HP OMi Management Pack for Infrastructure

Software Version: 1.10
HP Operations Manager i for Linux and Windows® operating systems

Installation Guide

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Chapter 1: Introduction

The HP OMi Management Pack for Infrastructure (OMi MP for Infrastructure) works with HP Operation Managers i (OMi) and enables you to monitor the various systems operating in a data center environment. It includes Indicators - Health Indicators (HIs), Event Type Indicators (ETIs) and Correlation Rules that analyze and categorize the events occurring in the systems and report the health status of the systems. It also includes Management Templates for monitoring the availability, health, and performance of individual systems, clusters, and virtual nodes.

The OMi MP for Infrastructure includes the following components for monitoring the health and status of the systems in a data center environment:

- Infrastructure Management Templates

- Infrastructure Aspects and Policy Templates

- Parameters

- Configuration Items (CIs) and Configuration Item Types (CITs)

- Run-Time Service Model (RTSM) Views

- Health Indicators (HIs) and Event Type Indicators (ETIs)

- Topology Based Event Correlation (TBEC) Rules

- Operations Orchestration Flows

- Tools

- Graph Templates

> **Note:** For more information about the components, see the *OMi Management Pack for Infrastructure Online Help or User Guide*.

Abbreviations Used in this Manual

Abbreviations	Expansion
BSM	Business Service Management
OMi	HP Operations Manager i
RTSM	Run-time Service Model

Abbreviations	Expansion
BSM DPS	BSM Data Processing Server
BSM GWS	BSM Gateway Server
OMi MP	HP OMi Management Pack
OMi MP for Infrastructure	HP OMi Management Pack for Infrastructure

Related Documentation

For more information about BSM and Monitoring Automation, see documentation for *Business Service Management*.

For more information about OMi, see documentation for *Operations Manager i*.

For more information about OMi MP for Infrastructure, see the following documents:

- OMi MP for Infrastructure - *Release Notes*

- OMi MP for Infrastructure - *User Guide*

Licensing

No separate license is required for OMi MP for Infrastructure. For information about licensing options for Monitoring Automation, see the section Monitoring Automation License Options in the *Monitoring Automation Installation Guide*.

Chapter 2: Installing OMi MP for Infrastructure

This section provides information about installing OMi MP for Infrastructure on BSM 9.2x or OMi 10.x (Linux or Windows) Servers.

Installation Media

The following section provides information about the installation media for OMi MP for Infrastructure. The OMi MP for Infrastructure is available in the OMi MP for Infrastructure DVD (MPDVD) and also through electronic media (e-media). The MPDVD and e-media are available for English and Non-English locale environments. You can use the appropriate installation media based on your locale requirements.

The OMi MP for Infrastructure DVD and e-media contains the software and the product documentation. In a distributed environment, it must be installed on all BSM or OMi Data Processing Servers (DPS) and BSM or OMi Gateway Servers (GWS).

The following table provides information about the documentation available in the MPDVD and the e-media:

Document	Location	Purpose
Online Help	Available in the BSM 9.2x console **Help** menu. From the BSM console, go to **Help > BSM Help > Application Administration > Operations Management > OMi Management Pack for Infrastructure** Available in the OMi 10.x console ? menu. From the OMi console, go to ? **> General Help > Administration Guide > Management Packs > OMi Management Pack for Infrastructure**.	To provide information about the following: • Using Management Templates • Using Aspects and Policy Templates • Using Indicators - HIs, ETIs, and TBEC Rules
Installation Guide	<MPDVD>\DOCUMENTATION\en	
User Guide	<MPDVD>\DOCUMENTATION\en	
Release Notes	<MPDVD>\DOCUMENTATION\en	To provide information about the following: • Salient Features • Installation Notes

Installation Prerequisites

The following section lists the software prerequisites for installing OMi MP for Infrastructure on the BSM and OMi (Linux and Windows) Servers.

Software Requirements

Before installing OMi MP for Infrastructure 1.10, the following components must be installed and configured on the BSM 9.2x or OMi 10.x Servers.

Component	Version
BSM	9.23 or higher *
HP Operations Manager i	9.23 or higher *
HP Monitoring Automation	9.23 or higher *

Note: For large scale environments, it is recommended to use BSM 9.24 or higher.

Managed Node

Component	Version
Operations Agent	11.12 or higher *

* See the Support Matrix for latest versions supported.

Installation Checklist

Ensure that the installation tasks described in the following table are completed in the specified order to enable you to monitor OMi MP for Infrastructure.

If you have already installed OMi 10.x, skip to Task 6.

Server

Serial	Task	Reference
1	Check the Installation Prerequisites for BSM	See the chapter *General Prerequisites* in the *BSM Installation Guide*.
2	Install BSM version 9.20 and the BSM 9.23 or higher Service Pack	See the chapters *Install BSM 9.20* and *Install the latest BSM 9.2x Minor Minor Release and Patch* in the *BSM Installation Guide*.

Serial	Task	Reference
3	Install Monitoring Automation version 9.23 or higher	See the chapters *Installation Prerequisites* and *Installing and Configuring Monitoring Automation on BSM servers* in the *Monitoring Automation for HP Operations Manager i Installation Guide*.
4	Verify the Monitoring Automation installation	See the chapters *Verifying the Monitoring Automation Installation* and *Using Monitoring Automation* in the *Monitoring Automation for HP Operations Manager i Installation Guide*.
5	Install Additional BSM DPS Update	See the section "Installing Additional BSM DPS Update on BSM 9.23".
6	Clean up OMi MP for Infrastructure version 1.00	If OMi MP for Infrastructure version 1.00 is already installed, see *Removing OMi MP for Infrastructure version 1.00* in the *OMi Management Pack for Infrastructure 1.10 Installation Guide*.
7	Migrating from OMi MP for Infrastructure version 1.00 to 1.10	If OMi MP for Infrastructure version 1.00 is already installed, see the section "Migrating from OMi MP for Infrastructure version 1.00 to version 1.10".
8	Install OMi MP for Infrastructure version 1.10	See the section "Installing OMi Management Pack for Infrastructure version 1.10 on BSM or OMi".

