

HP Network Node Manager i-series Smart Plug-in for MPLS

for the HP-UX, Linux, Solaris, and Windows® operating system

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Installation Guide

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1 Introducing the iSPI for MPLS

The HP Network Node Manager i- series Smart Plug-in for MPLS (iSPI for MPLS) extends the capability of NNMi to monitor the network. The product presents additional views to indicate the states of discovered MPLS devices and display the overall health of the network.

The product, in conjunction with NNMi, performs the following tasks:

- Discovering the MPLS enabled nodes.
- Displaying the MPLS nodes in the MPLS views.
- Monitoring the status of every discovered component of the MPLS network.

After you install (and configure) the product on the NNMi management station, you can monitor and troubleshoot the problems in your MPLS infrastructure with the additional views provided by the product.

About iSPI for MPLS Workspace

The iSPI for MPLS utilizes the NNMi Console to monitor and manage the MPLS network. You can monitor the health of iSPI for MPLS from the topology views explicitly for MPLS network. The MPLS workspace is the interface which provides different MPLS views to manage the MPLS objects. The iSPI for MPLS monitors the health of MPLS Virtual Private Network (VPN), MPLS PseudoWire VC, and Traffic Engineering (TE) tunnels. The dynamic views extend the properties of NNMi to do the fault management in network. The MPLS workspace provides the same user level access as NNMi.

The iSPI for MPLS has the operator and administrator level security access. The operator can perform the fault management tasks by monitoring the status of the different MPLS objects. The administrator can do the additional polling configuration from the polling configuration UI.

2 Before you Begin

Before you start installing the product, you must plan the installation based on your deployment requirements. You must identify the ideal deployment scenario among the supported configurations, ensure that all the prerequisites are met before you begin the installation process.

You can refer to the following documents before you start the installation process:

- *HP Network Node Manager 8.10 Installation Guide for Windows or HP Network Node Manager 8.10 Installation Guide for UNIX*
- *HP Network Node Manager 8.10 Deployment Guide*
- *HP Network Node Manager 8.10 Release Notes*
- *HP Network Node Manager 8.10 Support Matrix*

Before you begin in iSPI for MPLS installation, follow the installation steps:

- 1 Install NNMi. Make sure that NNMi is installed in the environment and running.
- 2 Install available NNMi patches, if any.
- 3 Start the iSPI for MPLS installation process.

You install the product on the NNMi management station. You can also install the iSPI for MPLS in High-Availability (HA) cluster environments that are supported by NNMi.

Installation Process on the NNMi Management Server

Before installing the iSPI for MPLS on the NNMi management server, you must note down all the configuration related details of the NNMi installation. These details will be required by the iSPI for MPLS installer.

- ▶ Before installing the iSPI for MPLS, make sure to create the Web service client with Admin privileges for iSPI for MPLS.
- ▶ While configuring NNMi for HTTPS communication by modifying the server.xml file, *do not* comment out or delete the Connector tag that specifies the details of the HTTP communication.

For more details, see *NNMi Deployment Guide, Update the Server.XML*.

NNM Port Details

Note down the following port numbers of the NNMi installation:

- Port number of NNMi
- Port number of jboss on the management station

NNMi installer installs a default database that is embedded with the product.

Database Details

To achieve higher scalability, you can choose an external Oracle database instead of the embedded database to store NNMi data. The external Oracle database can reside either on the NNMi management station, or on a remote server. You must note down the following details of the NNMi database.

- Type: The default embedded database or Oracle database.
- Port: The port used by the Oracle database.
- Oracle Database server name: The fully-qualified domain name of the Oracle server.
- Oracle Database name: Create the Oracle instance to be used at time of iSPI for MPLS installation.
- Oracle Database Username: Create the Oracle username to be used at time of iSPI for MPLS installation.

- Password: Password for the above user. Create the password to be used at time of iSPI for MPLS installation.



Before installing the iSPI for MPLS, make sure to note down the database details if you are using Oracle database or embedded database.

Preparing for Installation

Before installing the iSPI for MPLS, verify that your computer meets the hardware and software requirements, and that the prerequisite software has been set up properly.

Make sure the management station meets all the hardware and software requirements.

Refer to the *HP Network Node Manager i-series Smart Plug-in for MPLS Support Matrix* and *HP Network Node Manager i-series Smart Plug-in for MPLS Release Notes* documents for a complete information on hardware and software requirements and dependencies.

