HP NNM iSPI Network Engineering Toolset Software

For the Windows® and Linux operating systems

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Planning and Installation Guide

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Chapter 1: Introducing HP NNM iSPI Network Engineering Toolset Software

The HP NNM iSPI Network Engineering Toolset Software (NNM iSPI NET) extends the powerful network management capabilities of NNMi by providing additional troubleshooting and diagnostic tools for network engineers. Purchasing NNM iSPI NET provides the following functionality:

- NNM iSPI NET functionality in the NNMi console (enabled with an NNM iSPI NET license):

  - SNMP trap analytics provide summary and detailed information about SNMP trap traffic in the network

  - Visio export functionality exports NNMi topology map data to Microsoft® Visio files.

  > **Note:** For information about the supported hardware, operating systems, and web browsers for the NNMi console as well as information about the supported versions of Visio, see the *NNMi System and Device Support Matrix.*

- The HP-provided diagnostic flows gather diagnostic information when NNMi detects certain network incidents.

- The diagnostics server is an embedded packaging of HP Operations Orchestration (HP OO). If you already have the full HP OO product, you can install the NNM iSPI NET diagnostic flows on that server.

- If you have the full HP OO product, you can also import HP OO flow definitions into NNMi and then assign these flows to run when NNMi detects certain network incidents.

  > **Note:** For information about the supported hardware, operating systems, and web browsers for the embedded diagnostics server as well as information about the supported versions of the full HP OO product, see the *NNMi System and Device Support Matrix.*

How is NNM iSPI NET Installed?

The NNM iSPI NET SNMP trap analytics and Visio export functionality are automatically installed with NNMi. The diagnostic flows and diagnostics server must be installed from separate installation media. See .

How is NNM iSPI NET Licensed?

When you install NNMi, the NNM iSPI NET functionality is enabled with a temporary Instant-On license key. Purchase a permanent NNM iSPI NET license separately from your permanent NNMi license. See for details.

Chapter 2: Preinstallation Tasks

This chapter contains checklists for the tasks that you must complete before installing NNM iSPI NET, including where to find information on supported hardware and software.

The NNM iSPI NET SNMP trap analytics and the Visio export functionality are automatically installed during NNMi installation. These features share the NNMi installation requirements, which are documented in the *NNMi System and Device Support Matrix.*

The NNM iSPI NET diagnostics are installed separately using the NNM iSPI NET installation media. For specific supported configurations, this installation can be on the same system as NNMi. The following section describes how you can determine the hardware and software prerequisites for the NNM iSPI NET diagnostics server.

Supported Hardware and Software

Before installing the NNM iSPI NET diagnostics, read the information about supported hardware and software described in "Table 1 Software and Hardware Preinstallation Checklist" below.

Table 1 Software and Hardware Preinstallation Checklist

Complete (y/n)	Documentation to Read
	HP NNM iSPI NET Release Notes • **Filename** = releasenotes_en.html • **Media** = NNM iSPI NET installation DVD (root directory)
	NNM iSPI NET Diagnostics Server System and Device Support Matrix • **Filename** = supportmatrix_en.html • **Media** = NNM iSPI NET installation DVD (root directory)

> **Note:** HP updates the *NNM iSPI NET Diagnostics Server System and Device Support Matrix* as new information becomes available. Before you begin to install the NNM iSPI NET diagnostics server, check for the most recent NNM iSPI NET support matrix at this web site:
>
> **http://h20230.www2.hp.com/selfsolve/manuals**
>
> (You must have an HP Passport user ID to access this web site.)

NNMi Management Server Preparation

In a diagnostic flow, the first step is to log on to the device. NNM iSPI NET uses the device credentials that NNMi stores. To specify credentials for a device, follow these steps:

1. Open the NNMi console.

2. Navigate to the **Configuration** workspace.

3. Select the **Communication Configuration** form.

4. Use the Default Device Credentials tab to create default device credentials.

5. If some devices have credentials that differ from the default settings, use the Regions and Specific Node Settings tabs to define those credentials.

Note: Device credentials are only needed on devices for which diagnostic flows will be run. See the *NNM iSPI NET Diagnostics Server System and Device Support Matrix* for details about supported devices.

Diagnostics Server System Preparation

The NNM iSPI NET media includes an embedded version of HP Operations Orchestration (HP OO) Central with restricted capabilities. The NNM iSPI NET diagnostic flows can be run by this embedded HP OO Central. Alternatively, you can use an HP OO Central that is already installed in your environment.

If you plan to use the embedded HP OO Central, you must identify a system in your environment on which to install the diagnostics server. You can install the embedded NNM iSPI NET diagnostics server on the same system as NNMi, *if* NNMi is installed on a system that has sufficient resources and is running the correct operating system version.

If a supported version of the full HP OO product is already running in your environment, you can install the NNM iSPI NET diagnostics flows onto the existing HP OO Central server, or you can install the complete NNM iSPI NET diagnostics server onto a different system.

Note: For information about the supported hardware, operating systems, and web browsers for the embedded diagnostics server as well as information about the supported versions of the full HP OO product, see the *NNM iSPI NET Diagnostics Server System and Device Support Matrix*

Installing and Configuring MySQL

Skip this section if you want to use an HP OO Central that is already installed and configured in your environment.

If you want to use HP OO Central that is embedded with the NNM iSPI NET media, you must install and configure MySQL 5.1 first. You can install MySQL on the system where you plan to install the NNM iSPI NET, or on a remote system.

You can download MySQL 5.1 from **http://www.mysql.com** and install it by following the instructions in the MySQL documentation.

After successfully installing MySQL, you must create a new databases and name it nnminet. Also, create a new database user named nnminet_user.

To create the user, run the following statement:

CREATE USER 'nnminet_user'@'*<iSPI_NET_IP_Address>***' identified by '***<password>***';**

In this instance, *<iSPI_NET_IP_Address>* is the IP address of the system where you plan to install NNM iSPI NET diagnostic server and *<password>* is the password that you want to assign to the user nnminet_user.

> **Tip:** Use only the IP address in the above statement; do not use the fully qualified domain name.

See the MySQL documentation for more information about creating databases and users.

After creating nnminet_user, you must grant all privileges to the user by running the following statement:

GRANT ALL ON nnminet.* TO 'nnminet_user'@'*<iSPI_NET_IP_Address>***';**

In this instance, *<iSPI_NET_IP_Address>* is the IP address of the system where you plan to install NNM iSPI NET diagnostic server.

> **Tip:** Use only the IP address in the above statement; do not use the fully qualified domain name.

Creating New SSL Certificate Files on an Existing HP OO Central Server

Skip this section if you want to use the HP OO Central that is embedded with the NNM iSPI NET media.