Managed Node

Task	Reference
Install HP Operations Agent 11.12	See the chapter *Installing HP Operations Agent 11.12* in the *HP Operations Agent and HP Operations Smart Plug-ins for Infrastructure Installation Guide*.

Migrating from OMi MP for Infrastructure version 1.00 to version 1.10

Before installing OMi MP for Infrastructure version 1.10, OMi MP for Infrastructure version 1.00 must be removed. The following section provides information about removing OMi MP for Infrastructure version 1.00. These steps are required only for OMi MP for Infrastructure version 1.00 and will not be required for future versions.

To remove OMi MP for Infrastructure version 1.00, you must follow these tasks:

Task 1: Remove the Assignments of Infrastructure Management Templates or Aspects

To remove the assignments of Infrastructure Management Templates or Aspects, follow these steps:

1. Open the Management Templates & Aspects pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Assignments & Tuning**.

   On OMi 10.x, click **Administration > Monitoring Assignments & Tuning**.

2. In the **Browse Views** tab, select the **HACluster_Infrastructure, Sol_Zones_Infrastructure,** or **Systems_Infrastructure** View to see the CIs associated with the View.

3. Delete the Infrastructure Management Templates or Infrastructure Aspects assigned to each CI.

Task 2: Remove the failed deployment jobs

If there are any failed deployment jobs, you must remove them by following these steps:

1. Open the Deployment Jobs pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Deployment Jobs**.

   On OMi 10.x, click **Administration > Monitoring > Deployment Jobs**.

2. Select the failed deployment job and click ✖.

Task 3: Remove references to Infrastructure Aspects

If Infrastructure Aspects are used by user-created Management Templates or Aspects, you can remove the references by editing the user-created Management Template or Aspects and remove the Infrastructure Aspects.

You can remove the Infrastructure Aspects that are nested into another Aspect, by editing the user created Aspect.

1. Open the Management Templates & Aspects pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Management Templates & Aspects pane, edit the user created Management Templates or Infrastructure Aspects that are referenced.

> **Note:** By default the OMi Management Packs have references to Infrastructure Aspects. You can edit them to remove references to Infrastructure Aspects which creates new versions. You must remove the earlier versions of Management Templates which are having references to Infrastructure Aspects.

> **Note:** If you do not have **Monitoring Automation for Composite Applications** license, you will not be able to access the Management Templates. In this case, you can select the empty folders of the Management Templates and delete them. Delete the following folders if available:
>
> - Oracle Management Templates
>
> - Vertica Management Templates
>
> - Hadoop Management Templates

Task 4: Remove Infrastructure Management folder and sub folders

To remove the Infrastructure Management folder and sub folders, follow these steps:

1. Open the Management Templates & Aspects pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane, click **Configuration Folders > Infrastructure Management**.

3. Right-click and delete the Infrastructure Management folder.

> **Note:** If deleting the Infrastructure Management folder results in any error then there are some assignments or references still existing. Examples of error messages and actions required are mentioned below:
>
> Example 1) If any of the OMi MP for Infrastructure Aspects or Management Templates are assigned to any CI:
>
> ```
> Cannot delete aspect version "CPU Performance 1.0" (ID: 40571dce-c92a-9923-7db0-
> 25eb3595a13d), as it is still assigned to CI "<name of the CI>" (ID:
> 337244a5137b2bfc8588508a9ea45ca9).
> ```
>
> To remove the assignments of Infrastructure Aspects or Management Templates, go to "Task 1: Remove the Assignments of Infrastructure Management Templates or Aspects".
>
> Example 2) If any of the OMi MP for Infrastructure Aspects are being referenced by other Aspects or Management Templates:

```
Cannot delete aspect version "Bandwidth Utilization and Network IOPS 1.0" (ID:
f09f8a2f-320b-bdf9-e016-2600d08bd36a), as it belongs to management template
version "Essential Hadoop Management Template 1.0" (ID: f21deb26-1ddf-8e6b-ecb4-
ac331db4c963).
```

To remove the Infrastructure Aspect references, go to "Task 3: Remove references to Infrastructure Aspects".

Perform these steps till you delete the Infrastructure Management folder successfully.

Task 5: Run the Clean up script to remove the components of OMi MP for Infrastructure version 1.00

Tip: Ensure **Infrastructure Management** folder is deleted before proceeding with the below steps.

To clean up OMi MP for Infrastructure version 1.00, follow these steps:

Note: In a BSM 9.2x or OMi 10.x distributed environment, you must perform these steps on the BSM 9.2x or OMi 10.x DPS only.

1. Mount OMi MP for Infrastructure 1.10 DVD.

2. Go to `<DVD folder>\cleanMP1.0`

3. Run the following script to clean up the OMi MP for Infrastructure components:

    Linux: `./cleanMP.sh Infra <BSMUsername> <BSMPassword>`

    Windows: `cleanMP.bat Infra <BSMUsername> <BSMPassword>`

Task 6: Verify the Clean up

To verify the clean up, follow these steps:

1. Open the Policy Templates pane:

    On BSM 9.2x, click **Admin > Operations Management > Monitoring > Policy Templates**.

    On OMi 10.x, click **Administration > Monitoring > Policy Templates**.

    In the Policy Template Groups pane, check the folders under **Templates grouped by Type**.

