path of the file to store the SQL script
-p,--port <port number>	Database port
-pw,--password <password>	Password of the database user account
-s,--sid <sid>	*(Oracle Database only)* SID of the Oracle database
-u,--user <user name>	User name of the database

Chapter 4

Installing and Configuring Monitoring Automation on the BSM Servers

You can use the appropriate Monitoring Automation package to install Monitoring Automation on a Windows or Linux BSM server. If you have a distributed BSM installation, you must execute the installation and configuration steps on all BSM Data Processing Servers and Gateway Servers.

Note: Alternatively, you can install Monitoring Automation silently. For details, see "Silently Installing and Configuring Monitoring Automation on the BSM Servers" on page 25.

To install Monitoring Automation on a BSM server, follow these steps:

1. Stop the BSM server:
   - **Windows:** Select **Start > Programs > HP Business Service Management > Administration > Disable Business Service Management**
   - **Linux:** `/opt/HP/BSM/scripts/run_hpbsm stop`
2. From the the OMi Extensions DVD, run the Monitoring Automation installer appropriate for your operating system:
   - **Windows:** `\MonitoringAutomation\Windows\HPOprMA_setup.exe`
   - **Linux:** `/MonitoringAutomation/Linux/HPOprMA_setup.bin`
3. Follow the install wizard instructions to install Monitoring Automation.

   A message appears stating that the installation completed successfully.

   Links to the installation log files are displayed in the last pane of the installation wizard. Any warnings or errors are displayed on additional tab in the last pane.
4. Launch the Setup and Database Configuration utility as follows:
   - **Windows:** Select **Start > Programs > HP Business Service Management > Administration > Configure HP Business Service Management**.
   - **Linux:** On the BSM server system, open a terminal command line and enter the command:

     /opt/HP/BSM/bin/config-server-wizard.sh
5. Start the BSM server:

   Note: When enabling a distributed environment, first enable the Data Processing Server and then enable the Gateway Server.

   - **Windows:** Select **Start > Programs > HP Business Service Management > Administration > Enable Business Service Management**
   - **Linux:** `/opt/HP/BSM/scripts/run_hpbsm start`

6. Enable **Monitoring Automation** in the server deployment page.
7. Repeat for all other BSM servers.

Chapter 5

Verifying the Installation and Using Monitoring Automation

This section describes the procedures required to verify the installation of Monitoring Automation on Linux and Windows BSM servers:

- "Verifying the Monitoring Automation Installation" below
- "Using Monitoring Automation" below

Verifying the Monitoring Automation Installation

To verify whether the Monitoring Automation installation is successful, you can check the Monitoring Automation log files at the following locations. The log files are available in both .txt and .html formats.

`%temp%\HPOvInstaller\HPOprMA_<version>\*`

For example:

Windows: `C:\Windows\Temp\HPOvInstaller\HPOprMA_<version>\HPOprMA_<version>_<date>_HPOvInstallerLog.*`

Linux: `/tmp/HPOvInstaller/HPOprMA_<version>/HPOprMA_<version>_<date>_HPOvInstallerLog.*`

Using Monitoring Automation

To access the Monitoring Automation, from the BSM user interface select:

Admin > Operations Management > Monitoring

To use the Monitored Nodes screen to organize and manage monitored nodes, which are devices in your IT Infrastructure that are monitored by an HPOM Agent or SiteScope, go to:

Admin > Operations Management > Setup > Monitored Nodes

To configure Monitoring Automation Infrastructure Settings, go to:

Admin > Platform > Setup and Maintenance > Infrastructure Settings

Select Applications and use the list to set the administration context to Monitoring Automation.

Chapter 6

Installing OMi Management Packs and Content Packs (Optional)

If you want to use any of the optionally-available management packs and associated content packs, which provide the essential management templates, aspects and content to automatically monitor the following systems and applications, install them now from:

- **Management Packs for HP Operations Manager i**

  The management packs for Infrastructure, Oracle Database, Hadoop and Vertica are available from HP OMi Management Packs DVD.

  See the *HP OMi Management Packs Installation Guide* for details.

- **Content Pack for Oracle Database**

  Available from the BSM 9.x media.

- **Content Pack for Infrastructure, Hadoop and Vertica**

  For details of the Infrastructure, Hadoop and Vertica Content Packs and instructions on how to download them, visit:

  https://hpln.hp.com/group/content-packs-bsm

  See the section entitled *Importing Content Packs* in the *BSM Platform Administration Guide* for content pack installation instructions.

