

HP Network Node Manager iSPI for MPLS Software

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

Software Version: 9.20

Installation Guide

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1	Introduction	9
	MPLS Workspace	9
	Related Topics:.....	10
2	Before You Begin	11
	Installation Process on the NNMi Management Server.....	11
	Preinstallation Tasks.....	12
	Preparing for Installation	13
3	Installing the NNM iSPI for MPLS	15
	Installing on NNMi Management Server	15
	Steps to Install and Start the NNM iSPI for MPLS	18
	Silent Installation for NNM iSPI for MPLS	18
	Starting and Stopping the NNMi and NNM iSPI for MPLS Processes	19
	Verifying the NNMi and NNM iSPI for MPLS Processes.....	19
	Removing the NNM iSPI for MPLS	19
	License-Related Information	20
	Introduction to iSPI Points	20
	iSPI Points Consumption Breakdown.....	20
	Checking the License Type	21
	Checking the MPLS Object-related Point Usage	21
	Obtaining and Installing a Permanent License	21
	Extend the MPLS Licenses.....	22
	Accessing the Log Files	22
	List of MPLS log files.....	22
	Updating the NNMi Port Number	23
	Updating the Security Mode (HTTP to HTTPS)	23
	Updating the NNMi System Password	23
	Updating the NNM iSPI for MPLS Port Number	24
	Updating the NNM iSPI for MPLS (Web Service Client Password).....	25
	Installing in a High-Availability Cluster Environment and Application Fail-over.....	25
4	Getting Started with the NNM iSPI for MPLS	27
	Accessing the NNM iSPI for MPLS	27
	Starting the MPLS Discovery Process	27
	Accessing the Online Help	27
	Configuration Tasks in NNM iSPI for MPLS	28
	Accessing the MPLS Reports	28
5	Upgrading to the NNM iSPI for MPLS 9.20	29
	License for Upgrading from the Earlier Versions	29
	License for Upgrading from the MPLS, Version 7.53 to Version 9.20.....	29
	License for Upgrading from the NNM iSPI for MPLS, Version 8.10 to Version 9.20.....	29
	License for Upgrading from the NNM iSPI for MPLS, Version 9.00 to Version 9.20.....	29
	License for Upgrading from the NNM iSPI for MPLS, Version 9.10 to Version 9.20.....	30

Upgrading from Version 7.53 to Version 9.20	30
Upgrading from Version 8.xx to Version 9.20	31
Upgrading from Version 9.00 to Version 9.20	32
A Troubleshooting the NNM iSPI for MPLS	35
Installing the NNM iSPI for MPLS	35
Uninstalling the NNM iSPI for MPLS	35
Additional Troubleshooting Information	36
For Linux Platform	36

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, 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, and Traffic Engineering (TE) tunnels. 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](#)

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 9.20 Installation Guide for Windows or HP Network Node Manager 9.20 Installation Guide for UNIX*
- *HP Network Node Manager 9.20 Deployment Reference*
- *HP Network Node Manager 9.20 Release Notes*
- *HP Network Node Manager 9.20 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 9.20 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.



Before installing the NNM iSPI for MPLS, make sure to create the Web service Client user for the NNM iSPI for MPLS.

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` or `$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 *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 9.20 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 username created to access NNMi data.
- **Password:** Password for the above user.



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 a unique Oracle instance, note down the details for this instance as well.

Preinstallation Tasks

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

Task 1: 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 External Account if applicable.
 - Use the ‘click here’ option from the view for more information on ‘External 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

Task 2: *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.

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 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 Administrator privileges.
- 2 Insert the NNM iSPI for MPLS installation media into CD-ROM drive.
- 3 Depending on the management server, do the following to run the installation process
 - a *For Windows Management Server:* Double-click the `setup.exe` file available in the root directory. The HP Software Installer wizard for NNM iSPI for MPLS
 - b *For UNIX Management Server:* 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:

▶ 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:**
 - ▶ 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](#) on page 16
 - a After selecting Typical, click Next. The Server Configuration page appears.
 - b In the **Choose the database type** section, select on 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 screen appears. The wizard checks for the available disk space.
- 9 **If you select Custom:**
- 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.
- 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:

NNMi Server: Information Required by MPLS iSPI

NNMi FQDN: Type the 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.