If you plan to use an existing HP OO Central server for NNM iSPI NET diagnostic flows, you must recreate SSL certificate files for the NNM iSPI NET diagnostics server installer. The installer looks for these files in a specific location. You must recreate the files before installing the NNM iSPI NET diagnostic flows.

The NNMi SSL communication stack enforces hostname verification. However, HP OO Central does not include hostnames in its SSL certificates by default.

You must create new certificates, which contain HP OO Central keystore entries that include the fully qualified domain name (FQDN) of the HP OO Central server.

> **Note:** The NNM iSPI NET embedded diagnostics server includes a hostname in its default SSL certificates. The information in this section only applies to existing HP OO Central servers.

To create new SSL certificates, follow these steps:

> **Note:** These steps will replace the default HP OO SSL certificates with regenerated certificates. As a result, other HP Software products, components,or solutions (including HP OO Studio) that depend on the default SSL certificates of this HP OO Central server will not work any longer.
>
> If you use products and components that depend on the default SSL certificates, do not follow these steps and plan to use a different installation of HP OO (or use the HP OO that is embedded with the NNM iSPI NET installation DVD).

1. Log on to the HP OO Central server.

2. Back up the following files:

   On Windows

   - %ICONCLUDE_HOME%\Central\conf\rc_keystore

   - %ICONCLUDE_HOME%\ras\Java\Default\webapp\conf\ras_keystore.jks

   On Linux

   > **Tip:** On Linux, make sure that the $ICONCLUDE_HOME environment variable is set to the installation directory of HP OO.

   - $ICONCLUDE_HOME/Central/conf/rc_keystore

   - $ICONCLUDE_HOME/ras/Java/Default/webapp/conf/ras_keystore.jks

3. Make sure the *NNM iSPI NET installation DVD* is mounted on the system.

4. Go to the media root, and then run the following command:

   On Windows

   adjustcerts.bat "%ICONCLUDE_HOME%" *<OO_SERVER_FQDN>*

   On Linux

   ./adjustcerts.sh "$ICONCLUDE_HOME" *<OO_SERVER_FQDN>*

   In this instance, *<OO_SERVER_FQDN>* is the fully qualified domain name (FQDN) of the HP OO Central server.

The command recreates the HP OO Central SSL certificate; the newly created certificate includes the FQDN of the HP OO Central server.

Checklist

The following table provides a checklist for preparing the diagnostic server:

Table 2 Diagnostics Server Preparation Checklist

Complete (y/n)	Diagnostics Server Preparation
	If you plan to use the embedded NNM iSPI NET diagnostics server, identify unused ports that can be assigned as the HTTP and HTTPS port numbers for the diagnostics server. Typical values include the following: • 80 or 8080 for HTTP (default is 8080) • 443 or 8443 for HTTPS (default is 8443)
	If you plan to use an HP OO Central already installed in your environment, gather the following information: • The HTTP and HTTPS port numbers used by HP OO Central • The password for HP OO Central admin user
	If you plan to use an HP OO Central already installed in your environment, and have not created SSL certificates using the server's fully qualified hostname, you must create new SSL certificate files so the installer can install diagnostic flows. See "Creating New SSL Certificate Files on an Existing HP OO Central Server" on page 9.
	When you plan to use the embedded HP OO, you must install MySQL in your environment prior to installing NNM iSPI NET. If MySQL is installed on a separate system from the NNM iSPI NET diagnostics server, the MySQL server must permit remote access for the database user. While using a remote MySQL server, note down the hostname or IP address of the server. You must create a new databases and name it nnminet,and then create a new database user named nnminet_user.
	Gather the following NNMi information: • The hostname or IP address of the NNMi management server • The HTTP port of the NNMi management server • The password for the NNMi system user

Table 2 Diagnostics Server Preparation Checklist, continued

Complete (y/n)	Diagnostics Server Preparation
	The NNM iSPI NET diagnostics server installer requires an HTTP connection to the NNMi management server. Verify that this access is available.

	Verify that the diagnostics server system and the NNMi management server agree on the hostname of the diagnostics server system. The installer uses the hostname of the diagnostics server system when generating an SSL certificate. This certificate is used to secure communication between the diagnostics server and NNMi. The hostname in the SSL certificate must match the hostname that NNMi uses for the diagnostic server system.
	
	If you are not sure that NNMi can identify this hostname as the diagnostic server hostname, follow these steps:
	
	1. Log on to the NNMi management server.
	
	2. Ping the diagnostics server using its hostname:
	
	    ■ If the ping succeeds and matches the IP address of the diagnostics server system, you have a match.
	
	    ■ If the ping fails or has the wrong IP address, you must find a hostname for the diagnostics server system that is recognized by both the NNMi management server and the diagnostics server.

	Install and enable a supported web browser if one is not already installed. For details, see the *NNM iSPI NET Diagnostics Server System and Device Support Matrix*.

Chapter 3: Installing the NNM iSPI NET Diagnostics Server and Diagnostic Flows

This chapter guides you through the process of installing and licensing NNM iSPI NET.

> **Note:** If NNMi is installed on a system that has sufficient resources and is running the correct operating system version, you can install the embedded NNM iSPI NET diagnostics server on the same system.See "Preinstallation Tasks" on page 7.

Two installation scenarios are described separately in the following sections:

- If HP OO Central is not installed on the system, the NNM iSPI NET diagnostics server installer installs the NNM iSPI NET diagnostics in their entirety, including the diagnostics server. The installer also sets up the binding between the diagnostics server and the NNMi management server.

- If HP OO Central is already installed, the NNM iSPI NET diagnostics server installer installs the NNM iSPI NET diagnostic flows and sets up the binding between HP OO Central and the NNMi management server.

Before you begin, complete the requirements in "Preinstallation Tasks" on page 7.

Installing NNM iSPI NET

To install NNM iSPI NET on Windows, first install NNMi as described in the *NNMi 10.00 Interactive Installation Guide*. This installation provides the SNMP trap analytics and the Visio export functionality. Then, install the NNM iSPI NET diagnostics server and diagnostic flows.

> **Note:** The NNM iSPI NET diagnostics server installer requires an HTTP connection to the NNMi management server.

Use the procedure that applies to your situation:

- "Installing the NNM iSPI NET with the Embedded HP OO" below

- "Installing the NNM iSPI NET on an Existing HP OO System" on page 17

Installing the NNM iSPI NET with the Embedded HP OO

If you install the NNM iSPI NET diagnostics server and flows on a system that does not have an HP OO Central already installed, the installer program installs the HP OO software that is embedded with the NNM iSPI NET installation DVD.