Table 1 Preinstallation Checklist for Hardware and Software Requirements

Requirement	Reference Document	Complete(Yes/No)
Disk space	Support Matrix	Yes
Operating system	Support Matrix	Yes
Database	Support Matrix	Yes

3 Installing the Product

You can install the product on both types of management server—Windows and UNIX. You can use the installation wizard. The installation wizard guides you through the installation process.

Install on a Windows Management Server

To install the iSPI for MPLS on a Windows management server, follow these steps:

- 1 Log on to the management server with Administrator privileges.
- 2 Insert the iSPI for MPLS installation media into CD-ROM drive. The CD-ROM should start automatically. If it does not start from the root directory, double-click the `setup.bat` file. The installation wizard opens.
If the Application requirement check warnings dialog box opens, click and review each warning and take appropriate actions.
- 3 In the Product Agreement screen, select the **I Agree...** option, and then click **Next..** The Product Customization screen appears.
- 4 Select the Default option, and then click **Next**. The Product Requirements screen appears.
- 5 The Product Requirements screen displays the required disk space and available disk space on the machine. Review the indicated values, and then click **Next**. The Pre-Install Summary screen appears.
- 6 Review the options, and then click **Install**. The installation process begins.
- 7 During the installation process, the Database Selection dialog box opens. Click **Yes**, if you are using embedded database. Click **No**, to use the Oracle database.

- 8 If you are using the embedded database, specify the following details in the Parameters dialog box:



The NNMi configuration parameters should be same as you have entered while installing NNMi. Type the same configuration details while installing iSPI for MPLS.

Make sure to use the same database type(embedded or Oracle) while installing iSPI for MPLS which you have used while installing NNMi.

Skip the step 8, if you are using Oracle database.

- For NNMi Configuration Parameters
 - NNMi FQDN/IP Address: The fully- qualified domain name (FQDN) of the NNMi management station. The hostname can be fullyqualified domain name or partial hostname or IP Address.
 - NNMi HTTP Port: Type the same NNMi port number which you have entered while doing the NNMi installation. To update the NNMi port number, refer [Updating the NNMi Port Number](#) on page 23.
 - NNMi Java Naming and Directory Interface (JNDI) Port: Port number used by the jboss application server for internal communication. Type the NNMi port number.
 - NNMi Username: Type the Web Service client username for iSPI for MPLS.
 - NNMi Password: Type the Web Service client password.
 - Retype Password: Retype the password to confirm the password.
 - Protocol: Mode of transmission such as secured or unsecured. Always select the option HTTP and not HTTPS.
- For iSPI for MPLS Configuration Parameters
 - MPLS FQDN/IP Address: The FQDN of the NNMi management station.
 - MPLS Port number: The iSPI for MPLS port number is 24040. The number cannot be changed therefore the field is disabled.
 - JNDI Port: The JNDI iSPI port number is 24046. Port number used by the jboss application server for internal communication. The number cannot be changed therefore the field is disabled.

- Protocol: Mode of transmission such as secured or unsecured. Always select the option HTTP and not HTTPS..



The various cases for the (Fully Qualified Domain Name(FQDN) configuration parameters are listed below:

- The NNMi and iSPI for MPLS should use the same FQDN. If the NNM server is having more than one domain name, installation process chooses one and iSPI for MPLS installation also chooses the same domain name.
 - At the time of NNMi installation, if you are using the partial domain name as <people> or the IP Address as <xx.xx.xx.xx> and not the fully qualified domain name, iSPI for MPLS also contains the same partial domain name or the IP Address. In this case, the Single Sign-on is disabled.
- 9 In the Database Configuration for SPI jboss dialog box, specify the following details:
 - Oracle Database server name: The fully-qualified domain name of the Oracle server. Type the server name.
 - Oracle Database Port: The default Oracle port number (1521) appears in the dialog box.
 - Oracle Database name: Type the database name you have created for iSPI for MPLS.
 - Oracle Database Username: Type the username you have created for iSPI for MPLS.
 - Oracle Database Password: Type the password you have created for iSPI for MPLS.
 - 10 Click **OK** to proceed with the installation process.
 - 11 After the installation is done, you should manually start all the processes, do the necessary configurations such as Ignore Route Targets and then start the discovery process.
 - 12 When the installation process is complete, click **Done**.

The iSPI for MPLS installation process is complete. You can check the necessary information about the installation from Summary and Details tab.

If the installation process incurs any error, you can Rollback the Installation process and start again.