Web Service Client Password: Password of the above user.

Retype Password: Password of the above user.

MPLS iSPI Server: Information Required by NNMi

MPLS iSPI FQDN: Fully qualified domain name of the NNMi management server.

MPLS iSPI HTTP Port: Type the port number that will be used by the NNM iSPI for MPLS for the HTTP communication (default: 24040).

MPLS iSPI HTTPS Port: Type the port number that will be used by the NNM iSPI for MPLS for the HTTPS communication (default: 24043).

MPLS iSPI JNDI Port: Type the port number that will be used by the NNM iSPI for MPLS as the JNDI port (default: 24046).

- 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 Select the `isSecure` option in both the sections (NNMi Server: Information Required by MPLS iSPI and MPLS iSPI Server: Information Required by NNMi) if you have configured NNMi to use the HTTPS mode of communication. 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 \(HTTP to HTTPS\)](#) 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.

Steps to Install and Start the NNM iSPI for MPLS

To complete the installation process of the NNM iSPI for MPLS and start all the MPLS views for monitoring the network, follow these steps:

- 1 Install NNMi. Verify that all the available NNMi patches are installed.
- 2 Install the NNM iSPI for MPLS.
- 3 Start the processes for NNMi and NNM iSPI for MPLS by using `ovstart -c mplsjoboss` respectively.
- 4 Complete the discovery process. Use the `%InstallDir\bin\nmsmplsdisco.ovpl -u <user> -p <password> -all` or `$InstallDir/bin/nmsmplsdisco.ovpl -u <user> -p <password> -all` command.
- 5 After installing the NNM iSPI for MPLS, log on to the NNMi console and verify the MPLS workspace.
- 6 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/exe> -i silent` command to start the silent installation.
Silent Installation is supported for both, PostgreSQL and Oracle databases.



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
```

• Start the MPLS process using the following command:

```
ovstart -c mplsjoboss
```

• Stop the MPLS process using the following command:

```
ovstop -c mplsjoboss
```

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 Administrator (for Windows) or root (for UNIX) privileges.

2 Run the following command:

```
On Windows: %NnmInstallDir%\Uninstall\HPOvMPLSiSPI\setup.exe
```

```
On UNIX:
```

```
$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**.



Before removing the 9.20 NNM iSPI for MPLS, you must remove all the patches.

License-Related Information

Irrespective of your choice of deployment, you must always enable licenses for iSPIs only on the NNMi management server. You can use `nnmlicense.ovpl` script, available with NNMi, to enable licenses by installing license keys on the NNMi management server.

Introduction to iSPI Points

The iSPI Points license is a points-based licensing scheme for all NNM iSPIs (other than the iSPI Performance for Metric). The iSPI consumes points based on the number of monitored objects. The points consumption varies with monitored objects. You can obtain iSPI points by purchasing iSPI Point Packs. The NNM iSPI for MPLS includes a temporary Instant-On license key that is valid for 60 days after you install the NNM iSPI for MPLS. You must obtain and install a permanent license key as soon as possible.

The three types of the NNM iSPI for MPLS licenses are:

- **Instant-On** - The Instant-On license is an evaluation license. The validity period of this license is 60 days.
- **Points Based** - The Points-based license is a permanent license that is obtained by purchasing the iSPI points. The Points-based license helps the user to calculate the points for deployment. You can check your license type by launching the System Information. In the NNMi console, click **Help > System Information**. From the System Information box, click **View Licensing Information**.
- **Migration** - The migration licenses are valid only for users upgrading from the version (7.xx) of the NNM iSPI for MPLS.

iSPI Points Consumption Breakdown

The details of iSPI points consumption for specific object is given below:

Table 2 NNM iSPI for MPLS iSPI Points

Topology Objects	Points Consumption
LSR	4
L3 VRF Interface	4
VC LSPs	5
LSP Service	10

For example, if the NNM iSPI for MPLS is monitoring 5 LSRs, 5 L3 VRF interfaces, 5 VC LSPs, and 3 services on an LSP, the total iSPI points required for deployment are $(5 \times 4) + (5 \times 4) + (5 \times 5) + (10 \times 3) = 95$. An error message appears when sufficient iSPI points are not available.