    There should not be any policy templates with names starting with **SI-**, **VI-** or **CI-**, and there should not be a node info policy template called **OPC_PERL_INCLUDE_INSTR_DIR**.

2. Open the Content Packs pane:

On BSM 9.2x, click **Admin > Monitoring > Setup > Content Packs**.

On OMi 10.x, click **Administration > Setup and Maintenance > Content Packs**.

OMi Management Pack for Infrastructure should not appear in the list.

31. Open the Management Templates & Aspects pane:

    On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

    On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**.

    In the Configuration Folders pane, **Configuration Folders > Infrastructure Management**.

    Infrastructure Management folder and its contents should not appear in the list.

Installing Additional BSM DPS Update on BSM 9.23

Before installing OMi MP for Infrastructure, you must install the following additional BSM DPS update on the BSM DPS only. This update is available in the MPDVD.

> **Note:** This additional BSM DPS update is not required for BSM Typical servers.

> **Note:** This update is required only for BSM 9.23 and not for higher versions.

To install the update, follow these steps:

BSM DPS on Linux:

1. To check the version of `opr-config-content-server.war` file, run the following commands:

    cd /opt/HP/BSM/opr/webapps

    /opt/HP/BSM/opr/support/what.sh ./opr-config-content-server.war

    If the version is `09.23.171`, then proceed to the next step else you can skip and go to "Installing OMi Management Pack for Infrastructure version 1.10 on BSM or OMi".

2. To apply the new `.war` file `opr-config-content-server.war`, follow these steps:
   a. Stop the **BSM DPS**.

   b. Backup the existing file `opr-config-content-server.war` using the following command:

      mv ./opr-config-content-server.war ./orig_opr-config-content-server.war

   c. Mount the MPDVD and copy `opr-config-content-server.zip` from `<MPDVD>/MA_ DPS.war/` and place it under `/opt/HP/BSM/Temp`

d. Extract the `.zip` file `opr-config-content-server.zip` under /opt/HP/BSM/Temp

e. Move the extracted `opr-config-content-server.war` file to /opt/HP/BSM/opr/webapps

   `mv /opt/HP/BSM/Temp/opr-config-content-server.war /opt/HP/BSM/opr/webapps`

f. Run the following command:

   `/opt/HP/BSM/opr/bin/oprcfg-configuration.sh -setup omi -noGW`

g. Start **BSM**.

BSM DPS on Windows:

1. To check the version, run the following commands:

   `cd %TOPAZ_HOME%\opr\webapps`

   `cscript %TOPAZ_HOME%\opr\support\what.vbs opr-config-content-server.war`

   If it shows the version as `09.23.171`, then proceed to next step else you can skip the step and go to "Installing OMi Management Pack for Infrastructure version 1.10 on BSM or OMi".

2. To apply the new .war file `opr-config-content-server.war`, follow these steps:
   a. Stop the **BSM DPS**.

   b. Backup the existing file `opr-config-content-server.war`:

      `move opr-config-content-server.war orig_opr-config-content-server.war`

   c. Mount or extract MPDVD and copy the `opr-config-content-server.zip` from `<MPDVD>\MA_DPS.war\` and place it under %TOPAZ_HOME%\Temp

   d. Extract the zip file `opr-config-content-server.zip` under %TOPAZ_HOME%\Temp

   e. Move extracted `opr-config-content-server.war` file from %TOPAZ_HOME%\Temp to %TOPAZ_HOME%\opr\webapps

      `cd %TOPAZ_HOME%\Temp\`

      `move opr-config-content-server.war %TOPAZ_HOME%\opr\webapps`

   f. Run the following commands:

      `cd %TOPAZ_HOME%\opr\bin`

      `cscript /nologo oprcfg-configuration.vbs -setup omi -noGW`

   g. Start **BSM**.

Installing OMi Management Pack for Infrastructure version 1.10 on BSM or OMi

You can use the e-media or MPDVD to install the OMi MP for Infrastructure on BSM or OMi Server (Linux or Windows). The following section provides information about installing the OMi MP for Infrastructure on the BSM 9.2x or OMi 10.x Server.

> **Note:** In a BSM 9.2x or OMi 10.x distributed environment, OMi MP for Infrastructure must be installed on all BSM or OMi Servers - BSM or OMi DPS and BSM or OMi GWS.
> For BSM 9.2x, you must ensure that Monitoring Automation is running before proceeding with the installation. To check the status, log on to BSM console and navigate to **Admin > Setup and Maintenance > Server Deployment** and then check if Monitoring Automation is enabled.

On a Linux BSM 9.2x or OMi 10.x Server

To install the OMi MP for Infrastructure on a Linux BSM 9.2x or OMi 10.x Server, follow these steps:

1. Log on as `root` user.

2. Set the umask by typing the command `umask 022`.

3. Create a directory to mount the DVD or e-media by typing the command `mkdir /<mount_point>`.

   For example: `mkdir /dvdrom`

4. Insert the DVD into the disk drive or you can copy the e-media installation package and mount using the following commands:

   For DVD: `mount /dev/<dvdrom_drive_name> /<mount_point>`

   For e-media: `mount -o loop <e-media> /<mount_point>`

5. Change the directory to `/<mount_point>`.

6. Run the following command:

   `<PATH>/mpinstall.sh -i`

   Based on the locale, you can see the following table and run the command accordingly:

E-media	MP locale same as BSM locale	MP locale different from BSM locale
English e-media	`./mpinstall.sh -i`	`./mpinstall.sh -i`
Non-English e-media	`./mpinstall.sh -i`	`./mpinstall.sh -i -locale <mplocale>`

For example, to install OMi MP for Infrastructure in the Simplified Chinese locale with BSM in a non Simplified Chinese locale, specify the following command:

```
./mpinstall.sh -i -locale zh_CN
```

Note: You can use the following command options:

```
./mpinstall.sh -i [-locale <MP Locale>] [-h|help]
```

`-i` : Install Management Pack.