To install NNM iSPI NET with the embedded HP OO, follow these steps:

1. Log on as administrator or root to the system where you plan to install the NNM iSPI NET diagnostics.

2. Insert the NNM iSPI NET installation DVD into the DVD-ROM drive, or download the electronic installation media.

3. In the root directory of the installation media, run the following file:

   On Windows 64-bit

   setup_x64.exe

   On Windows 32-bit

   setup.exe

   On Linux

   setup_linux.sh

   The installation wizard opens.

4. Click **Next**, and then accept the license agreement.

   The Configuration Parameters screen appears.

5. Review the fields provided on the Configuration Parameters screen.

6. Specify the following details:

   - *Optional.* Change the installation directory for the embedded HP OO Central.

     Default installation directories are:

     Windows

     C:\Program Files\Hewlett-Packard\Operations Orchestration

     Linux

     $HOME/Central-9.00

   - Type the HTTP and HTTPS ports for OO.

     By default, 8080 (HTTP) and 8443 (HTTPS) are populated in the fields. If these ports are not free on the system, make necessary changes.

     Note: Communication between the embedded HP OO Central web application and the HP OO Central web client is over secure connections, using the HTTPS protocol. The

> HTTP port makes it possible for client users to type an HTTP protocol address in the browser and be redirected to the secure connection.

- Type a password for HP OO Central's admin account. At the end of the installation process, you can use this password to log on to HP OO Central as an admin user.

- Verify the current system's hostname for SSL certificate generation. Always use the fully qualified domain name of the system (and not the IP address).

> **Note:** If you are installing the NNM iSPI NET diagnostics server on a separate system from NNMi, the hostname in this field must match the hostname that the NNMi management server identifies as the diagnostics server's hostname. If you are not sure that the NNMi management server can identify the diagnostics server's hostname, follow the steps in "Diagnostics Server System Preparation" on page 8 .

7. In the **MySQL Configuration Data** section, specify details of the MySQL database:

   - In the **MySQL Hostname** box, type the fully qualified domain name of the system where you installed MySQL.

   - In the **MySQL Port** box, type the port that is configured to work with MySQL (default: 3306).

   - In the **Database Name** box, type the name of the newly created database, that is, nnminet. (This is the database that you created in "Installing and Configuring MySQL" on page 8.)

   - In the **Database User** box, type the name of the newly created database user, that is, nnminet_user. (This is the database that you created in "Installing and Configuring MySQL" on page 8.)

   - In the **Database User Password** box, type the password for nnminet_user.

8. In the **NNMi Server Configuration Data** section, specify the details of the NNMi management server:

   - In the **Hostname or IP Address** box, type the fully qualified domain name (FQDN) or IP address of the NNMi management server.

   > **Note:** If NNMi is installed in a high-availability cluster, you must type the virtual FQDN or IP address of the NNMi management server.

   - In the **HTTP Port** box, type the HTTP port of the NNMi management server.

   - In the **NNMi System Password** box, type the password for the NNMi system user.

> **Tip:** Note down the values you entered.

9. Click **Start Install**. You can view the installation log file at any time during the installation by clicking the log file link in the lower-left corner of the installer window.

   The installer program performs the following tasks:

   - Installing the embedded HP OO Central server

   - Loading the NNM iSPI NET diagnostic flows

   - Binding to the NNMi management server

   These steps could take up to an hour to complete.

   When the installation is complete, a completion message appears in the installer window.

   > **Note:** By default, the embedded HP OO Central user interface opens when you click **Finish**. To skip this launch, clear the **Launch HP OO** check box.

10. Click **Finish** to close the installer window.

    If you chose to launch the embedded HP OO Central user interface, your browser opens.

    You might see an invalid SSL certificate message because the installer includes, by default, a self-signed certificate that serves as a placeholder for a valid customer-obtained certificate. You can safely ignore this warning.

11. After successful installation, follow these steps to add necessary stored procedure to your MySQL database:

    a. Run the sp_reset_run_id.sql script located under the *<media_root>*/Upgrade_ 9.07.0005/resources directory (on the NNM iSPI NET installation DVD) by using the following command:

       >mysql -u nnminet_user -p nnminet < sp_reset_run_id.sql

    b. Modify the init.sql file to use the HP OO database schema name.

    c. Copy the init.sql file to the installation directory of MySQL (for example, C:\Program Files\MySQL\MySQL Server 5.1).

    d. Add the init-file option to the *<MySQL_Install_Dir>*/my.ini file. For example, modify the C:\Program Files\MySQL\MySQL Server 5.1\my.ini file and add the following line:

       init-file="C:\Program Files\MySQL\MySQL Server 5.1\init.sql"

In this instance, *<MySQL_Install_Dir>* is the installation directory of MySQL.

e. Restart MySQL.

Installing the NNM iSPI NET on an Existing HP OO System

To install the NNM iSPI NET on a pre-existing HP OO Central server, follow these steps:

> **Note:** When you use an already installed HP OO, it is not mandatory to configure HP OO to use only MySQL. You can use an external, fully functional HP OO configured with any supported database. You must, however, make sure that SSL certificate files are already created (see "Creating New SSL Certificate Files on an Existing HP OO Central Server" on page 9).
>
> Also, make sure that OO Content Pack is installed on the HP OO Central server.

1. Log on as administrator or root to the HP OO Central server.

2. Insert the NNM iSPI NET installation DVD into the DVD-ROM drive, or download the electronic installation media.

3. In the root directory of the installation media, start the installer:

    On Windows

    ■ If the HP OO Central server is running on a 32-bit operating system, double-click the setup.exe file.

    ■ If the HP OO Central server is running on a 64-bit operating system, double-click the setup_x64.exe file

    On Linux

    Run the setup_linux.sh file.

    The installer Welcome window lists the installation steps.

    > **Note:** Because HP OO Central is already installed on this system, check marks indicate the installation steps that have already been completed.

4. Click **Next**, and then accept the license agreement.

    The Configuration Parameters screen appears.

5. Review the fields provided on the Configuration Parameters screen.

6. Do the following:

   ■ Verify the HP OO Central HTTP and HTTPS ports, and change them if necessary.

   > **Note:** Communication between the embedded HP OO Central web application and the HP OO Central web client is over secure connections, using the HTTPS protocol. The HTTP port makes it possible for client users to type an HTTP protocol address in the browser and be redirected to the secure connection.

   ■ In the **Admin Password** box, type the password for the HP OO Central admin user.

   ■ In the **Hostname or IP Address** box, type the fully qualified domain name (FQDN) or IP address of the NNMi management server.

   > **Note:** If NNMi is installed in a high-availability cluster, you must type the virtual FQDN or IP address of the NNMi management server.

   ■ In the **HTTP Port** box, type the HTTP port of the NNMi management server.