Install on a UNIX Management Server

To install the product on a UNIX management server, follow these steps:

- 1 Log on to the management server with root privileges.
- 2 Insert the iSPI for MPLS installation media into the CD-ROM drive. The CD-ROM should start automatically. If the installation does not start, run the command `./setup`. The installation wizard opens.

If the Application requirement check warnings dialog box opens, click and review each warning and take appropriate actions.
- 3 In the Product Agreement screen, select the **I Agree...** option, and then click **Next**. The Product Customization screen appears.
- 4 Select the Default option, and then click **Next**. The Product Requirements screen appears.
- 5 The Product Requirements screen displays the required disk space and available disk space on the machine. Review the indicated values, and then click **Next**. The Pre-Install Summary screen appears.
- 6 Review the options, and then click **Install**. The installation process begins.
- 7 During the installation process, the Database Selection dialog box opens. Click **Yes**, if you are using embedded database. Click **No**, to use the Oracle database.
- 8 If you are using the embedded database, specify the following details in the Parameters dialog box:



The NNMi configuration parameters should be same as you have entered while installing NNMi. Type the same configuration details while installing iSPI for MPLS.

Make sure to use the same database type(embedded or Oracle) while installing iSPI for MPLS which you have used while installing NNMi.

Skip the step 8, if you are using Oracle database.

- For NNMi Configuration Parameters
 - NNMi FQDN/IP Address: The fully- qualified domain name(FQDN) of the NNMi management station. The hostname can be fullyqualified domain name or partial hostname or IP Address.

- NNMi HTTP Port: Type the same NNMi port number which you have entered while doing the NNMi installation. To update the NNMi port number, refer [Updating the NNMi Port Number](#) on page 23.
- NNMi Java Naming and Directory Interface (JNDI) Port: Port number used by the jboss application server for internal communication. Type the NNMi JNDI Port number.
- NNMi Username: Type the Web Service client username for iSPI for MPLS.
- NNMi Password: Type the Web Service client password.
- Retype Password: Retype the password to confirm the password.
- Protocol: Mode of transmission such as secured or unsecured. Always select the option HTTP and not HTTPS.
- For iSPI for MPLS Configuration Parameters
 - MPLS FQDN/IP Address: The FQDN of the NNMi management station.
 - MPLS Port number: The iSPI for MPLS port number is 24040. The number cannot be changed therefore the field is disabled.
 - JNDI Port: The JNDI iSPI port number is 24046. Port number used by the jboss application server for internal communication. The number cannot be changed therefore the field is disabled.
 - Protocol: Mode of transmission such as secured or unsecured. Always select the option HTTP and not HTTPS..



The various cases for the (Fully Qualified Domain Name (FQDN) configuration parameters are listed below:

- The NNMi and iSPI should use the same FQDN. If the NNMi server is having more than one domain name, installation process chooses one and iSPI installation also chooses the same domain name.
 - At the time of NNMi installation, if you are using the partial domain name as <people> or the IP Address as <xx.xx.xx.xx> and not the fully qualified domain name, iSPI also contains the same partial domain name or the IP Address. In these case, the Single Sign-on is disabled.
- 9 In the Database Configuration for SPI jboss dialog box, specify the following details:

- Oracle Database server name: The fully-qualified domain name of the Oracle server. Type the server name.
 - Oracle Database Port: The default Oracle port number (1521) appears in the dialog box.
 - Oracle Database name: Type the database name you have created for the iSPI for MPLS.
 - Oracle Database Username: Type the username you have created for the iSPI for MPLS.
 - Oracle Database Password: Type the password you have created for the iSPI for MPLS.
- 10 Click **OK** to proceed the installation process.
 - 11 After the installation is done, you should manually start all the processes, do the necessary configurations such as Ignore Route Targets and then start the discovery process.
 - 12 When the installation process is complete, click **Done**.

The iSPI for MPLS installation process is complete. You can check the necessary information about the installation from Summary and Details tab. If the installation process incurs any error, you can Rollback the Installation process and start again.

Steps to Install and Start the Product

To install the iSPI for MPLS and start all the MPLS views for monitoring the network, follow the steps:

- 1 Install NNMi. Verify that all the available NNMi patches are installed.
- 2 Install iSPI for MPLS.
- 3 Start the processes for iSPI for MPLS.
- 4 Do the necessary configurations such as Exclude Route Targets from the Config UI.
- 5 Start the discovery process.

