

HP Network Node Manager iSPI for MPLS

For the Linux operating system

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Installation Guide

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Chapter 1: Introduction

The HP Network Node Manager iSPI for MPLS Software (NNM iSPI for MPLS) extends the capability of NNMi to monitor the network. The NNM iSPI for MPLS presents additional views to indicate the status of discovered MPLS-enabled devices. In addition, it displays the overall health of the network.

The NNM iSPI for MPLS, in conjunction with NNMi, performs the following tasks:

- Discovering and monitoring the MPLS-enabled nodes and interfaces.
- Displaying the MPLS-enabled objects in the MPLS inventory.
- Monitoring the status of the discovered MPLS object in the network.
- Monitoring the MPLS views from Global Network Manager's inventory.
- Monitoring the network by using the topology map views.
- Troubleshooting the network by viewing the MPLS reports.

After you install (and configure) the NNM iSPI for MPLS on the NNMi management station, you can monitor and troubleshoot the problems in your network with by using the MPLS workspace.

The NNM iSPI for MPLS integrates with the NNM iSPI for IP Multicast, RAMS 9.21, NNM iSPI Performance for Metrics, and NNM iSPI Performance for Quality Assurance to help you monitor the network by using the additional capabilities introduced by these products.

MPLS Workspace

The NNM iSPI for MPLS uses NNMi console to introduce the MPLS-related views to monitor your network. The MPLS views provide a list of discovered MPLS objects. You can monitor the health of the MPLS objects by using the MPLS workspace.

The NNM iSPI for MPLS monitors the health of MPLS Layer 3 Virtual Private Network (L3VPN), MPLS Layer 2 VPNs (L2VPNs), Multicast VPNs (MVPNs), MPLS PseudoWire VC, Traffic Engineering (TE) tunnels, Monitored LSPs and Service Distribution Points (SDPs). The MPLS views extend the properties of NNMi to perform the fault management of supported MPLS features.

You can use the NNMi user-level access for the MPLS workspace. The NNM iSPI for MPLS uses the operator and administrator level security access for various tasks. With the operator-level privileges, you can perform the fault management tasks by monitoring the state, status, and incidents of the all the MPLS objects. With the administrator-level privileges, you can complete all the configuration tasks from the MPLS Configuration workspace.

Related Topics:

For more information about the NNM iSPI for MPLS, see the following documentation:

- NNM iSPI for MPLS Online Help - includes information on the views, forms, and map views introduced by the NNM iSPI for MPLS.
- NNM iSPI for MPLS Release Notes
- NNM iSPI for MPLS Support Matrix
- NNM iSPI for MPLS Deployment Reference

Chapter 2: Before You Begin

Before you start installing the NNM iSPI for MPLS, you must plan the installation based on your deployment requirements. You must identify the ideal deployment scenario among the supported configurations. Make sure that all the prerequisites are met before you begin the installation process.

You can see the following documents before you start the installation process:

- *HP Network Node Manager 10.00 Installation Guide for Windows or HP Network Node Manager 10.00 Installation Guide for Linux*
- *HP Network Node Manager 10.00 Deployment Reference*
- *HP Network Node Manager 10.00 Release Notes*
- *HP Network Node Manager 10.00 Support Matrix*

Before you begin the NNM iSPI for MPLS installation, follow these 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 NNM iSPI for MPLS installation process.

You install the NNM iSPI for MPLS on the NNMi management station. You can also install the NNM iSPI for MPLS in High-Availability (HA) cluster environments that are supported by NNMi. For information about the steps to install the NNM iSPI for MPLS in HA environment, see *NNM iSPI for MPLS 10.00 Deployment Reference Guide*.

Installation Process on the NNMi Management Server

Before installing the NNM iSPI for MPLS on the NNMi management server, you must note down all the configuration-related information of the NNMi installation. These details are required while you install the NNM iSPI for MPLS.