Checking the License Type

To find the NNM iSPI for MPLS license information, use any *one* of the following:

- 1 In the NNMi console, click **Help > About Network Node Manager i Software**.
- 2 In the About Network Node Manager window, click **Licensing Information**.

OR

- 1 In the NNMi console, click **Help > System Information**.
- 2 From the System Information box, click **View Licensing Information**.

Checking the MPLS Object-related Point Usage

- 1 In the NNMi console, click **Help > NNMi iSPI Help -> NNM iSPI for MPLS System Information**.
- 2 In the NNM iSPI for MPLS window, click the **License Report** tab and **Topology Statistics** tab. The License report tab shows the total points used for the MPLS topology object. The Topology Statistics tab shows the total number of MPLS objects monitored by the NNM iSPI for MPLS.

Obtaining and Installing a Permanent License

After you install your license from Autopass user interface, close the license window. The license points appear in the NNM iSPI for MPLS system information only after you close the window.

To enable the NNM iSPI for MPLS licenses from the Autopass console, follow these steps on the NNMi management server:

- 1 Log on to the NNMi management server with the administrative or root privileges.
- 2 Enable the iSPI Points license.

At the command prompt, run the following command:

On Windows

```
%NnmInstallDir%\bin\nnmlicense.ovpl iSPI-Points -gui
```

On UNIX/Linux

```
/opt/OV/bin/nnmlicense.ovpl iSPI-Points -gui
```

The Autopass user interface opens.

Install the license key by following on-screen instructions.

Alternatively, to enable the NNM iSPI for MPLS licenses from the command line, follow these steps:

- 1 Log on to the NNMi management server with the administrative or root privileges.
- 2 With the help of a text editor, create a text file that contains only the license key.
- 3 Save the file on the system.
- 4 At the command prompt, run the following command:

On Windows

```
%NnmInstallDir%\bin\nnmlicense.ovpl iSPI-Points -f <license_file>
```

On UNIX/Linux

```
/opt/OV/bin/nnmlicense.ovpl iSPI-Points -f <license_file>
```

In this instance, *<license_file>* is the name of the file created in [step 2](#)

Extend the MPLS Licenses

To extend the licensed capacity, purchase and install an additional NNM iSPI for MPLS license. Contact your HP Sales Representative or your Authorized Hewlett-Packard Reseller for information about the NNM iSPI for MPLS licensing structure and to learn how to add license tiers for enterprise installations.

To obtain additional license keys, go to the HP License Key Delivery Service: <https://webware.hp.com/welcome.asp>

Accessing the Log Files

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

- For Windows: `\%Temp%\`
- For Unix: `/tmp/`

List of MPLS log files

The log files are as follows:

- `HPOvMPLSiSPI_9.20.000_HPOvInstaller.txt`
- `preInstall_mpls.log`
- `postInstall_mpls.log`

- Pre_Remove_mpls.log
- postRemove_mpls.log

Updating the NNMi Port Number

When you install the NNM iSPI for MPLS, type the same NNMi port numbers that you have specified while installing NNMi. If you want to update the NNMi port number while installing the NNM iSPI for MPLS, follow these steps:

- 1 On the management server, open the `%NnmDataDir%\nnmas/mpls/server.properties` file from the `%NnmdataDir%\shared\mpls\conf` or `$NnmdataDir\shared\mpls\conf` directory (depending on the type of the management server) with a text editor.
- 2 Update the `Djboss.nnm.port` value.
- 3 On the management server, open the `nms-local.properties` file from the `%NnmdataDir%\conf\nnm\props` or `$NnmdataDir\conf\nnm\props` directory (depending on the type of the management server) with a text editor.
- 4 Update the `com.hp.ov.nms.spi.mpls.Nnm.port` value in the `nms-local.properties` file.

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` or `$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.