   ■ In the **NNMi System Password** box, type the password for the NNMi system user.

   > **Tip:** Note down the values you entered.

7. Click **Start Install**. You can view the installation log file at any time during the installation by clicking the log file link in the lower-left corner of the installer window.

   The installer program performs the following tasks:

   ■ Loading the NNM iSPI NET diagnostic flows

   ■ Binding to the NNMi management server

   When the installation is complete, a completion message appears in the installer window.

   > **Note:** By default, the HP OO Central user interface opens when you click **Finish**. To skip this launch, clear the **Launch HP OO** check box.

8. Click **Finish** to close the installer window.

9. After successful installation, follow these steps to add necessary stored procedure to your MySQL database:

   a. Run the sp_reset_run_id.sql script located under the *<media_root>*/Upgrade_ 9.07.0005/resources directory (on the NNM iSPI NET installation DVD) by using the following command:

        mysql -u nnminet_user -p nnminet < sp_reset_run_id.sql

b. Modify the init.sql file to use the HP OO database schema name.

c. Copy the init.sql file to the installation directory of MySQL (for example, C:\Program Files\MySQL\MySQL Server 5.1).

d. Add the init-file option to the *<MySQL_Install_Dir>*/my.ini file. For example, modify the C:\Program Files\MySQL\MySQL Server 5.1\my.ini file and add the following line:

init-file="C:\Program Files\MySQL\MySQL Server 5.1\init.sql"

In this instance, *<MySQL_Install_Dir>* is the installation directory of MySQL.

e. Restart MySQL.

Post-Installation Tasks

Skip this section if you want to use the HP OO Central that is embedded with the NNM iSPI NET media.

After the installation is complete, follow these steps:

1. Go to the hotfix directory on the installation media, and then run the hotfix.bat (on Windows) or hotfix.sh (on Linux) file.

2. Go to the following directory on the HP OO Central server:

   On Windows

   %ICONCLUDE_HOME%\Central\conf

   On Linux

   $ICONCLUDE_HOME/Central/conf

3. Open the Central.properties file with a text editor.

4. In the Central.propertiesfile, set the dharma.antisamy.default.policy property to anythinggoes.xml.

   (By default, the property is set to slashdot.xml.)

5. Save the file.

6. Restart OO services.

   To restart the services, follow these steps:

   On Windows

a. Log on to the HP OO Central server.

b. In the Services window, restart the following services:

    i. RSCentral

    ii. RSJRAS

    iii. *(Not available on HP OO 9.07 or higher)* RSScheduler

On Linux

a. Log on to the HP OO Central server.

b. Run the following commands:

    i. **$ICONCLUDE_HOME/bin/Central.sh restart**

    ii. **$ICONCLUDE_HOME/bin/JRAS.sh restart**

    iii. *(Not on HP OO 9.07 or higher)***$ICONCLUDE_HOME/bin/Scheduler.sh restart**

Creating Users on the Diagnostics Server

To view results from NNM iSPI NET diagnostic flows, NNMi users must open pages on the server where the diagnostic flows are installed. To do so, these users need user accounts on the diagnostics server.

If you installed the diagnostic flows on a pre-existing HP OO Central server, work with the HP OO Central systems administrator to set up HP OO user accounts.

If you are using the embedded NNM iSPI NET diagnostics server, you should set up user accounts for NNMi users on the diagnostics server. For ease of use, set up the user names and passwords to match pre-existing NNMi user accounts. This best practice makes it easier to update accounts for future releases of NNM iSPI NET.

To set up user accounts on the diagnostics server:

1. Open the diagnostics server log-on page by entering the following URL into a web browser window:

   http:*//<hostname>:<port>*/PAS/

   Where *<hostname>* is the name of the diagnostics server and *<port>* is the port that you specified for the embedded HP OO Central during server installation

2. Log on as admin using the password you specified during installation.

3. On the Administration tab, click **Manage Users**.

4. For each user account, do the following:

a. Click **Add New User**.

b. Enter a user account name.

c. Select the **Internal Account** check box. If you plan to use single sign-on with NNMi as the first point of entry, select the **External Account** check box.

d. Enter the account password in the User Password and Verify Password fields.

e. Click **Create User**.

For more information about HP OO Central users, capabilities, and permissions, see the *Users, groups, and access control* section of the HP OO Central help.

Integrating NNM iSPI NET with NNMi in an Application Failover Environment

HP recommends you to integrate the NNM iSPI NET with NNMi and then configure application failover on NNMi. If you have already configured the NNMi to work in an application failover environment, follow these steps:

1. Run nnmcluster -halt on the active NNMi Management server. This shuts down all nnmcluster processes on all the participating nodes.

   > **Note:** Make sure that NNMi Admin console and cluster daemons are not running

2. On the active NNMi Management server, comment out the com.hp.ov.nms.cluster.name parameter in the nms-cluster.properties file.

   a. Edit the following:

      On Windows:

      %NnmDataDir%\shared\nnm\conf\props\nms-cluster.properties

      On Linux:

      $NnmDataDir/shared/nnm/conf/props/nms-cluster.properties

   b. Comment out the com.hp.ov.nms.cluster.name

   c. Save your changes

3. Run the ovstart command on the active NNMi Management server. This brings up NNMi services in the standalone (unclustered) state

4. Install NNM iSPI NET using the active NNMi Management server

> **Note:** Make sure you install NNM iSPI NET on a different machine to use NNM iSPI NET in an Application Failover environment.

5. Run the ovstop command on the active NNMi Management server to ensure that NNMi is not running in the standalone (unclustered) state

6. Copy the nnm.truststore and nnm.keystore from active NNMi Management server to the standby NNMi Management server and merge the certificates into its local store. To merge the certificates, run the following command:

   /opt/OV/bin/nnmcertmerge.ovpl -directory /var/tmp/copiedCertsFromActive

   For more information, see the *NNMi Deployment Reference Guide* for instructions.

7. On the active NNMi Management server, uncomment the com.hp.ov.nms.cluster.name parameter in the nms-cluster.properties file.

   a. Edit the following:

      On Windows:

      %NnmDataDir%\shared\nnm\conf\props\nms-cluster.properties

      On Linux:

      $NnmDataDir/shared/nnm/conf/props/nms-cluster.properties

   b. Uncomment the com.hp.ov.nms.cluster.name

   c. Save your changes

8. Run nnmcluster -daemon on the active NNMi Management server

9. Wait a few minutes until the active NNMi Management server is fully running. Run the nnmcluster -display command on the active NNMi management server and search the displayed results for the term ACTIVE as in ACTIVE_NNM_STARTING or ACTIVE_ SomeOtherState

10. Run nnmcluster -daemon on the standby NNMi Management server

License NNM iSPI NET

When you install NNMi, the NNM iSPI NET functionality is enabled with a temporary Instant-On license key. Purchase a permanent NNM iSPI NET license separately from your permanent NNMi license. You should obtain and install a permanent license key as soon as possible.