`-locale`: Locale specific Management Pack to install.

`-h|-help`: Shows the help message.

You can specify the `<mplocale>` as follows:

- `zh_CN`: Simplified Chinese locale

- `ja`: Japanese locale

- `de`: German locale

- `fr`: French locale

- `es`: Spanish locale

- `ko`: Korean locale

- `ru`: Russian locale

Note: For SSL configuration, the installer program for the OMi MP includes the `-ssl` option.

Run the following command:

```
ContentManager.bat -l -verbose -username <BSMUsername> -password <BSMPasssword>
-ssl
```

This command prompts you to accept a certificate. Accept the certificate and run the following command again to install Content Pack:

```
cscript install.vbs -username <BSMUsername> -password <BSMPassword> -ssl
```

`-BSMusername`: The username to upload the OMi Management Packs to the Content Manager.

`-BSMpassword` : The password corresponding to username to upload the OMi Management Packs to Content Manager.

`-ssl`: Use this flag when BSM is configured with SSL.

7. To accept the End User License Agreement (EULA), type **Yes** or **Y** and to decline the license agreement, type **No** or **N**.

> **Note:** If you decline the EULA, the OMi MP for Infrastructure will not be installed.

After the installation is completed, a message appears stating that the installation of HP OMi Management Pack for Infrastructure is completed.

On a Windows BSM 9.2x or OMi 10.x Server

To install the OMi MP for Infrastructure on a Windows BSM 9.2x or OMi 10.x Server, follow these steps:

1. Insert the DVD into the disk drive or you can copy the ZIP file to the BSM or OMi Server and extract it.

2. Open the command prompt, change the directory to <DVD- ROM> or to folder that has the installer script and run the following command:

   `cscript mpinstall.vbs -i`

   Based on the locale, you can see the following table and run the command accordingly:

E-media	MP locale same as BSM locale	MP locale different from BSM locale
English e-media	`cscript mpinstall.vbs -i`	`cscript mpinstall.vbs -i`
Non-English e-media	`cscript /nologo mpinstall.vbs -i`	`cscript /nologo mpinstall.vbs -i -locale <mplocale>`

For example, to install OMi MP for Infrastructure in Simplified Chinese locale with BSM in a non Simplified Chinese locale, specify the following command:

`cscript /nologo mpinstall.vbs -i -locale zh_CN`

> **Note:** You can use the following command options:
>
> `cscript /nologo mpinstall.vbs -i [-locale <MP Locale>] [-h|help]`
>
> `-i`: Install Management Pack.
>
> `-locale` : Locale specific Management Pack to install.

> `-h|-help`: Shows the help message.
>
> You can specify the `<mplocale>` as follows:
>
> - `zh_CN`: Simplified Chinese locale
>
> - `ja`: Japanese locale
>
> - `de`: German locale
>
> - `fr`: French locale
>
> - `es`: Spanish locale
>
> - `ko`: Korean locale
>
> - `ru`: Russian locale

> **Note:** For SSL configuration, the installer program for the OMi Management Packs includes the `-ssl` option.
>
> Run the following command:
>
> ```
> ContentManager.bat -l -verbose -username <BSMUsername> -password
> <BSMPasssword> -ssl
> ```
>
> This command prompts you to accept a certificate. Accept the certificate and run the following command again to install Content Pack:
>
> ```
> cscript install.vbs -username <BSMUsername> -password <BSMPassword> -ssl
> ```
>
> `-BSMusername`: The username to upload the OMi Management Packs to the Content Manager.
>
> `-BSMpassword` : The password corresponding to username to upload the OMi Management Packs to Content Manager.
>
> `-ssl`: Use this flag when BSM is configured with SSL.

3. To accept the End User License Agreement (EULA), type **Yes** or **Y** and to decline the license agreement, type **No** or **N**.

   After the installation is completed, a message appears stating that the installation of HP OMi Management Pack for Infrastructure is completed.

Installing Operations Orchestration (OO) Flows

The OMi MP for Infrastructure is packaged with OO flows that enables IT process automation and run book automation. For more information about OO flows, see the *Operations Orchestration* documentation. The following section provides information about installing OO flows on HP OO Studio (version 9.0x) for OMi MP for Infrastructure.

> **Note:** The OO flows shipped by OMi MP for Infrastructure can only be used in deployment scenarios where the application is monitored by Smart Plug-ins managed by an HP Operations Manager (HPOM) server. In such a case, the OO flows included in OMi MP for Infrastructure can be installed on an OO server and launched through the OMi-OO integration. For more information about the OMi-OO integration, see the *BSM - Operations Orchestrations Integration Guide*.

Uploading OO Flows

To upload OO Flows from OMi MP for Infrastructure, follow these steps:

1. In BSM 9.2x or OMi 10.x, go to the directory:

   On Linux:

   ```
   /opt/HP/BSM/conf/opr/oo
   ```
   On Windows:

   ```
   %TOPAZ_HOME%\conf\opr\oo
   ```

2. Copy **HPOprOOInf90.jar** to a temporary location on a system where HP OO Studio (version 9.0x) is installed.

   - **HPOprOOInf.jar** for Infrastructure

   To install and upload the OO Flows, run the command:

   ```
   java -jar -Xmx1024m "<temp>/HPOprOOInf90" -centralPassword <centralpassword>
   ```

   > **Note:** For more information about installing content, see the section *Installing the content* in the *HP Operations Orchestration Software Development Kit Guide*.