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
```

where:

c - NNMi jboss to NNM iSPI for MPLS jboss communication

mpls (case insensitive)

► 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`

Updating the NNM iSPI for MPLS Port Number

You can provide a non-default port number for MPLS SPI during installation when the user interface requires you to provide a non default port. Follow these steps to update the port number for MPLS SPI during installation:

- 1 Enter the non-default port number, whenever prompted in the installation steps
- 2 Complete installation
- 3 Start mplsjoboss (`ovstart -c mplsjoboss`)
- 4 After mplsjoboss starts successfully, wait for 10 minutes
- 5 Restart NNMi process

You can change a port after installation as well. Follow these steps to change port after installation:

- 1 Stop mplsjoboss process (`ovstop -c mplsjoboss`)
- 2 Edit server properties located at: `/var/opt/OV/nmas/mpls/server.properties`

Edit the following lines to change the default ports:

- a `nmsas.server.port.web.https=<new port>`
- b `nmsas.server.port.web.http=<new port>`
- c `nmsas.server.port.naming.port=<new port>`

► Default ports are:

```
nmsas.server.port.web.https=24043
```

```
nmsas.server.port.web.http=24040
```

```
nmsas.server.port.naming.port=24046
```

- 3 Start mplsjoboss process (`ovstart -c mplsjoboss`)
- 4 After mplsjoboss starts successfully, wait for 10 minutes
- 5 Restart NNMi process

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

The NNM iSPI for MPLS is configured with Web Service Client Username and Password to communicate with NNMi in the installation process. The user must be added in NNMi with the role of Web Service Client user to use the script to update the password.



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

Only user with root permission 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:

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

The **encryptmplpasswd.ovpl** command helps you update the NNM iSPI for MPLS password.

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

- **ovstop -c mplsjboss**
- **ovstart -c mplsjboss**

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 9.20 Deployment Reference Guide*.

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 MPLS discovery process starts automatically after NNMi discovery process. To start the complete discovery for the NNM iSPI for MPLS, use the following command:

For Windows: %InstallDir/bin/nmsmplsdisco.ovpl -u <user> -p <password> -all

For UNIX: \$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 Router 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

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*.

5 Upgrading to the NNM iSPI for MPLS 9.20

Before you start upgrading the MPLS VPN SPI from 7.5x to newer version, make sure that you upgrade NNMi 7.5x version to 9.x version. For upgrading NNMi from the earlier versions, see the *NNMi Deployment Reference Guide*.

License for Upgrading from the Earlier Versions

If you are upgrading from the earlier versions of the NNM iSPI for MPLS, then you can obtain the NNM iSPI for MPLS, 9.20 upgrade licenses. You can contact HP sales to know about your upgrade license entitlement based on your order number for the earlier versions of the NNM iSPI for MPLS.

License for Upgrading from the MPLS, Version 7.53 to Version 9.20

To upgrade to the NNM iSPI for MPLS, the Contract Migration is required. The Special Migration SKUs are available from http://support.openview.hp.com/software_updates.jsp. The NNM iSPI for MPLS, 9.20 is password protected product so you have to acquire your technical password migration. You can obtain your password from the following URL http://support.openview.hp.com/software_updates.jsp

License for Upgrading from the NNM iSPI for MPLS, Version 8.10 to Version 9.20

To upgrade to the NNM iSPI for MPLS, the Contract Migration is *not* required as both the versions use the same LTU's SKU. You only need the media product number. The NNM iSPI for MPLS, 9.20 is password protected product so you have to acquire your technical password migration. You can obtain your password from the following URL http://support.openview.hp.com/software_updates.jsp