Note: Before installing the NNM iSPI for MPLS, make sure to create the Web service Client user for the NNM iSPI for MPLS. For more information, see "[Create a New User with the Web Service Client Role](#)" on page 9

NNMi Port Details

Note down the following port numbers of the NNMi installation:

- Port number of NNMI
- Port number of Java Naming and Directory Interface (JNDI) on the management station

To verify the port details, open the `nms-local.properties` file from the `$NnmDataDir/conf/nnm/props` directory on the management server, and then note down the following values:

- `nmsas.server.port.web.http` for the HTTP port number. The default value is 80.
- `nmsas.server.port.web.https` for the HTTPS port number. The default value is 443.
- `nmsas.server.port.naming.port` for the JNDI port number. The default value is 1099.

For more information about the ports used by NNMI, see *10.00 NNMI Deployment Reference*.

Database Details

NNMI installer installs a default database that is embedded with the product. You can choose an external Oracle database instead of the embedded database to store NNMI data. See the HP Network Node Manager i Software 10.00 Installation Guide for more information on configuring NNMI with Oracle. 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. *Not applicable for embedded database*
- **Hostname:** The fully-qualified domain name of the Oracle server.
- **Oracle Database name:** The name of the Oracle database instance.
- **Oracle Database Username:** The Oracle user name created to access NNM iSPI for MPLS data.
- **Password:** Password for the Oracle user name created to access NNM iSPI for MPLS data.

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

With the NNM iSPI for MPLS, you must use a new Oracle instance, and not the Oracle instance configured with NNMI. Before you create a unique Oracle instance for the NNM iSPI for MPLS, see the Database Installation section in the *HP Network Node Manager i Software Installation Reference* for additional details. If you are using Oracle, note down the unique Oracle instance created to store the NNM iSPI for MPLS data.

Preinstallation Tasks

Before you start installing the NNM iSPI for MPLS, complete the following tasks:

Create a New User with the Web Service Client Role

Create a user from the NNMi console with the Web Service Client role. This user is used during the installation of the NNM iSPI for MPLS. Do not use the NNMi system account while installing the NNM iSPI for MPLS. Create a new web service client user as follows:

1. Go to Configuration -> Security -> User Account
2. Click **New** icon to open the User Account view
 - Enter a Username and password
 - Select Directory Service Account if applicable.
 - Use the 'click here' option from the view for more information on 'Directory Service Account'.
3. Click **Save and close** icon

Assign a user group to your user account as follows:

1. Go to Configuration -> Security -> User Account Mappings
2. Click **New** icon to open the User Account Mapping view
 - Select a User account from the **User Account** list
 - Select **NNMi Web Service Clients** from the **User Group** list
3. Click **Save and close** icon

Only for Oracle. Create a New Oracle Instance

Skip this task if you choose to use the embedded database. You must create a new Oracle instance before installing the NNM iSPI for MPLS. While installing and configuring the NNM iSPI for MPLS, do not use the same Oracle instance that was configured with NNMi.

Preparing for Installation

Before installing the NNM iSPI for MPLS, make sure the management station meets all the hardware and software requirements.

See the *HP Network Node Manager iSPI for MPLS Software Support Matrix* and *HP Network Node Manager i Software Smart Plug-in for MPLS Release Notes* documents for complete information about hardware and software requirements and dependencies.

Preinstallation Checklist for Hardware and Software Requirements

Basic Attributes

Requirement	Reference Document	Complete(Yes/No)
Disk space	HP Network Node Manager iSPI for MPLS Software 10.00 Support Matrix	Yes
Operating system	HP Network Node Manager iSPI for MPLS Software 10.00 Support Matrix	Yes
Database	HP Network Node Manager iSPI for MPLS Software 10.00 Support Matrix	Yes

Chapter 3: Installing the NNM iSPI for MPLS

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

Installing on NNMi Management Server

To install the NNM iSPI for MPLS follow these steps:

1. Log on to the management server with root permissions.
2. Insert the NNM iSPI for MPLS installation media into CD-ROM drive.
3. On the management server, do the following to run the installation process:

Run the following command in the root directory: `./setup.bin`

4. In the **Initialization** screen and select a language from the drop-down list, then click **OK**.
5. In the **Introduction** screen, check the NNM iSPI for MPLS information and select a language from the drop-down list, then click **Next**
6. On the **Product Agreement** page, check the NNM iSPI for MPLS license terms. If you agree with the terms of the license agreement, select I accept...; then click **Next**. The **Product Customization Feature Selection** screen appears.
7. From the **Product Customization** page, select the installation type:

Note: Make sure you select the same installation type that you have selected while installing NNMi.