   Using HP OO Studio, you can access the OO flows from the following location:

   ../Library/Operations Management/..

3. Complete the mapping of OO flows to CIs and map the OO flow input variables to CI attributes using:

On BSM 9.2x, click **Admin > Integration > Operations Orchestration.**

On OMi 10.x, click **Administration > Operations Console > Run Books Mapping**.

Verifying the OMi MP for Infrastructure Installation

This section provides information about verifying the installation of OMi MP for Infrastructure on BSM 9.2x or OMi 10.x (Linux and Windows) servers.

You can perform any one of the following checks to verify the OMi MP for Infrastructure installation:

- Check the log files for any errors on (BSM 9.2x or OMi 10.x) GWS, (BSM 9.2x or OMi 10.x) DPS, and (BSM 9.2x or OMi 10.x) typical servers at the following locations:

  For Linux:

  `/opt/HP/BSM/log/mpinstall.log`

  For Windows:

  `%TOPAZ_HOME%\log\mpinstall.log`

  > **Note:** The OMi logs are available on both (BSM 9.2x or OMi 10.x) GWS and (BSM 9.2x or OMi 10.x) DPS at the following location:
  >
  > **Linux:** `/opt/HP/BSM/log/EJBContainer/opr-configserver.log`
  >
  > **Windows:** `%TOPAZ_HOME%\log\EJBContainer\opr-configserver.log`

- Check the following location on BSM 9.2x or OMi 10.x Console:

  - On BSM 9.2x, click **Admin > Operations Management > Setup > Content Packs**.

    The **OMi Management Pack for Infrastructure 1.10** must appear in the Content Pack Definitions pane.

  - On OMi 10.x, click **Administration > Setup and Maintenance > Content Packs**.

    The **OMi Management Pack for Infrastructure 1.10** must appear in the Content Pack Definitions pane.

- To list the OMi MPs installed on the BSM 9.2x or OMi 10.x server, run the following command on BSM 9.2x or OMi 10.x GWS:

  For Linux:

  `/opt/HP/BSM/bin/ContentManager.sh –username <BSMusername> -password <BSMpwd> -l`

  For Windows:

  `%TOPAZ_HOME%\bin\ContentManager.bat –username <BSMusername> -password <BSMpwd> -l`

  The command gives the following output:

  `OMi_Management_Pack_For_Infrastructure (1.10)`

  > **Note:** The `ContentManager.bat or ContentManager.sh` command lists the Content Pack name and version.

- The version number of OMi MP for Infrastructure is 1.10, whereas the version number of Management Templates, Aspects, and Policy Templates is 1.00.

Chapter 3: Getting Started

The following section provides step-by-step instructions on how to get started using OMi MP for Infrastructure:

Task 1: Adding Nodes to the BSM 9.2x or OMi 10.x Console

Note: If the Node already exists in RTSM, you can skip this step and proceed to Task 2.

Before you begin monitoring, you need to add the nodes to the BSM console.

1. Open the Monitored Nodes pane from Administration:

   On BSM 9.2x, click **Admin** > **Operations Management** > **Setup** > **Monitored Nodes**.

   On OMi 10.x, click **Administration > Setup and Maintenance > Monitored Nodes**.

2. In the Node Views pane, click **Predefined Node Filters > Monitored Nodes** and then click ✳
   and then click **Computer > Windows** or **Unix**. The Create New Monitored Nodes dialog box
   appears.

3. Specify the Primary DNS Name, IP address, Operating System, and Processor Architecture of
   the node and click **OK**.

   The newly created node is saved as a CI instance in RTSM.

   Note: The Node with Operations Agent needs to be activated to OMi server and certificate
   needs to be granted.

Task 2: Enabling the Enrichment Rules

You must enable the following enrichment rules to populate the Infrastructure CI's display label with
additional information about container or the hostname:

- **SoftwareElementDisplayLabelForNewHost**

- **SoftwareElementDisplayLabelForExistingHost**

- **SoftwareElementDisplayLabelPopulator**

To enable the Enrichment rules, follow these steps:

1. Open the Enrichment manager pane:

   On BSM 9.2x, click **Admin > RTSM Administration > Modeling > Enrichment manager**.

   On OMi 10.x, click **Administration > RTSM Administration > Modeling > Enrichment manager**.

2. In the Enrichment Rules pane, select **SoftwareElementDisplayLabelForNewHost** from the list.

3. Right-click and select **Properties**. The Enrichment Rule Properties window appears.

4. Click **Next**.

5. Select **Rule is Active**.

6. Click **Finish**.

7. In the Enrichment Rules pane, click 🖫 to save the changes.

8. Select **SoftwareElementDisplayLabelForExistingHost** and repeat steps 3 to 7.

9. Select **SoftwareElementDisplayLabelPopulator** and repeat steps 3 to 7.

Task 3: Deploying the Infrastructure Discovery Aspect

To discover the CIs on the added managed nodes, you must deploy the Discovery aspect.

1. Open the Management Templates & Aspects pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane, click **Configuration Folders > Infrastructure Management**.

3. In the Management Templates and Aspects pane, right-click the respective Infrastructure Discovery Aspect, and then click 🖫 **Assign and Deploy Item**. The Assign and Deploy Wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to deploy the Discovery Aspect and then click **Next**.

5. In the **Required Parameters** tab, all mandatory parameters are listed in the management template that do not have a value.

6. Click **Next**.

7. Click **Value**, specify the value, and then click **OK**. Click **Next**.

8. *(Optional)*. If you do not want to enable the assignment immediately, follow the step:

On BSM 9.2x, clear the **Enable Assigned Objects** check box.

On OMi 10.x, clear the **Enable Assignment(s)** check box.