License for Upgrading from the NNM iSPI for MPLS, Version 9.00 to Version 9.20

To upgrade to the NNM iSPI for MPLS, the Contract Migration is *not* required as both the versions use the same LTU's SKU. You only need the media product number. The NNM iSPI for MPLS, 9.20 is password protected product so you have to acquire your technical password migration. You can obtain your password from the following URL http://support.openview.hp.com/software_updates.jsp

License for Upgrading from the NNM iSPI for MPLS, Version 9.10 to Version 9.20

To upgrade to the NNM iSPI for MPLS, the Contract Migration is *not* required as both the versions use the same LTU's SKU. You only need the media product number. The NNM iSPI for MPLS, 9.20 is password protected product so you have to acquire your technical password migration. You can obtain your password from the following URL **http://support.openview.hp.com/software_updates.jsp**

Upgrading from Version 7.53 to Version 9.20

The MPLS VPN SPI, 7.53 is supported on Windows and UNIX 32 bit platform in contrast to the NNM iSPI for MPLS which is supported on 64 bit Windows and UNIX platforms. For more information on supported database, hardware and software requirements, see the *NNM iSPI for MPLS, Support Matrix, 9.20*.

There are no direct steps available for upgrading the MPLS VPN SPI, 7.53 to the NNM iSPI for MPLS, 9.20.



After you migrate the community string configuration from NNM 7.53 installation to NNMi 9.20, make sure that community strings for MPLS nodes are also present in the NNMi communication configuration.

While migrating from MPLS VPN SPI, 7.53 to the NNM iSPI for MPLS, 9.20 version, you can use the data specified in following configuration files:

- Migrate the data specified in the `MplsVpn.cfg` file of MPLS VPN SPI, 7.53. For version 9.xx, only ignoreRT is supported, all the other values in `MplsVpn.cfg` are not applicable.

Install the NNM iSPI for MPLS 9.20. Make a note of the Route Targets (RTs) specified in Ignore RT section of MPLS VPN SPI, 7.53. Add these RTs in Exclude RT section of the MPLS Configuration workspace of the NNM iSPI for MPLS, 9.20.



Start the VPN computation only after you add and save all the RTs to be excluded from the MPLS Configuration workspace

You can add the RTs in the following ways:

- Add one RT value to be excluded and then, click **Save**. This automatically starts the L3 VPN computation.
- Add all the RT values to be excluded sequentially and then, click **Save**. This automatically starts the L3 VPN computation. This is a preferred option as you have to perform this task only once for the proper computation and grouping of all the VRFs that are already discovered in the network.
- Migrate the data specified in the `MgmtVpn.cfg` file of MPLS VPN SPI, 7.53 to the NNM iSPI for MPLS, 9.20



The NNM iSPI for MPLS, 9.20 does not support Management VPNs feature.

To migrate the data specified in the `MgmtVpn.cfg` file, follow the steps:

- a From the `MgmtVpn.cfg` file, select the RT values with Active settings across the RT-PATTERN.
- b Add the selected RT values in the MPLS Configuration workspace under the **Exclude RT** tab.

This automatically starts the L3 VPN computation after you add all the RTs and helps to get the consolidated group of the L3VPNs.

- Use the data specified in the `VpnNames.txt` file of MPLS VPN SPI, 7.53 to the NNM iSPI for MPLS, 9.20.

The MPLS VPN SPI, 7.53 stores the VRF grouping relationships and VPN names in the `VpnNames.txt` file. You can rename the VPNs in the NNM iSPI for MPLS, 9.20 according to the list in the `VpnNames.txt` file from MPLS views. *Mapping of VPNs to relevant VRF groups is done manually.* For more information, see *Online Help for NNM iSPI for MPLS, 9.20.*

- To retain the configuration from version 7.53 of NNM iSPI for MPLS, accept each value as it is presented in the `mpls.conf` file. Following are the values stored in the `mpls.conf` file:

— For QA integration