- If you want to use the embedded database, select Typical.
 - If you want to use an Oracle database that runs on the standard port (1521), select Typical.
 - If you want to use an Oracle database that runs on a non-standardport (other than 1521), select Custom.
8. **If you select Typical:**

Note: Select custom only if you want to use the Oracle database that uses a non-standard port. If you select Custom, go to [step 9](#)

- a. After selecting Typical, click Next. The Server Configuration page appears.
- b. In the **Choose the database type** section, select one of the following:
 - HP Software Embedded Database
 - Oracle
- c. Go to [step d](#) if you have selected the Oracle option.

If you have selected HP Software Embedded Database, click **Next**. The install Checks screen appears. The wizard checks for the available disk space. Go to [step 10](#).

- d. If you selected Oracle in the previous step, you must specify necessary details in the following screen:
 - **Choose Database Initialization Type:** Select Primary Server Installation if you want to use a database that is not initialized. Select Secondary Server Installation if you want to use a database that is already initialized. After making the selection, click **Next**. The Enter Your Database Server Information screen appears.
 - **Enter Your Database Server Information:** Type the hostname of the Oracle system and the database instance name, and then click **Next**. The Enter the Database User Account Information screen appears.
 - **Enter the Database User Account Information:** Type the user name and password of the Oracle database instance, and then click **Next**. The Install Checks

9. If you select Custom:

Note: If you have selected Typical, go to [step 10](#)

- a. After selecting Custom, click **Next**. The Feature selection page opens.
- b. Click Next. The Server Configuration page opens.
- c. In the Choose Database Type section, select Oracle, and then click **Next**. The Choose Database Initialization Type screen appears.
- d. Select Primary Server Installation if you want to use a database that is not initialized. Select Secondary Server Installation if you want to use a database that is already initialized. After making the selection, click **Next**. The Enter Your Database Server Information screen appears.
- e. Type the hostname and port of the Oracle system and the database instance name, and then click **Next**. The Enter the Database User Account Information screen appears.

- f. Type the user name and password of the Oracle database instance, and then click **Next**. The Install Checks screen appears. The wizard checks for the available disk space.
10. After the check is complete, click **Next**. The Pre-Install Summary screen appears.
11. Review the options, and then click **Install**. The installation process begins.

Note: Perform a forced reinstallation of the already installed components if you previously attempted an unsuccessful installation of the NNM iSPI for MPLS and you did not manually remove the components that were already placed by the installer.

12. The MPLS iSPI Configuration window opens.
13. In the MPLS iSPI configuration window specify the following details:

Basic Attributes

NNMi Server: Information Required by MPLS iSPI	MPLS iSPI Server: Information Required by NNMi
NNMi FQDN: Type the fully qualified domain name of the NNMi management server.	MPLS iSPI FQDN: Fully qualified domain name of the NNMi management server.
Web Service Client User Name: Name of the NNMi Web Service client user that you created.	MPLS iSPI HTTP Port: Type the port number that will be used by the NNM iSPI for MPLS for the HTTP communication (default: 24040).
Web Service Client Password: Password of the above user.	MPLS iSPI HTTPS Port: Type the port number that will be used by the NNM iSPI for MPLS for the HTTPS communication (default: 24043).
Retype Password: Password of the above user.	MPLS iSPI JNDI Port: Type the port number that will be used by the NNM iSPI for MPLS as the JNDI port (default: 24046).

Note: The NNM iSPI for MPLS installer automatically detects the following values for NNMi: HTTP port, HTTPS port, and JNDI port.

- The NNMi and NNM iSPI for MPLS must use the same FQDN. If the NNM server is having more than one domain name, installation process chooses one and the NNM iSPI for MPLS installation also must use the same domain name. To find the official FQDN of the NNMi server, use any one of following:

Run the `nnmofficialfqdn.ovpl` command.

From the NNMi console, click **Help > About Network Node Manager i Software**.

- 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, the Single Sign-on is disabled.

14. If you have configured NNMi to use the HTTPS mode of communication, select the `isSecure` option in both the sections ([NNMi Server: Information Required by MPLS iSPI and MPLS iSPI Server: Information Required by NNMi](#)). Selecting this option ensures that NNMi and the NNM iSPI for MPLS always use the secure mode of communication (HTTPS).