You can then enable the assignment later using the Assignments & Tuning pane.

9. Click **Finish**.

> **Note:**
>
> - After the Infrastructure Discovery Aspect is deployed, a message stating the `Assignment and deployment jobs created` appears. To check the status of the deployment job, go to the following location:
>
>   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Deployment Jobs**.
>
>   On OMi 10.x, click **Administration > Monitoring > Deployment Jobs**.
>
> - For monitoring VMware vSphere virtualization, IBM Power, and Oracle Solaris zones environment, refer to Monitoring using OMi MP for Infrastructure.

Task 4: Verifying the Discovery

After you deploy the Infrastructure Discovery Aspect, you must verify if the CIs are populated in the Top view. To view the CIs populated in the Browse Views, follow these steps:

1. Open the Event Perspective pane:

   On BSM 9.2x, click **Applications > Operations Management > Event Perspective**.

   On OMi 10.x, click **Workspaces > Operations Console > Event Perspective**.

2. In the Browse Views pane, select the **HACluster_Infrastructure, Sol_Zones_Infrastructure,** or **Systems_Infrastructure** view.

   The CIs are populated in the Browse Views tab.

Data Collection

Frequency (polling interval) at which each Aspect must be monitored is predefined with a default value in a specific frequency parameter. Frequency parameter is an expert parameter that is defined for each of the metrics regardless of whether they are for generating events or not.

Following are the four predefined frequency parameters:

Parameter	Frequency
Very High	5 mins
High	15 mins
Medium	1 hour
Low	24 hours

After Management Templates and Aspects are deployed, the collector is triggered based on the predefined frequency parameter in a specific Aspect. You can modify the default value of the parameter at following two levels:

- During deployment of the Management Template or Aspects using the Management Templates & Aspects pane.

- After deployment using the Assignments & Tuning pane.

For more information about how to modify the parameter values, see section *Tuning Parameters in the OMi MP for Infrastructure User Guide*.

Task 5: Deploying the Infrastructure Management Templates or Infrastructure Discovery Aspects

If you are using **Monitoring Automation for Composite Applications** license, you can either deploy the Infrastructure Management Templates or Infrastructure Aspects to the CIs. For more information about deploying the Infrastructure Management Template, see Task 5a: Identifying and Deploying Infrastructure Management Template.

If you are using **Monitoring Automation for Servers** license, you can deploy the Infrastructure Aspects. For more information about deploying the Infrastructure Aspects, see Task 5b: Deploying Infrastructure Aspects.

Task 5a: Identifying and Deploying Infrastructure Management Template

You **must** deploy the Infrastructure Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM and so on. For more information on deploying the Discovery Aspect, see Task 3: Deploying the Infrastructure Discovery Aspect.

To deploy the Infrastructure Management Templates to the CIs, follow these steps:

1. Open the Management Templates & Aspects pane:

   On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**

   On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**

2. In the Configuration Folders pane, click **Configuration Folders > Infrastructure Management > Infrastructure Management Templates**

3. In the Management Templates & Aspects pane, click the Management Template that you want to deploy, and then click ✈ **Assign and Deploy Item**. The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Management Template, and then click **Next**.

5. In the **Required Parameters** tab, all mandatory parameters are listed in the management template that do not have a value.

   > **Note:** In the **All Parameters** tab on BSM 9.2x or **Parameter Summary** tab on OMi 10.x, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click 🎓 **Show Expert Parameters**.

6. Click **Value**, specify the value, and then click **OK**. Click **Next**.

7. *(Optional)*. If you do not want to enable the assignment immediately, follow the step:

   On BSM 9.2x, clear the **Enable Assigned Objects** check box.

   On OMi 10.x, clear the **Enable Assignment(s)** check box.

   You can then enable the assignment later using the Assignments & Tuning pane.

8. Click **Finish**.

> **Note:** Monitoring configurations in Operations Management are not automatically updated with the versions of policy templates, management templates, and aspects uploaded with the Management Pack. To update the versions, you can use the **Update to Latest** feature. For more information, see the *Configuring Management Templates* topic in the *BSM Online Help*.

For detailed information about monitoring the Infrastructure resources using OMi MP for Infrastructure, see the *OMi Management Pack for Infrastructure Online Help or the User Guide.*

Task 5b: Deploying Infrastructure Aspects

You **must** deploy the Infrastructure Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM, and so on. For more information on deploying the Discovery Aspect, see Task 3: Deploying the Infrastructure Discovery Aspect.

> **Note:** If you are using **Monitoring Automation for Composite Applications** license and have assigned the Infrastructure Management Templates to the CI, you can skip this task.

1. Open the Management Templates & Aspects pane:

    On BSM 9.2x, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

    On OMi 10.x, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane, select **Configuration Folders** > **Infrastructure Management**.

3. In the Management Templates & Aspects pane, select the Aspect you want to deploy, and then click **Assign and Deploy Item**. The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, select the CI to which you want to assign the Aspect and then click **Next**.

5. In the **Required Parameters** tab, all mandatory parameters are listed in the management template that do not have a value.

6. *(Optional)*. If you do not want to enable the assignment immediately, follow the step:

    On BSM 9.2x, clear the **Enable Assigned Objects** check box.

    On OMi 10.x, clear the **Enable Assignment(s)** check box.

    You can then enable the assignment later using the Assignments & Tuning pane.