```
FREQUENCY=600
TIMEOUT=100
PINGMIBFREQ=600
PINGMIBTIMEOUT=1
PINGMIBPOLLINTERVAL=60
```

For more information, refer to *Deploy the NNM iSPI for MPLS with the NNM iSPI Performance for Quality Assurance.*

— For RAMS integration

```
HANDLE_RAM_EVENTS=true/false
RAMSVN_NAMESYNC=true/false
```

▶ The above parameter values are applicable only if NNM iSPI for MPLS is integrated with RAMS. `HANDLE_RAM_EVENTS` and `RAMSVN_NAMESYNC` accept boolean values. You can configure the values of these parameters and take appropriate actions in RAMS.

For more information, refer to *Deploying the NNM iSPI for MPLS with Route Analytics Management System.*

— For TE poller configuration

```
TEMANAGER_POLLER_INTERVAL=1m
```

This Maps to "TE polling configuration parameter name" in configuration user interface section and **Polling Frequencies** tab. For more information, refer to *Configure the Polling Frequency* in the *Online Help for MPLS 9.20.*

- If you have to customize `trapd.conf`, then please refer to 'Display Traps from Devices' section in *NNMi deployment reference.*

Upgrading from Version 8.xx to Version 9.20

To upgrade the NNM iSPI for MPLS from version 8.xx to version 9.20, follow these

steps:

- 1 Uninstall the 8.xx version of the NNM iSPI for MPLS.
- 2 Install NNMi 9.20.
- 3 Install the NNM iSPI for MPLS 9.20.

Upgrading from Version 9.00 to Version 9.20

NNM iSPI for MPLS does not support direct migration from version 9.00 to version 9.20. You can migrate to 9.20 in a two step migration, which is; migrating from version 9.00 to version 9.10 and then migrating from version 9.10 to version 9.20. Make a note that although NNMi supports direct migration from 9.00 to 9.20, you will have to migrate NNMi in the same, two step migration as well. (All the documents mentioned below are available at <http://h20230.www2.hp.com/selfsolve/manuals>)

To migrate from 9.00 to 9.10:

- 1 Upgrade NNMi from version 9.00 to version 9.10. For more information see, the *NNMi Deployment Reference 9.10*
- 2 Upgrade NNM iSPI for MPLS from version 9.00 to version 9.10. For more information see, the *NNM iSPI for MPLS Installation Guide 9.10*
- 3 Upgrade NNMi from version 9.10 to version 9.20. For more information see, the *NNMi Upgrade Reference 9.20*
- 4 Upgrade NNM iSPI for MPLS from version 9.10 to version 9.20. See, [Upgrading to the NNM iSPI for MPLS 9.20](#)

Alternatively, you can uninstall NNM iSPI for MPLS version 9.00 and install version 9.20. In this case NNMi can be directly migrated.



Uninstalling NNM iSPI for MPLS version 9.00 and installing version 9.20 results in loss of configuration data.

To upgrade the NNM iSPI for MPLS from version 9.00 to version 9.20:

- 1 Uninstall the 9.00 version of the NNM iSPI for MPLS.
- 2 Upgrade NNMi 9.00 to NNMi 9.20.
- 3 Install the NNM iSPI for MPLS 9.20

Upgrading from Version 9.10 to Version 9.20

Assuming that, you have successfully installed HP NNMi 9.20, and the MPLS jboss is running, follow these steps:

- 1 Stop MPLS jboss using `ovstop -c mplsjoboss`



For successful migration, ensure that the NNMi 9.20 is running properly and MPLS jboss has completely stopped. In case the upgrade fails, the only solution is to install 9.20. This may corrupt the version 9.10 database

- 2 Insert the NNM iSPI for MPLS installation media into CD-ROM drive

- 3 In the **Introduction** screen, check the NNM iSPI for MPLS information and then click **Next**
- 4 **Product Agreement** screen displays the End User License information. Read the content carefully and Accept the terms to click **Next**
- 5 Select the desired installation type from the **Product Customization** screen and click **Next**
- 6 The installer checks for the required free disk space and this information is displayed on the **Product Requirement** screen. If the required disk space is available then you can click **Next**.
- 7 Click **Upgrade** after reviewing the summary shown in the **Pre-install Summary** screen
- 8 A pop-up is displayed on the **Install** screen. This pop-up recommends and encourages MPLS iSPI users to take a complete backup before proceedings with the upgrade. Click **Ok** if you have taken a backup.

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.
This is a time consuming process but this is the only workaround available to start the processes.
- *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:
On UNIX - `<$NNMDataDir>/shared/perfSpi/datafiles/extension/final` folder.
On Windows - `<%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:

- Windows - `%PerfSPIInstallDir%\NNMPerformanceSPI\bin\uninstallExtensionPack.ovpl -p`
- UNIX - `$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, 9.20 Installation Guide*.

- b Manually delete the extension packs introduced by the iSPI for MPLS from the following location:
 - For UNIX - `$NnmDataDir/shared/perfSpi/datafiles/extension/final`.
 - For Windows 2008/ Windows 2003 - `%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

For Linux Platform

- *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:

- a 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
```

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

```
— ovstop -c
```

```
— ovstart -c
```

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



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