If you want to change your mode of communication after installation of the NNM iSPI for MPLS, see ["Updating the Security Mode \(HTTP to HTTPS\)" on page 18](#) for detailed instructions.

15. Click **OK**
16. After the installation is complete, a message appears to inform you that the installation process is complete and you can manually start the NNM iSPI for MPLS processes. Click **OK**.
17. You can click the **Summary** tab to check if the installation is successful and you can click the **Details** tab to verify if the NNM iSPI for MPLS packages are successfully installed. You can click on the **View log** file link in the window to check the log details and errors, if any.
18. Click **Done**

The NNM iSPI for MPLS installation process is complete.

Post installation tasks for NNM iSPI for MPLS

1. Start the processes for NNMi and NNM iSPI for MPLS by using `ovstart -c mplsjobss` respectively.
2. Complete the discovery process. Use the `$InstallDir/bin/nmsmplsdisco.ovpl -all` command.
3. After the NNM iSPI for MPLS installation is complete, log on to the NNMi console and verify the MPLS workspace.
4. Perform the necessary configurations such as Exclude Route Targets, VPWS, and Polling Frequencies from the MPLS Configuration workspace

Silent Installation for NNM iSPI for MPLS

The NNM iSPI for MPLS supports silent installation. For the silent installation, use the `silentInstall.properties` file that comes with installation media within the root directory.

Follow these steps for silent installation:

1. Log on to the management server with Administrator privileges.
2. Insert the NNM iSPI for MPLS installation media into the DVD drive.
3. Place a copy of silentInstall.properties in a temporary folder on the system.
4. Edit the silentInstall.properties file. This file will have default values for the following:

SPI.HTTP.PORT

SPI.HTTPS.PORT

SPI.JNDI.PORT

SPI.WEB.SERVICE.USERNAME

SPI.WEB.SERVICE.PASSWORD

SPI.isSecure

dbType

5. If you choose dbType= Oracle, then you have to also enter the following details:

db.host

db.instance

db.user.loginname

db.user.loginpassword

db.port

6. Run ./setup.bin -i silent command to start the silent installation.

Silent Installation is supported for both, PostgreSQL and Oracle databases.

Note: Silent installation runs as a background process and takes some time for completion. Progress Indicator is not available for silent installation.

Starting and Stopping the NNMi and NNM iSPI for MPLS Processes

To start and stop the NNM iSPI for MPLS, follow these steps:

1. Check the status of the NNMi process using the following command:

```
ovstatus -c ovjboss
```

If the NNMi is not running, start the NNMi process by using the following command:

```
ovstart -c ovjboss
```

2. Start the MPLS process using the following command:

```
ovstart -c mplsjboss
```

3. Stop the MPLS process using the following command:

```
ovstop -c mplsjboss
```

However, if you are using the Oracle RAC option, you must perform the following before starting the mplsjboss process:

- Modify the `$NNMDataDir/nmsas/mpls/server.properties` file by adding the following:
 - `com.hp.ov.nms.oracle.otherHost=<Hostname/IP Address of the secondary Oracle RAC server>`
 - `com.hp.ov.nms.oracle.serviceName=${com.hp.ov.nms.oracle.sid}`
 - `com.hp.ov.nms.oracle.connection.url=${com.hp.ov.nms.oracle.connection.cluster.url}`

After you modify the file, run the following commands:

```
ovstop -c mplsjboss
```

```
ovstart -c mplsjboss
```

Verifying the NNMi and NNM iSPI for MPLS Processes

Check if the NNMi and MPLS processes are running by using the following command: `ovstatus -c`

Removing the NNM iSPI for MPLS

Before you start uninstalling the NNM iSPI for MPLS, make sure that the MPLS processes are stopped but the NNMi process (ovjboss) is running. If the MPLS process is running, the process exits with an error message.