Starting the Processes

After the installation process is complete, you have to check if NNMi is running, start and stop the MPLS processes manually by the following set of commands:

- You can check NNMi is running by the following command:

```
ovstatus -c
```

- Start the MPLS process by the following command:

```
ovstart -c mplsjoboss
```

- Stop the MPLS process by the following command:

```
ovstop -c mplsjoboss
```

Removing the Product

Before you start the uninstallation process, make sure that MPLS process is stopped but the NNMi process (ovjboss) is running. If the MPLS process is running, uninstallation process exits with the error message.



Always uninstall the iSPI and then uninstall the NNMi.

To uninstall the product from a management station, follow these steps:

- 1 Log on to the management station with the Administrator (for Windows) or root (for UNIX) privileges.

- 2 Run the following command:

On Windows:

```
%OVINSTALLDIR%\uninstall\HPOvMPLSiSPI\setup.exe
```

On UNIX:

```
$OVINSTALLDIR/uninstall/HPOvMPLSiSPI/setup.bin
```

A wizard opens.

- 3 Follow the instructions on the wizard and complete the procedure to remove the product.

- 4 When the process is complete, click **Done**.

License Related Information

Visit the following website for license related issues:

<https://webware.hp.com/welcome.asp>

Accessing Log Files

The iSPI for MPLS stores all the installation related information into the following directory:

- For Windows: <drive>:\Documents and Settings\Administrator\Local Settings\Temp\HPOvInstaller\HPOvMPLSiSPI_08.10\HPOvMPLSiSPI_08.10_2008.xx.xx_xx_xx_HPOvInstallerLog.html.
- For Unix: /tmp/HPOvInstaller\HPOvMPLSiSPI_08.10\HPOvMPLSiSPI_08.10_2008.xx.xx_xx_xx_HPOvInstallerLog.html.

List of MPLS log files

The log files are as follows:

- HPOvmpIsiSPI_08.10_HPOvInstaller.txt
- preInstall_mpls.log
- Pre_Remove_mpls.log
- postInstall_mpls.log
- postRemove_mpls.log

Updating the NNMi Port Number

At the time of iSPI installation, type the same NNMi port numbers which you have specified while installing NNMi. If you want to update the NNMi port numbers while doing the iSPI installation, you can update the following files:

- Update the `Djboss.nnm.port` field in `nms-mpls.ports.properties` file.
- Update the `com.hp.ov.nms.spi.mpls.Nnm.port` field in `nm.extended.properties` file.

Updating the NNMi System Password

The iSPI should be configured to use same system password as NNMi. After installation of iSPI, if the system password for NNMi is modified, the iSPI for MPLS should be updated with the new system password.



Only user having root permission can run this script.

Run the following command to copy the NNMi password:

```
encryptmplspasswd.ovpl -c mpls
```

where:

`c` - NNMi jboss to iSPI jboss communication

`mpls` (case insensitive)

After updating the password, restart the iSPI to use the new system credentials. If the password is not updated the `ovstop`, `ovstart` and `ovstatus` commands will fail.

Updating the iSPI (Web Service Password)

The iSPI for MPLS should be configured with Webservice Username / Password to communicate with NNMi. The user should be added in NNMi with the role of WebService Admin or System and then use the script to update the password.



Avoid System role for NNMi - iSPI communication.



Only user having root permission can run this command.

You can use the **encryptmplpasswd.ovpl** script to update the iSPI password. This script will change the iSPI password. Avoid using the System password of NNMi.

```
encryptmplpasswd.ovpl -e <mpls> <password>
```

where:

-e - encrypt supplied string

password - string to be encrypted

After updating the password, restart the iSPI for MPLS to use the new system credentials. If the password is not updated, ovstop, ovstart and ovstatus commands will fail.

4 Installing in a High-Availability Cluster Environment and Application Fail-over

You can install NNMi in a high-availability (HA) environment to achieve redundancy in your monitoring setup. You can install the iSPI for MPLS product in an HA environment where NNMi has been installed.

Prerequisites for installing iSPI for MPLS on HA

Before you begin the installation for HA environment, read the *Configuring HP NNM i-series Software in a High Availability Cluster* in *NNMi Deployment and Migration Guide* to understand the NNMi HA configuration.

Ensure to meet the following requirements before installing iSPI for MPLS in an HA environment.

- The iSPI for MPLS runs on the NNMi management server.
- The iSPI for MPLS uses the same Postgres instance as NNMi.

Installing the iSPI for HA

- ▶ If NNMi is not installed on HA environment, install NNMi and iSPI for MPLS together before configuring NNMi and iSPI for MPLS on HA environment.

Steps to Install iSPI for MPLS when NNMi is Running on HA

- 1 If NNMi is already configured and running on HA environment, unconfigure NNMi.