Checking the License Type

To determine the type of license that NNM iSPI NET is using, in the NNMi console, click **Help > System Information**. In the System Information window, click **View Licensing Information**.

Obtaining and Installing a Permanent License Key

To obtain and install a permanent license key for NNM iSPI NET on the NNMi system, use the NNMi nnmlicense.ovpl tool.

Before requesting a permanent license key, gather the following information:

- The Entitlement Certificate, which contains the HP product number and order number for NNM iSPI NET

- The IP address of the NNMi management server

- Your company or organization information

After gathering the necessary information, complete one of the following processes for obtaining and installing an NNM iSPI NET license key.

Automated Process

For automated assistance with the NNM iSPI NET license key, follow these steps:

1. At a command prompt on the NNMi management server, enter the following:

   nnmlicense.ovpl iSPI-NET -g

   > **Note:** The product license ID (iSPI-NET) is case-sensitive.

2. In the License Password dialog box, click **Request License**.

3. Follow the instructions on the screen to obtain the permanent license key.

Manual Process

If the automated process does not run to completion (for example, if the NNMi management server is behind a firewall), follow these steps:

1. To obtain a license key, go to the HP password delivery service at

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

2. At a command prompt on the NNMi management server, enter the following command to update the system and to store license data files:

nnmlicense.ovpl iSPI-NET -f *<license_file>*

> **Note:** The product license ID (iSPI-NET) is case-sensitive.

See the *nnmlicense.ovpl* reference page, or the UNIX manpage, for more information.

Obtaining Additional License Keys

Contact your HP Sales Representative or your Authorized Hewlett-Packard Reseller for information about the NNMi and NNM iSPI NET licensing structure and to learn how to add license tiers for enterprise installations.

To obtain additional license keys, go to the HP password delivery service:

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

Disabling NNMi Triggering of Diagnostic Flows

You might want to disable NNMi triggering of diagnostic flows without removing the server running those flows.

Disabling Diagnostic Flows

To stop NNMi from automatically triggering the diagnostic flows, follow these steps:

1. Log on as an administrator to the NNMi management server.

2. In a command window, navigate to the support directory:

   Windows: *<drive>*:\Program Files\HP\HP BTO Software\support\

   UNIX:/opt/OV/support/

3. Run the nnmdiagnostics.ovpl command with the uninstall option:

   nnmdiagnostics.ovpl uninstall

   The nnmdiagnostics.ovpl command can also do the following:

   ▪ Determine the current HP OO Central server configuration:

   nnmdiagnostics.ovpl servers

   ▪ Change the password NNMi uses for the admin account on the HP OO Central server

   nnmdiagnostics.ovpl credentials

   If the admin account password changes on the HP OO Central server (whether the embedded diagnostics server or an existing HP OO Central server), NNMi needs to be

informed of the change. Use nnmdiagnostics.ovpl credentials to provide NNMi with the new password.

Re-Enabling Diagnostic Flows

You can re-enable the triggering of the diagnostic flows by running the installer on the diagnostics server or on the HP OO Central server. For more information, see one of the following:

- "Installing the NNM iSPI NET with the Embedded HP OO" on page 13.

- "Installing the NNM iSPI NET on an Existing HP OO System" on page 17.

The installer detects that the needed software is already installed and performs the configuration steps.

Using Lightweight Single Sign-on with NNM iSPI NET

Configuring Lightweight Single Sign-on (LWSSO) between NNMi and HP OO or the embedded NNM iSPI NET diagnostics server involves the following tasks:

1. Configure Lightweight Single Sign-on for HP OO

2. Configure Lightweight Single Sign-on for NNMi

Configure Lightweight Single Sign-on for HP OO

To enable the Lightweight Single Sign-on feature, follow these steps:

1. Log on to the HP OO console with an Administrator account

2. Click **Administration-> System Configuration-> Authentication** tab

3. To configure Lightweight Single Sign-on, enter the details for the following parameters:

   - initString

   - domain

   - protectedDomains

4. Save the configuration

For more information, see the *Enabling Single Sign-on for HP OO Central* section of the *Operations Orchestration Administrator's Guide*

> **Note:** You must create the NNMi user as an external user on HP OO. For more information on creating an external user, assigning the user to a group and specifying a group's capabilities, see *HP OO Help for Central*.

Configure Lightweight Single Sign-on for NNMi

To enable the Lightweight Single Sign-on feature, follow these steps after installing NNM iSPI NET:

On the NNMi management server, edit /var/opt/OV/shared/nnm/conf/props/nms-ui.properties:

1. Set com.hp.nms.ui.sso.isEnabled = true

2. Set com.hp.nms.ui.sso.initString to the initString value configured in HP OO

3. Set com.hp.nms.ui.sso.domain to domain where NNMi is hosted

4. Set com.hp.nms.ui.sso.protectedDomains to list of domains where SSO is valid.

5. Run nnmsso.ovpl -reload

> **Note:** On Windows, edit <drive>\Yourfolder\HP\HP BTO Software\shared\nnm\conf\props\nms-ui.properties to follow the above steps.

For more information, see *Using Single Sign-on with NNMi* chapter of the *NNMi 10.00 Deployment Reference*.

Chapter 4: About NNM iSPI NET Components

This chapter provides information to help you begin using the NNM iSPI NET tools.

NNM iSPI NET Diagnostics

NNM iSPI NET diagnostic flows are sets of automated commands specific to one or more device types. You associate these flows with incident configurations, including the associated node group and lifecycle state.

NNMi automatically triggers the configured flows when an incident changes to the specified lifecycle state. Links to the diagnostic flow results appear on the Diagnostics tab of the Incident form. Flow results can help you troubleshoot the problem on the source node.

Examples of the kinds of diagnostics that NNM iSPI NET provides include the following:

- Determine the current configuration of a Cisco router, Cisco switch, or Nortel switch.

- Perform diagnostic checks on a specified interface on a Cisco router.

- Obtain routing information using the show ip route command.

- Determine failures of tracing the route to a target node.

- Determine statistics for a specified port on a Nortel switch.

For information about the available diagnostics, see *Diagnostics (Flows) Provided by NNM iSPI NET* in the NNMi help.

Configuring NNM iSPI NET Diagnostics

To configure NNM iSPI NET to automatically gather diagnostic information about the source node whenever an incident reaches a specific lifecycle state, follow these steps:

1. Sign in to the NNMi console as an NNMi Administrator.

2. Open an incident configuration.

3. On the Node Settings tab, click **New**.

4. On the Node Settings form, do the following:

   - Specify the node group for which you want to automatically gather diagnostic information.