Note: The OMi Management Packs are licensed separately.

Chapter 7

Connecting an HP Operations Agent to a BSM Server

To connect an agent-monitored system to Monitoring Automation in BSM Operations Management, you must first ensure that the HP Operations Agent is installed on that system, connect the agent to BSM, and grant the required certificates.

Tip: Include agent installation in your virtual machine cloning, in your general software distribution process, or use a distribution tool, such as SCP, for remote installation.

For details, refer to the HP Operations Agent documentation.

Note: The HP Operations Agent is licensed separately.

To connect an HP Operations Agent to a BSM server install HP Monitoring Automation on a Windows server, follow these steps:

1. Log on to your systems where the HP Operations Agent is installed.

   For information about installing the HP Operations Agent, see *HP Operations Agent and HP Operations Smart Plug-ins for Infrastructure Installation and Configuration Guide*. In particular, refer to the sections:

   - *Installing the Agent in the Inactive Mode* (for example, for pre-installation in a virtual machine image).
   - *Installing HP Operations Agent Using HP Server Automation* or `Installing HP Operations Agent using Microsoft System Center 2012 Configuration Manager` to deploy the Agent.

2. Navigate to the following location:

   - **Windows:** *<%OvInstallDir%>*`/bin/win64/OpC/install`

     Default: `C:\Program Files\HP\HP BTO Software\bin\win64\OpC\install`

   - **Linux:** `/opt/OV/bin/OpC/install/`

3. Run the following script in a command-line window:

   `cscript opcactivate.vbs -srv <OMi_Gateway_Server>`

4. In the BSM user interface under **Operations Management > Setup > Certificate Requests**, accept the new certificate request. For details, see the Operations Manager online help.

   Tip: You can grant certificates automatically using pre-configured IP ranges or a groovy script.

5. Check BBC communication in both directions using the command:

   bbcutil -ping *<FQHN>*

Chapter 8

Connecting and Configuring a SiteScope Server to a BSM Server

To connect a SiteScope server, set it up as a connected server and complete the following sections:

- "Prerequisite Tasks" below
- "Configuring the HP Operations Agent on the SiteScope System" on next page

Note: If you are using more than one SiteScope server and want to use advanced features for balancing between these servers (for example, based on license points or number of monitors), you have to additionally setup the SiteScope server in the System Availability Management section of BSM. SAM is licensed separately.

Prerequisite Tasks

Before you can monitor a configuration item (CI) with SiteScope, you must complete the following steps:

1. Install and configure the HP Operations Agent on the SiteScope system:
   a. Install the HP Operations Agent on the SiteScope system. For details, see the HP SiteScope Deployment Guide.
   b. Connect the HP Operations Agent to BSM (in SiteScope, navigate to **Preferences > Integration Preferences > New Integration > HP Operations Manager Integration**). To establish the connection, the HP Operations Agent sends a certificate request to BSM, which must be granted in BSM. For details, see the SiteScope documentation.
2. Prepare the HP Operations Agent on the SiteScope system for deployment:
   a. Configure the HP Operations Agent with the SiteScope user credentials. The SiteScope user credentials are required for the deployment of SiteScope policy templates.
   b. Configure the HP Operations Agent on the SiteScope system to accept the BSM server as an authorized manager.

   For details, see "Configuring the HP Operations Agent on the SiteScope System" on next page.
3. Set up the SiteScope system as a connected server in Operations Management.

   For details, see "Connected Servers" in the BSM Application Administration Guide.
4. Verify that a node CI has been created for the SiteScope system. Check this under:

   Admin > Operations Management > Setup > Monitored Nodes

5. Make sure the systems that SiteScope monitors are represented as node CIs in the RTSM. Check this under:

   Admin > Operations Management > Setup > Monitored Nodes

   If they are not, you must manually add them.

6. Configure templates in SiteScope and import them. For import instructions, see *Importing HP SiteScope Templates* in the *Monitoring* section of the BSM OLH.

   Note:

   - You cannot create SiteScope policy templates in Operations Management.
   - After the import, you can edit only the general properties of SiteScope policy templates; the data part is read only.