- ▶ For steps to unconfigure NNMi, see *Configuring HP NNM i-series Software in a High Availability Cluster* in *NNMi Deployment and Migration Guide*.

- 2 Start the iSPI for MPLS installation.
- 3 Configure NNMi and iSPI for MPLS on HA environment. To configure iSPI for MPLS, see [Configuring and Unconfiguring the iSPI for HA](#) on page 27.

Steps to Uninstall iSPI for MPLS when NNMi is Running on HA

- 1 If NNMi is already configured and running on HA environment, unconfigure iSPI for MPLS.
- 2 Unconfigure NNMi on HA environment.

- ▶ For steps to configure and unconfigure NNMi, see *Configuring HP NNM i-series Software in a High Availability Cluster* in *NNMi Deployment and Migration Guide*.

- 3 Uninstall the iSPI for MPLS.
- 4 Configure NNMi on HA environment.

Configuring and Unconfiguring the iSPI for HA

- ▶ To configure iSPI for MPLS, first configure the iSPI in primary node and then in the secondary node.

Use the following commands to configure iSPI for MPLS

- Windows:

```
%NnmInstallDir%\misc\nnm\ha\nnmhaconfigure.ovpl NNM -addon MPLS
```

- UNIX:

```
$NnmInstallDir/misc/nnm/ha/nnmhaconfigure.ovpl NNM -addon MPLS
```

- ▶ To unconfigure iSPI for MPLS, first unconfigure the iSPI for MPLS from the secondary node and then from the primary node.

Use the following commands to unconfigure iSPI for MPLS

- Windows:

```
%NnmInstallDir%\misc\nnm\ha\nnmhaunconfigure.ovpl NNM -addon MPLS
```

- UNIX:

```
$NnmInstallDir/misc/nnm/ha/nnmhaunconfigure.ovpl NNM -addon MPLS
```

5 Getting Started with the Product

You can start using the product for network management after installation. You can know the details about the product in the following sections.

Accessing the Product

After you have installed iSPI for MPLS in NNM Management station and completed the discovery and necessary configurations, you can access the iSPI for MPLS workspace from the NNMi console. To access the NNMi console, refer the *NNMi Installation Guide*.

Accessing the Online Help

The iSPI for MPLS Help provides the iSPI related information. The detailed information in the iSPI for MPLS help is organized into the following sections:

- Help for Operators
- Help for Administrators

To access the iSPI help, click **Help** on the NNMi console menu bar, then click **Help for NNM iSPIs** to choose the **Help for iSPI for MPLS**. The iSPI help appears in the NNMi console only if the MPLS installation is successful.

The Help provides you the comprehensive information about MPLS views, forms, and troubleshooting.

Accessing Configuration Details

You can do the polling configuration tasks after installing iSPI.

Polling Configuration

You can do the polling configuration from the polling configuration user interface. You can change the polling intervals from the UI. You can also change the RTs in the topology by updating the Ignore RT field from the UI. This will start the discovery for the effected VPNs but doesnot do the complete discovery.

A Troubleshooting Installation

Following is a summary of items to consider if you are having difficulties with iSPI for MPLS. You can read through this chapter to find the solution for some of the installation problems which occurs when you are installing iSPI for MPLS.

Uninstallation Process Starts but does not Complete

Stop the SPI process but NNMi processes should be running before you start the uninstallation process. You can use the commands to stop the SPI processes: **ovstop -c mplsjoboss**.

Check the status again and start the uninstallation process.

Low Memory after the iSPI is Uninstalled

After the unistallation process, ensure that no javaprocess is running with iSPI name. Kill these processes manually otherwise they will increase the memory size.

Uninstallation Process is Complete, Status shows iSPI

After the uninstallation process is complete, still iSPI for MPLS process appears as failed while checking the status. Stop the process and start again by the following commands:

Stop the process: **ovstop -c**

Start the process: **ovstart -c**

Check the status again, iSPI doesnot appear in the status.

iSPI Installation Process Stops and Exits

The iSPI installation process stops and exits as the installation process is not able to create and copy the folders.

Check the error messages and check the available disk space, permission issues.

Process is in Failed state and not able to Restart again

If any of the processes (mplsjboss, nmsdbmgr) is in FAILED state and you are not able to restart the process. You have to stop and start ovspmd (all the processes) again. Check **ovstatus -c** to verify if the process state is changed from FAILED state to RUNNING state.

This is time consuming but this is only workaround available to start the processes.

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