7. Click **Finish**.

Chapter 4: Monitoring using OMi MP for Infrastructure

Monitoring VMware vSphere virtualization environment using HP Operations Agent Virtual Appliance

The following checklist summarizes the tasks you must complete before you start monitoring using OMi MP for Infrastructure**:**

Complete (Y/N)	Tasks
	Make sure you have set up the HP Operations Agent virtual appliance for VMware vSphere monitoring.
	Verify if HP Operations Agent is collecting LOGICAL class of data using the following commands: • `/opt/OV/bin/ovcodautil -obj` • `/opt/OV/bin/ovcodautil -dumpds SCOPE | grep BYLS` You will get the value of `BYLS_*` metric as the output.
	Make sure HP Operations Agent virtual appliance node is added to the BSM console. See the section Connecting an HP Operations Agent to a BSM Server in the *Monitoring Automation for HP Operations Manager i Installation Guide*.
	Verify if OMi MP for Infrastructure is installed on both Gateway and DPS. See the section "Installation Media" for more details.
	Deploy **Virtual Infrastructure Discovery Aspect** on HP Operations Agent virtual appliance node. Make sure that all the CIs and relations are synced to the RTSM before you start the configuration tasks.
	Make sure **hp_operations_agent** CI which belongs to HP Operations Agent virtual appliance node should have the special attribute **Proxy_role** updated with value **"VA"**. This is important in identifying virtual appliance node among all other node CIs.
	Verify if **VA_Infrastructure** view is populated with CIs and relations. **Is_Data_Collector** relation is created between hp_operations_agent CI and VM or ESX servers/vCenter which is used for deployment of aspects on VMs and ESX server.

Monitoring IBM Power virtualization environment

The following checklist summarizes the tasks you must complete before you start monitoring IBM Power virtualization environment using OMi MP for Infrastructure

Complete (Y/N)	Tasks
	Make sure you have identified a monitoring LPAR within a frame.
	Verify if the monitoring LPAR is collecting LOGICAL class of data using the following commands: • `/usr/lpp/OV/bin/ovcodautil -obj` • `/usr/lpp/bin/ovcodautil -dumpds SCOPE | grep BYLS` You will get the value of BYLS_* metric as the output. If you want to monitor AIX frame where all the monitored LPARs reside, see the section Configuring Data Collection for Frames in the *HP Operations Agent User Guide*. Verify if the Frame data is getting collected using the following command: `/usr/lpp/OV/bin/ovcodautil -dumpds SCOPE | grep FRAME`
	Make sure the monitoring LPAR is added to the BSM console.

	Make sure the following pre-requisite is added:
	
	1. Go to **Admin -> RTSM Administration > CI Type Manager > CI Types > System Type Manager**
	
	   The System Type Manager dialog box appears.
	
	2. Double-click **product_name_enum** and click **Apply**.
	
	   The Update List Definition appears.
	
	3. Add **ibm_power_hypervisor** to the list and click **OK**.

	Verify if OMi MP for Infrastructure is installed on both Gateway and DPS. See the section "Installation Media" for more details.
	Deploy **Virtual Infrastructure Discovery Aspect** on the monitoring LPAR. Make sure that all the CIs and relations are synced to the RTSM before you start the configuration tasks.
	Verify if **IBMHMC_Deployment** view is populated with CIs and relations. **Is_Data_Collector** relation is created between monitoring LPAR to IBM HMC, LPAR, and IBM Frame.

Monitoring Oracle Solaris Zones Environment

The following checklist summarizes the tasks you must complete before you start monitoring Oracle Solaris zones using OMi MP for Infrastructure

Complete (Y/N)	Tasks
	Verify if Oracle Solaris global zone is collecting LOGICAL class of data using the following commands: • `/opt/OV/bin/ovcodautil -obj` • `/opt/OV/bin/ovcodautil -dumpds SCOPE | grep BYLS` You will get the value of `BYLS_*` metric as the output.
	Make sure Oracle Solaris global zone is added to the BSM console. For information on Adding Nodes to the BSM console see Task 1: Adding Nodes to the BSM Console.
	Verify if OMi MP for Infrastructure is installed on both Gateway and DPS. See the section "Installation Media" for more details.
	Deploy **Virtual Infrastructure Discovery Aspect** on HP Operations Agent virtual appliance node. Make sure that all the CIs and relations are synced to the RTSM before you start the configuration tasks.
	Verify if **Sol_Zones_Infrastructure** view is populated with CIs and relations.

Note:

- With OMi MP for Infrastructure 1.10, it is possible to monitor multiple instances of CIs of same CI Type (CIT) that are monitored by Operations agent. It is not possible to monitor them with different parameter values.

- If you deploy a Management Template or Aspect with different parameter values to multiple instances of CIs of same CIT that are monitored by same Operations agent, values from the last deployment will overwrite the parameter values from previous deployment(s).

Appendix A: Installing Monitoring Automation 9.23 Software Update

This section provides detailed information about installing the software update in a distributed BSM environment.

If you do not have a distributed BSM environment, you can skip to the section "Installing Additional Software Update in a Typical BSM Environment".

Installing Additional Software Update in a Distributed BSM Environment

In a distributed BSM environment, the BSM DPS and BSM GWS are available on different systems. The additional software update needs to be installed on both the BSM DPS and BSM GWS.

Installing Additional Software Update on BSM DPS

To install the additional software update on BSM DPS running in a distributed BSM environment, follow these steps:

1. Run the following commands to check the version of the current `opr-config-content-server.war` file:

   On Linux:

   `cd /opt/HP/BSM/opr/webapps`

   `/opt/HP/BSM/opr/support/what.sh ./opr-config-content-server.war`

   On Windows:

   Go to the drive where BSM is installed:

   `cd /d %TOPAZ_HOME%\opr\webapps`

   `cscript %TOPAZ_HOME%\opr\support\what.vbs opr-config-content-server.war`

   > **Note:** If the version number is lower than 09.23.174, then proceed to the next step. If the version number is 09.23.174 or higher, then the current BSM installation already contains the required software update and you do not need to perform the remaining steps in this section.