   - On the Diagnostic Selections tab, specify the flow NNMi should run on each applicable source node in the node group for the incident you are configuring.

   - For each flow, specify the appropriate incident lifecycle state.

For more information, see *Configure Diagnostics for an Incident* in the NNMi help.

Using NNM iSPI NET Diagnostics

After you configure a diagnostic for the incident and node group, the following criteria must be met before the diagnostic can run:

- The source node must be in the node group you have selected.

- The diagnostic must be valid for the source node. (For example, only Nortel switch diagnostics are run on Nortel switches.)

- The incident's current lifecycle state must match a lifecycle state for which it was configured. (For example, if you configure the incident to run a specified diagnostic when the incident is closed, if the current incident's lifecycle state changes to Closed, NNMi runs that diagnostic.)

- Device credentials for the source node must be set up in NNMi. See "NNMi Management Server Preparation" on page 8.

If these criteria are met, NNM iSPI NET runs the diagnostics and generates diagnostic reports to help you solve the problem on the source node.

> **Note:** If NNMi has incorrect device credentials for the source node, the diagnostic report shows a device communication problem rather than the results of the diagnostic flow.

You can run diagnostics on demand, using **Actions** > **Run Diagnostics** from the associated Node form. In this way, you can gather baseline information for a device before any problems occur. You can also use **Actions** > **Run Diagnostics** from an Incident form.

In addition, NNM iSPI NET associates diagnostics with the node on which the diagnostic was run. To view the diagnostics automatically invoked for the node, open the Node form for any node of interest.

For information about diagnostic results, see *Incident Diagnostic Results Form (Flow Run Result)* and *Node Diagnostic Results Form (Flow Run Result)* in the NNMi help.

Custom HP OO Flow Management

If you have the full HP OO product, you can import HP OO flow definitions into NNMi and then assign these flows to run when NNMi detects certain network incidents.

The process for importing an HP OO flow definition into NNMi is as follows:

1. In HP OO Studio, build and test the flow.

   Depending on the incident type, NNMi can pass any or all of the following data types to the flow:

- Device credentials (user name and password)

- Device hostname

- Interface name

- Interface type

- Interface alias

- Interface index

- Port name

- Port index

2. Create a flow definition file that describes the HP OO flow to NNMi.

   For information about the syntax of this file, see the *nnmooflow.ovpl* reference page, or the UNIX manpage.

3. Run the nnmooflow.ovpl -i command to import the HP OO flow definition.

4. Assign the HP OO flow definition to an incident configuration for a specific node group as described in "Configuring NNM iSPI NET Diagnostics" on page 27.

The nnmooflow.ovpl command provides the following functionality:

- List the available flows (HP-provided diagnostic flows and custom HP OO flow definitions).

- Import custom HP OO flow definitions.

- Delete custom HP OO flow definitions that are not currently assigned to any incident configuration.

For more information, see the *nnmooflow.ovpl* reference page, or the UNIX manpage.

In addition, you can use custom baseline flows that allows you to run the flows at any time. To use this feature, follow these steps:

1. Create a custom flow definition file in the HP OO Studio

2. Import the custom flow definition to NNMi using the nnmooflow.ovpl command. For more information see the *nnmooflow.ovpl* reference page, or the UNIX manpage

3. Set the baseline element value to true in the .xml file, NNMi will mark this flow as baseline

4. Select the device corresponding to the flow from the NNMi console

5. Click **Actions > Run Diagnostics**

NNM iSPI NET SNMP Trap Analytics

By default, NNMi measures the rate of incoming traps, including the following:

- The rate of incoming SNMP traps from each device

- The rate of each incoming trap for each trap object identifier (OID)

NNMi monitors this trap information to determine whether any incoming traps exceed the configured rate threshold. If a threshold is exceeded, NNMi blocks the traps from the device (or for the specific trap OID) until the trap rate falls below the minimum rearm value. The NNMi administrator can configure the threshold and rearm values with the nnmtrapconfig.ovpl command. For more information, see the *nnmtrapconfig.ovpl* reference page, or the UNIX manpage.

NNM iSPI NET SNMP Trap Analytics provides reports about this trap information according to the following criteria:

- Within a specific time period

- For a specific node

- According to a specific trap identifier (trap OID)

When analyzing traps, NNMi looks at both the most common traps, as well as the most common source nodes from which the traps are received. This SNMP trap analytics data is logged to the trapanalytics.0.0.log file.

Information in the log file is organized as follows for specific time intervals:

- Trap rate in number of traps per second

- The top 10 addresses that are generating traps

- The top 10 traps that are being generated

In the NNMi console, you can access the trapanalytics.0.0.log file with **Tools > Trap Analytics > Trap Analysis Log**. For information about individual traps that arrived in the time window mentioned in the analytics report, use the nnmtrapdump.ovpl command. For more information, including details on the trapanalytics.0.0.log file and its location, see the *nnmtrapdump.ovpl* reference page, or the UNIX manpage.

The **Tools > Trap Analytics** menu in the NNMi console provides access to trap analytics reports. From a report window, you can start graphs of the trap rate for one or more nodes or trap OIDs.

For more information about the NNM iSPI NET SNMP Trap Analytics reports, see *Analyze Trap Information* in the NNMi help.

NNM iSPI NET Visio Export Functionality

You can export the information from one or more NNMi topology maps to an XML formatted (.vdx) file that Visio can read. For example, you might want to export the Network Overview topology map

before a major change to your network infrastructure. You can open this file in Visio, and you can share the file with people who do not use NNMi.

The **Tools > Visio Export > Current Map** command creates a Visio file containing one sheet that shows the topology of the map from which you invoke the command.

The **Tools > Visio Export > Saved Node Group Maps** command creates a Visio file containing one sheet per node group map. To include a node group map in this larger file, select the **Include in Visio Export** check box on the Node Group Map Settings form for the node group.

For more information about the Visio export functionality, including how you can modify and print the file within Visio, see *Export Maps to Microsoft Visio* in the NNMi help.

Chapter 5: Upgrading to NNM iSPI NET 10.00

NNM iSPI NET version 10.00 functions with browsers supported by the NNMi console; it does not change the diagnostic flows, which were first delivered in NNM iSPI NET version 8.10.