Configuring the HP Operations Agent on the SiteScope System

Complete the following steps to configure the HP Operations Agent on the HP SiteScope system:

1. Update the HP SiteScope configuration component `sisconfig` included with HP SiteScope 11.22 with the version provided with Monitoring Automation as follows:

   a. On the BSM server system where Monitoring Automation is installed, navigate to:

      `<BSM Installation Directory>/opr/subagents/sitescope`

      For example:

      Windows: `C:\HPBSM\opr\subagents\sitescope`

      Linux: `/opt/HP/BSM/opr/subagents/sitescope/`

   b. Extract `oprsisconnector.jar` from the `sisinstall-<version>.zip` file.

   c. Copy the `oprsisconnector.jar` file to a temporary location on the HP SiteScope system.

   d. On the HP SiteScope server, stop the configuration component `sisconfig` with the command:

      ovc -stop sisconfig

   e. Replace the `oprsisconnector.jar` file with the new version you copied from the BSM system to the following location:

      Windows: `%OvInstallDir%/java/`

      Linux: `/opt/OV/java/`

   f. Restart the configuration component `sisconfig` with the command:

      ovc -start sisconfig

2. Configure the agent with the SiteScope user credentials:

a. On the SiteScope system, run the following command-line tool:

Windows: **%OvInstallDir%\lbin\sisconfig\sisSetCredentials.bat**

UNIX or Linux: **/opt/OV/lbin/sisconfig/sisSetCredentials.sh**

b. The tool prompts you for the following information:

SiteScope login: The user name of an SiteScope user (default: `admin`).

SiteScope password: The password of the SiteScope user (default: `admin`).

SiteScope port: The port of the SiteScope server (default: `8080`).

c. *Optional.* After the tool has completed, verify the credentials by entering the command:

ovconfget opr.sisconfig

3. Configure the `MANAGER_ID` on the SiteScope system. The `MANAGER_ID` defines who is allowed to access the agent from outside.

a. To find the value of the `core ID`, on the BSM Gateway Server system, enter the command:

ovcoreid -ovrg server

b. On the SiteScope system, set the `MANAGER_ID` to the `core ID` of the BSM Gateway Server:

ovconfchg -ns sec.core.auth -set MANAGER_ID *<core ID of BSM Gateway Server>*

c. Restart the agent processes with the command:

ovc -restart

d. *Optional.* Verify the `MANAGER_ID` with the command:

ovconfget sec.core.auth

Chapter 9

Uninstalling Monitoring Automation on the BSM Servers

To uninstall Monitoring Automation from a Windows or Linux BSM server, follow the steps appropriate for your operating system. If you have a distributed BSM installation, you must execute the uninstallation steps on all BSM Data Processing Servers and Gateway Servers.

Uninstalling Monitoring Automation on Windows BSM Servers

To uninstall Monitoring Automation from a Windows server, follow these steps:

1. Go to **Start > Control Panel > Uninstall a Program/Programs and Features** .
2. Right-click the **HP Monitoring Automation** entry and select **Uninstall**.
3. Follow the wizard instructions to uninstall HP Monitoring Automation from the selected BSM server.

   A message appears stating that the uninstallation completed successfully.
4. Repeat for all other BSM servers.

Uninstalling Monitoring Automation on Linux BSM Servers

To uninstall Monitoring Automation from a Linux server, follow these steps:

1. Log on as **root** user.
2. To start the uninstallation, type the following command:

   /opt/OV/Uninstall/HPOprMA/setup.bin

   A message appears stating that the uninstallation completed successfully.
3. Repeat for all other BSM servers.

Appendix A

Silently Installing and Configuring Monitoring Automation on the BSM Servers

To install Business Service Management silently, follow these steps:

1. Run the Business Service Management installation wizard silently by running the installation file from the command line with the **-i silent** parameter.

   For more information about silent installation, see the silent installation instructions in the BSM Installation Guide.

2. Edit the response file that was used to install BSM silently and make the following changes:

   Add Business Service Management to the deployment section to enable the Business Service Management component, for example:

```
<deployment>
   <!--Configure your HP Business Service Management server
   deployment-->
   <property key="OMiCore" value="ON"/>
   <property key="Users" value="Small"/>
   <property key="MetricData" value="Small"/>
   <property key="Monitoring Automation" value="ON"/>
   <property key="Model" value="Small"/>
   <property key="CustomRules" value="ON"/>
   <property key="Core" value="Small"/>
   <property key="TBEC" value="ON"/>
   <property key="OMI" value="Small"/>
</deployment>
```

3. Run the BSM Setup and Database Configuration Utility silently as described in the silent installation instructions in the BSM Installation Guide.