2. Run the following command to stop the BSM services running on BSM DPS:

   On Linux:

   /opt/HP/BSM/scripts/run_hpbsm stop

   On Windows:

   %TOPAZ_HOME%\bin\SupervisorStop.bat

3. Take a backup of the existing opr-config-content-server.war file, which exists in the following folder:

   On Linux:

   /opt/HPBSM/opr/webapps

   On Windows:

   %TOPAZ_HOME%\opr\webapps

   The opr-config-content-server.war file must be backed up to a different folder.

4. Extract the HPOprMA_update.zip to a temporary folder and copy opr-config-content-server.war to the following folder:

   On Linux:

   /opt/HPBSM/opr/webapps

   On Windows:

   %TOPAZ_HOME%\opr\webapps

5. Run the following command to deploy the new WAR file from the extracted ZIP file:

   On Linux:

   /opt/HP/BSM/opr/bin/oprcfg-configuration.sh -setup omi -noGW

   On Windows:

   cscript %TOPAZ_HOME%\opr\bin\oprcfg-configuration.vbs -setup omi -noGW

6. Run the following command to start the BSM services:

On Linux:

```
/opt/HP/BSM/scripts/run_hpbsm start
```

On Windows:

```
%TOPAZ_HOME%\bin\SupervisorStart.bat
```

Installing Additional Software Update on BSM GWS

To install the additional software update on BSM GWS running in a distributed BSM environment, follow these steps:

1. Run the following commands to check the version of the current `opr-config-server.war` file:

   On Linux:

   ```
   cd /opt/HP/BSM/opr/webapps
   ```

   ```
   /opt/HP/BSM/opr/support/what.sh ./opr-config-server.war
   ```

   On Windows:

   Go to the drive where BSM is installed:

   ```
   cd /d %TOPAZ_HOME%\opr\webapps
   ```

   ```
   cscript %TOPAZ_HOME%\opr\support\what.vbs opr-config-server.war
   ```

   Note: If the version number is lower than 09.23.174, then proceed to the next step. If the version number is 09.23.174 or higher, then the current BSM installation already contains the required software update and you do not need to perform the remaining steps in this section.

2. Run the following command to stop the BSM services running on BSM GWS:

   On Linux:

   ```
   /opt/HP/BSM/scripts/run_hpbsm stop
   ```

   On Windows:

   ```
   %TOPAZ_HOME%\bin\SupervisorStop.bat
   ```

3. Take a backup of the existing `opr-config-server.war` file which exists in the following folder:

   On Linux:

   ```
   /opt/HPBSM/opr/webapps
   ```

On Windows:

`%TOPAZ_HOME%\opr\webapps`

The `opr-config-server.war` file must be backed up to a different folder.

4. Extract the `HPOprMA_update.zip` to a temporary folder and copy `opr-config-server.war` to the following folder:

On Linux:

`/opt/HPBSM/opr/webapps`

On Windows:

`%TOPAZ_HOME%\opr\webapps`

5. Run the following command to deploy the new WAR file from the extracted ZIP file:

On Linux:

`/opt/HP/BSM/opr/bin/oprcfg-configuration.sh -setup omi`

On Windows:

`cscript %TOPAZ_HOME%\opr\bin\oprcfg-configuration.vbs -setup omi`

6. Run the following command to start the BSM services:

On Linux:

`/opt/HP/BSM/scripts/run_hpbsm start`

On Windows:

`%TOPAZ_HOME%\bin\SupervisorStart.bat`

Installing Additional Software Update in a Typical BSM Environment

In a typical BSM environment, the BSM DPS and BSM GWS are available in the same system. To install the additional software update in a typical BSM environment, perform the following steps:

1. Run the following commands to check the version of the current `opr-config-server.war`:

On Linux:

`cd /opt/HP/BSM/opr/webapps`

```
/opt/HP/BSM/opr/support/what.sh ./opr-config-server.war
```

On Windows:

Go to the drive where BSM is installed:

```
cd /d %TOPAZ_HOME%\opr\webapps
```

```
cscript %TOPAZ_HOME%\opr\support\what.vbs opr-config-server.war
```

> **Note:** If the version number is lower than 09.23.174, then proceed to the next step. If the version number is 09.23.174 or higher, then the current BSM installation already contains the required software update and you do not need to perform the remaining steps in this section.

2. Run the following command to stop the BSM services running on BSM Server:

   On Linux:

   ```
   /opt/HP/BSM/scripts/run_hpbsm stop
   ```

   On Windows:

   ```
   %TOPAZ_HOME%\bin\SupervisorStop.bat
   ```

3. Take a backup of the existing `opr-config-server.war` file which exists in the following folder:

   On Linux:

   ```
   /opt/HPBSM/opr/webapps
   ```

   On Windows:

   ```
   %TOPAZ_HOME%\opr\webapps
   ```

   The `opr-config-server.war` file must be backed up to a different folder.

4. Extract the `HPOprMA_update.zip` to a temporary folder and copy `opr-config-server.war` to the following folder:

   On Linux:

   ```
   /opt/HPBSM/opr/webapps
   ```

   On Windows:

   ```
   %TOPAZ_HOME%\opr\webapps
   ```

5. Run the following command to deploy the new WAR file from the extracted ZIP file:

On Linux:

`/opt/HP/BSM/opr/bin/oprcfg-configuration.sh -setup omi`

On Windows:

`cscript %TOPAZ_HOME%\opr\bin\oprcfg-configuration.vbs -setup omi`

6. Run the following command to start the BSM services:

    On Linux:

    `/opt/HP/BSM/scripts/run_hpbsm start`

    On Windows:

    `%TOPAZ_HOME%\bin\SupervisorStart.bat`

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