Do not immediately use the installation wizard (the setup_x64.exe) provided with NNM iSPI NET 10.00 diagnostics server to upgrade from an earlier version of the embedded HP OO server. There are several manual steps you need to complete prior to running the setup_x64.exe command. For manual steps, follow these:

"Upgrading from NNM iSPI NET Diagnostics Server version 9.10" below

"Upgrading from NNM iSPI NET Diagnostics Server version 9.20" on the next page

Upgrading from NNM iSPI NET Diagnostics Server version 9.10

Note: Upgrades from the 9.00 version of the iSPI-NET diagnostics server are not supported. You must uninstall MySQL and HP OO before reinstalling the 10.00 version.

The installation wizard (setup_x64.exe) provided with NNM iSPI NET 10.00 diagnostics server will not upgrade the NNM iSPI NET 9.10 to the NNM iSPI NET 10.00. The following manual upgrade procedure can be performed from the NNM iSPI NET diagnostics server 10.00 installation media.

1. With HP OO services running on your system, run the performOOupdates.bat command located on the installation media using the following syntax:

   performOOupdates.bat <OO installation folder> <OO admin password> <OO https port> update

   The following is an example: performOOupdates.bat "%ICONCLUDE_HOME%" password 8443 update

   HP recommends you to use "%ICONCLUDE_HOME% as the OO installation folder. If you supply your own path, do not include a trailing "\" in the OO installation folder path, as this will adversely affect upgrade processing.

   The processing from this batch file will:

   - install OO 9.07

   - install OO content 9.00.06

   - Recover all the OO keystores previously in use on your system that were replaced by the OO updates

2. Be patient while this batch file is running. It can take 60 minutes or longer if running from a DVD drive. Check the upgrade.log file in the %TEMP% for any errors. The log file will be important to troubleshoot any failures during the upgrade.

3. After the upgrade is complete, go to the following directory on the HP OO Central server:

    On Windows:

    %ICONCLUDE_HOME%\Central\conf

4. Open the Central.properties file with a text editor.

5. In the Central.propertiesfile, replace the dharma.antisamy.default.policy=slashdot.xml string with the following string:

    dharma.antisamy.default.policy=anythinggoes.xml

6. Save the file

7. Restart OO services

    To restart the services, follow these steps:

    On Windows:

    a. Log on to the HP OO Central server.

    b. In the Services window, restart the following services:

        i. RSCentral

        ii. RSJRAS

> **Note:** If Diagnostic flows are listed as "Not Submitted" after performing upgrade to NNM iSPI NET 10.00, follow the solution for missing hostname or other communication issue with the HP OO Central server as described in "Problem: Diagnostic flows are listed as "Not Submitted"" on page 43

Upgrading from NNM iSPI NET Diagnostics Server version 9.20

> **Note:** Upgrades from the 9.00 version of the iSPI-NET diagnostics server are not supported. You must uninstall MySQL and HP OO before reinstalling the 10.00 version.

The installation wizard (setup_x64.exe) provided with NNM iSPI NET 10.00 diagnostics server will not upgrade the NNM iSPI NET 9.20 to the NNM iSPI NET 10.00. The following manual upgrade procedure can be performed from the NNM iSPI NET diagnostics server 10.00 installation media.

1. With HP OO services running on your system, run the performOOupdates.bat command located on the installation media using the following syntax:

   performOOupdates.bat <OO installation folder> <OO admin password> <OO https port> update

   The following is an example: performOOupdates.bat "%ICONCLUDE_HOME%" password 8443 update

   HP recommends you to use "%ICONCLUDE_HOME% as the OO installation folder. If you supply your own path, do not include a trailing "\" in the OO installation folder path, as this will adversely affect upgrade processing.

   The processing from this batch file will:

   - install OO 9.07

   - install OO content 9.00.06

   - Recover all the OO keystores previously in use on your system that were replaced by the OO updates

2. Be patient while this batch file is running. It can take 60 minutes or longer if running from a DVD drive. Check the upgrade.log file in the %TEMP% for any errors. The log file will be important to troubleshoot any failures during the upgrade.

3. After the upgrade is complete, go to the following directory on the HP OO Central server:

   On Windows:

   %ICONCLUDE_HOME%\Central\conf

4. Open the Central.properties file with a text editor

5. In the Central.propertiesfile, replace the dharma.antisamy.default.policy=slashdot.xml string with the following string:

   dharma.antisamy.default.policy=anythinggoes.xml

6. Save the file

7. Restart OO services

   To restart the services, follow these steps:

   On Windows:

   a. Log on to the HP OO Central server.

b. In the Services window, restart the following services:

    i. RSCentral

    ii. RSJRAS

> **Note:** If the Diagnostic flows are listed as "Not Submitted" after performing upgrade to NNM iSPI NET 10.00, follow the solution for missing hostname or other communication issue with the HP OO Central server as described in "Problem: Diagnostic flows are listed as "Not Submitted"" on page 43

Chapter 6: Maintaining the NNM iSPI NET Diagnostics Server

If you are running the NNM iSPI NET diagnostics server, not the full HP Operations Orchestration (HP OO) product, read this chapter for information to help you maintain the embedded NNM iSPI NET diagnostics server.

Back up the Diagnostics Server Database

The NNM iSPI NET diagnostics server includes the MySQL database, which includes the mysqldump.exe command for backing up the contents of the database.

" Figure 1 Example MySQL Backup Script" below shows an example script for backing up the diagnostics server database with the mysqldump.exe command. In this example, make the following substitutions:

- Set the DATABASE variable to the database name specified during installation of the diagnostics sever.

- Set the ROOTUSER_PASSWORD variable to be the password of the MySQL database entered during installation of the diagnostics server.

Example MySQL Backup Script

Figure 1 Example MySQL Backup Script

```
@Echo Off
@For /F "tokens=1,2,3,4 delims=/ " %%A in ('Date /t') do @(
Set All=%%A%%B%%C%%D
)

@For /F "tokens=1,2,3 delims=: " %%A in ('Time /t') do @(
Set All=%ALL%_%%A_%%B_%%C
)

Set DATABASE=nnmi
Set ROOTUSER=root
Set ROOTUSER_PASSWORD=admin

REM NNM iSPI-NET 9.20

"C:\Program Files\MySQL\MySQL Server 5.1\bin\mysqldump.exe" -u%ROOTUSER%
-p%ROOTUSER_PASSWORD% --lock-tables --databases %DATABASE% >
nnminet_db_backup_%All%
```

> **Note:** The example shown in " Figure 1 Example MySQL Backup Script" above applies to NNM iSPI NET version 10.00. For earlier versions of NNM iSPI NET, the mysqldump.exe command is in the *<Drive>*:\Program Files (x86)\MySql\MySql Server 5.0\bin directory.