To uninstall the NNM iSPI for MPLS from a management station, follow these steps:

1. Log on to the management station with the root privileges.
2. Run the following command:

```
$NnmInstallDir/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**.

Accessing the Log Files

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

- /tmp/

List of MPLS log files

The log files are as follows:

- HPOvMPLSiSPI_10.00.000_HPOvInstaller.txt
- preInstall_mpls.log
- postInstall_mpls.log
- Pre_Remove_mpls.log
- postRemove_mpls.log

Configuring the NNM iSPI for MPLS to use modified NNMi ports

After installing the NNM iSPI for MPLS, you can modify the following configuration parameters:

- NNMi HTTP port
- NNMi HTTPS port

You can configure the NNM iSPI for MPLS to use the modified NNMi ports. To configure, follow these steps:

1. Open the `/var/opt/OV/conf/nm/props/nms-local.properties` file
2. Obtain the values of the following properties:

```
nmsas.server.port.web.http
```

```
nmsas.server.port.web.https
```

3. Open the `nnm.extended.properties` file with a text editor from the `/var/opt/OV/shared/mpls/conf` directory.
4. Based on the port that you modified, do one of the following:
 - If you have modified the NNMi HTTP port. Replace the value of the `com.hp.ov.nms.spi.mpls.Nnm.port` property with the value of the `nmsas.server.port.web.http` property (obtained in [step 2](#))
 - If you have modified the NNMi HTTPS port. Replace the value of the `com.hp.ov.nms.spi.mpls.Nnm.secureport` property with the value of the `nmsas.server.port.web.https` property (obtained in [step 2](#))
5. Restart the NNM iSPI for MPLS with the following commands:
 - a. `ovstop -c mplsjoboss`
 - b. `ovstart -c mplsjoboss`

Updating the Security Mode (HTTP to HTTPS)

After installing NNMi and NNM iSPI for MPLS, if you want modify the security mode from HTTPS to HTTP or HTTP to HTTPS without installing NNMi and NNM iSPI for MPLS again, follow these steps:

1. On the management server, open the `nnm.extended.properties` file from the `$NnmdataDir/shared/mpls/conf` directory (depending on the type of the management server) with a text editor.
2. Update the values to true or false from the following:

```
com.hp.ov.nms.spi.mpls.spi.isSecure=false
```

```
com.hp.ov.nms.spi.mpls.Nnm.isSecure=false
```

If the value is false, the mode of transmission is HTTP.

Note: Always select the same mode of transmission for NNMi and NNM iSPI for MPLS.

Updating the NNMi System Password

If you modify the NNMi system account credentials after installing the NNM iSPI for MPLS, follow these steps to synchronize the change with the iSPI for IP MPLS setup.

1. Log on to the NNMi management server.
2. Run the following command to copy the NNMi password:

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

Note: Only user with root permission can run this script.

3. Restart the NNM iSPI for MPLS with the following commands:

```
ovstop -c mplsjoboss
```

```
ovstart -c mplsjoboss
```

Modifying the NNM iSPI for MPLS Port Number

The NNM iSPI for MPLS uses a set of ports—configured at the time of installation by the installer—for its operation. The installer offers you the option to choose non-default values for the HTTP and HTTPS ports. The list of these ports are available in the `server.properties` file—under the `/var/opt/OV/nmsas/mpls` directory. However, after the installation, you can configure the NNM iSPI for MPLS to use HTTP and HTTPS ports that are different from the configured ones at the time of the installation.

To modify the HTTP or HTTPS port of the NNM iSPI for MPLS, follows these steps:

1. Log on to the NNMi management server with root privileges.
2. Open the `server.properties` file with a text editor from the `/var/opt/OV/nmsas/mpls` directory
3. Based on the port that you want to modify, do one of the following:
 - To modify an HTTPS port. Replace the value of the `nmsas.server.port.web.https` property with the new HTTPS port.
 - To modify an HTTP port. Replace the value of the `nmsas.server.port.web.http` property with the new HTTP port.
4. Save the file
5. Restart NNMi process

Updating the NNM iSPI for MPLS (Web Service Client User name and Password)

The NNM iSPI for MPLS is configured with Web Service Client User name and Password to communicate with NNMi in the installation process.

Note: Avoid System role for NNMi - NNM iSPI for MPLS communication.

Note: Only user with root permissions can run this command.

If you want to update the NNM iSPI for MPLS password, follow these steps:

1. Log on to the NNMi management server.
2. Run the following command:

```
encryptmplspasswd.ovpl -e <mpls> <new_password>
```

The `encryptmplspasswd.ovpl` command helps you update the NNM iSPI for MPLS Web Service Client password.

3. Restart the NNM iSPI for MPLS with the following commands:

```
ovstop -c mplsjoboss
```

```
ovstart -c mplsjoboss
```

If you want to configure the NNM iSPI for MPLS to use an NNMi Web Service Client user name that is different from the user name specified during the installation of the NNM iSPI for MPLS, follow these steps:

1. Edit the `nnmDataDir/shared/mpls/conf/nnm.extended.properties` file and change the value of the following property: `com.hp.ov.nms.spi.mpls.Nnm.username`
2. Run the following commands:

```
encryptiptpasswd.ovpl -e mpls <password for the new user>
```

The `encryptmplspasswd.ovpl` command helps you update the NNM iSPI for MPLS Web Service User name.

3. Restart the NNM iSPI for MPLS with the following commands:

```
ovstop -c mplsjoboss
```

```
ovstart -c mplsjoboss
```

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

For procedure to install and deploy the NNM iSPI for MPLS in a High-Availability Cluster Environment and Application Fail-over, see the *NNM iSPI for MPLS 10.00 Deployment Reference Guide*.

Chapter 4: Getting Started with the NNM iSPI for MPLS

After you complete the installation of the NNM iSPI for MPLS in your NNMi environment, you can start monitoring your network with NNMi and NNM iSPI for MPLS. After installing the NNM iSPI for MPLS, you can start the complete discovery process to view the MPLS-enabled nodes and MPLS objects from the MPLS workspace.

Accessing the NNM iSPI for MPLS

You can monitor the network by using the NNMi and NNM iSPI for MPLS. To start the NNM iSPI for MPLS after the initiation of the first discovery polling cycle, follow these steps:

1. Launch the NNMi console.
2. Log on to the NNMi console with one of the following user roles:
 - Administrator
 - Operator level 1
 - Operator level 2
 - Guest
3. In the Workspace pane, click **MPLS**. The MPLS workspace shows the inventory views of MPLS objects. You also can navigate to the MPLS forms and map views from the workspace.

Starting the MPLS Discovery Process

The NNM iSPI for MPLS discovery process starts automatically only after NNMi discovery process. Use the following command for NNM iSPI for MPLS discovery earlier than the next NNMi discovery cycle:

```
$InstallDir/bin/nmsmplsdisco.ovpl -u <user> -p <password> -all
```

Accessing the Online Help

The NNM iSPI for MPLS Help provides the NNM iSPI for MPLS related information. The detailed information in the NNM iSPI for MPLS help

To access the NNM iSPI for MPLS help, click **Help** -> **Help for NNM iSPIs** -> **Help for NNM iSPI for MPLS**. The NNM iSPI for MPLS help appears in the NNMi console only if the NNM iSPI for MPLS installation is successful.

The MPLS Online Help provides you the comprehensive information about the MPLS Inventory, MPLS forms, Incidents, and map views.

Configuration Tasks in NNM iSPI for MPLS

You can perform the following configuration tasks after installing the NNM iSPI for MPLS.

- Configure the Polling Frequencies
- Configure the Route Targets
- Configure Device Authentication
- Configure the VPWS VPN
- Configure the Regional Manager

Accessing the MPLS Reports

The NNM iSPI for MPLS uses the basic capabilities of the HP NNMi iSPI Performance for Metrics (iSPI Performance for Metrics) and Network Performance Server (NPS) to present the MPLS reports.

The NNM iSPI for MPLS introduces the following extension packs:

- MPLS_LSR_Node
- MPLS_LSR_Interface
- L3_VPN_VRF
- MPLS_Lsp
- MPLS_PseudoWire
- TE_Tunnel
- MPLS_VFI

The extension pack uses data collected by the NNM iSPI for MPLS. Make sure that NPS and iSPI Performance for Metrics is up and running.

To view the MPLS reports, from the NNMi console, click **Actions-> Reporting-Report Menu**. The iSPI Performance for Metrics console appears with the reports.

For more information, see *Report Online Help for NNM iSPI for MPLS* and *Online Help for NNM iSPI Performance for Metrics*.

Appendix A: Troubleshooting the NNM iSPI for MPLS

This chapter lists the trouble scenarios that you may encounter while installing the NNM iSPI for MPLS and tips to resolve these issues.

Installing the NNM iSPI for MPLS

- *Problem:* The NNM iSPI for MPLS installation process stops abruptly.

Solution: The installation process is not able to create and copy the folders. Check the error messages and the available disk space. In addition, check if you have necessary permissions on the management server.

- *Problem:* The NNM iSPI for MPLS process appears in the Failed state and you are not able to restart the process again.

Solution: Stop and start ovspmd (all the processes) again. Check `ovstatus -c` to verify if the state of the process is changed from FAILED state to RUNNING state.

- *Problem:* The extension packs introduced by the NNM iSPI for MPLS fails to start if you install NPS and iSPI Performance for Metrics after installing NNMi and NNMi iSPI for MPLS

Solution: Always install NPS and NNM iSPI Performance for Metrics and then install the NNM iSPI for MPLS. If you have installed NNMi and NNM iSPI for MPLS before installing NPS and iSPI Performance for Metrics, remove the <Extension Pack>.processed copy from the following location:

`<$NNMDataDir>/shared/perfSpi/datafiles/extension/final folder.`

After removing the file, the extension packs are installed automatically

Uninstalling the NNM iSPI for MPLS

- *Problem:* Removal process starts but does not complete

Solution: Stop the NNM iSPI for MPLS process and then start uninstalling the iSPI for MPLS again. You can use the command to stop the NNM iSPI for MPLS processes: `ovstop -c mplsjoboss`. Check the status again and start uninstalling the NNM iSPI for MPLS.

- *Problem:* After removing the NNM iSPI for MPLS, the memory of the system is still low.

Solution: Check if the java process is running with the NNM iSPI for MPLS name. Stop and delete these processes manually. These processes increase the memory size.

- *Problem:* After removing the NNM iSPI for MPLS, the status of mplsjoboss appears as Failed.

Solution: Run the following commands:

- Stop the process: `ovstop -c`
- Start the process: `ovstart -c`

If you check the NNMi status again, mplsjoboss does not appear in the status.

- *Problem:* After you uninstall the NNM iSPI for MPLS, the extension packs introduced by the NNM iSPI for MPLS are not removed. If the NNM iSPI Performance for Metrics is running, the extension packs introduced by the NNM iSPI for MPLS, still appear. Remove the extension packs manually before you start installing the NNM iSPI for MPLS again.

Solution: To remove the extension packs completely, follow these steps:

- a. Remove the extension packs using the `uninstallExtensionPack.ovpl` command:

```
$PerfSPIInstallDir/NNMPerformanceSPI/bin/uninstallExtensionPack.ovpl -p
```

For example, use the command to uninstall the extension pack,
`uninstallExtensionPack.ovpl -p MPLS_LSR_Interface`.

For more information, see *NNM iSPI Performance for Metrics, 10.00 Installation Guide*.

- b. Manually delete the extension packs introduced by the iSPI for MPLS from the following location:

```
$NnmDataDir/shared/perfSpi/datafiles/extension/final
```

- c. Stop and Start the processes of NNM iSPI Performance for Metrics.

Additional Troubleshooting Information

The following information helps you to troubleshoot the problem you may encounter after installing the NNM iSPI for MPLS.

Problem: For the large scale Linux systems, when the NNM iSPI for MPLS and NNMi open a lot processes and files and the file count reaches to a maximum value, the NNM iSPI for MPLS stops working and is in an unusable state.

Solution: Increase the number of open files per process by updating the default max open files value. To increase the value, follow these steps:

1. Update the `limits.conf` file from the `/etc/security/limits.conf` file. Change the value to **2048** from the following:

Increase the default max open files for NNMi

soft nofile **2048**

hard nofile **2048**

2. Save the updated values.
3. Log out from the system and log on again. This file limit change is only applicable to the new shells.
4. Restart NNMi from the following commands:
 - ovstop -c
 - ovstart -c

This restart of NNMi is required only if you have already installed NNMi.

Note: Perform these tasks before you start installing NNMi as the installer inherits the new file limits.

We appreciate your feedback!

If you have comments about this document, you can [contact the documentation team](#) by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Installation Guide (Network Node Manager iSPI for MPLS 10.00)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hp.com.