Back up HP OO Configuration Files

Before changing the configuration of the NNM iSPI NET diagnostics server, back up the HP OO configuration files in the following directories:

- <*Drive*>:\Program Files\Hewlett-Packard\Operations Orchestration\Central\conf

- <*Drive*>:\Program Files\Hewlett-Packard\Operations Orchestration\\RAS\Java\Default\web app\conf

- <*Drive*>:\Program Files\Hewlett-Packard\Operations Orchestration\Scheduler\conf

Chapter 7: Removing NNM iSPI NET

To remove the NNM iSPI NET software, do the following:

- "Task 1: Remove NNM iSPI NET References from the NNMi Console" below

- "Task 2: Remove the Diagnostic Flows and Server" on the next page

- "Task 3: Remove the MySQL Database" on the next page

Task 1: Remove NNM iSPI NET References from the NNMi Console

If NNM iSPI NET is unlicensed, you can remove references to it from the NNMi console; follow these steps:

1. Sign in to the NNMi console as an NNMi Administrator.

2. From the workspaces navigation panel, select the **Configuration** workspace.

3. Expand **User Interface**.

4. Select **User Interface Configuration**.

5. Clear the **Show Unlicensed Features** check box

6. Click **Save and Close**.

> **Note:** The steps in this task remove all menu items, views and workspaces for any unlicensed function, including NNMi Advanced and other NNM iSPIs if they are also unlicensed.

To remove an NNM iSPI NET license key (making NNM iSPI NET unlicensed), follow these steps:

1. At a command prompt on the NNMi management server, enter the following:

   nnmlicense.ovpl iSPI-NET -g

   > **Note:** The product license ID (iSPI-NET) is case-sensitive.

2. In the License Password dialog box, click **Remove License Key**.

Task 2: Remove the Diagnostic Flows and Server

You can either install the NNM iSPI NET with the HP OO Central that is embedded with the NNM iSPI NET media, or you can install only the diagnostic flows on an existing HP OO Central that was previously installed in your environment.

To remove an NNM iSPI NET instance with an embedded HP OO Central, follow these steps:

1. Make sure that all HP OO Central users log off.

Remove the embedded diagnostics server as follows:

1. Log on as an administrator or root to the system where the diagnostics server is installed.

2. Stop the services of the embedded HP OO Central: RSCentral and RSJRAS.

3. Mount the *NNM iSPI NET10.00* media.

4. Run one of the following programs from the media root:

   - For Windows 32-bit systems: uninstall.exe

   - For Windows 64-bit systems: uninstall_x64.exe

   - For Linux: uninstall_linux.sh

5. Enter the password in the *NNMi System Password* field

6. Click **Uninstall**

> **Note:** You cannot launch the reports after you uninstall NNM iSPI NET instance with an embedded HP OO Central.

If you installed only diagnostic flows on an already existing OO Central, use the OO Studio to remove the diagnostic flows.

Task 3: Remove the MySQL Database

You must remove the MySQL database after you uninstall the NNM iSPI NET. To remove the MySQL database, run these commands:

1. DROP USER nnminet_user@localhost;

2. FLUSH PRIVILEGES;

3. DROP DATABASE nnminet;

> **Note:** If MySQL is installed on a remote machine, use *<IP_Address or hostname>* instead of localhost

Remove the Triggering of Diagnostic Flows

To manually remove the running of diagnostic flows triggered by NNMi, follow these steps:

1. Log on as an administrator to the NNMi management server.

2. In a command window, run the following:

   Windows:"*<drive>*:\Program Files\HP\HP BTO Software\support\nnmdiagnostics.ovpl uninstall"

   UNIX:/opt/OV/support/nnmdiagnostics.ovpl uninstall

Chapter A: Troubleshooting Installation and Runtime Problems

Diagnostics Server Installation Problems

If you encounter errors during installation of the NNM iSPI NET diagnostics server, the error first appears in an error message window. After you close the message window, the installer Welcome window displays the error message in the text box. The NNM iSPI NET diagnostics server installer logs all error messages to the installation log.

The installation log is named nnm-ispi-net-server-installer.log. This file is created in the temporary files directory (as set with the %TEMP% environment variable) for the user doing the install.

You can restart the installation without having to close the installer window. If you click **Start Over** to restart the installation, the Configuration Parameters dialog is populated with the values you specified previously. This restart can be helpful if you have specified an incorrect user name or password for one of the components, or an HTTP or HTTPS port that is already in use. You can leave all other parameters as originally specified and change only the problem parameter. However, be aware that these configuration parameters do not persist after you exit the installer. If you exit the installer and then run it, you need to type the configuration parameters again. However, you must uninstall all the components that were already installed before clicking **Start Over**.

Problem: Diagnostics server installation subprocesses do not terminate immediately when installation is canceled

Solution:

If you click **Quit** in the main server installer window, the .NET and HP OO installation subprocesses run to completion after they are initiated as part of the install.

Problem: Cannot create database or add user during MySQL configuration

Solution:

If you are using the embedded HP OO Central diagnostics server:

- During MySQL configuration, you might have specified a different password for the MySQL root account than the password specified in the NNM iSPI NET diagnostics server installer Configuration Parameters window. To verify the password for the MySQL root account:

  - Verify that you have the correct root user name and password.Change these values in the Configuration Parameters window, if necessary.

  - If the existing MySQL database is on a remote system, verify that you can log on remotely to the root user account. If necessary, enable remote logon for the duration of the MySQL configuration step.

- Verify that your database and database user names do not conflict with names already in use on this MySQL server. Change these values in the Configuration Parameters window, if necessary.

After you have corrected any problems, click **Start Over** in the diagnostics server installer to try the MySQL configuration step again.

Problem: Diagnostics server installer reports an NNMi binding failure

This problem can occur if you incorrectly specify one or more of the NNMi fields in the Configuration Parameters step of NNM iSPI NET diagnostics server installation.

Solution:

To check that you have the correct values in these fields:

- Open a browser and navigate to http://*<hostname>* where *<hostname>* is the value you specified during installation for the NNMi Hostname or IP Address and *<port>* is the value you specified during installation for the NNMi HTTP Port.

- Sign in to NNMi as the system user using the password you specified during installation for the NNMi Administrative Password.

After you have verified the NNMi management server's hostname, port, and system user password, either click **Start Over** in the NNM iSPI NET diagnostics server installer or run the installer again.

If you are using an existing HP OO Central server, verify that you have created the required certificate files as described under See "Creating New SSL Certificate Files on an Existing HP OO Central Server" on page 9.

Diagnostic Flows Runtime Problems

Messages related to the running of diagnostic flows are logged to the nnm.0.0 log (and older) files on the NNMi management server. If you encounter diagnostic submittal problems on the NNMi management server, check these log files for SEVERE and WARNING messages for the classes beginning with the string com.hp.ov.nms.rba.

The nnm.0.0 log file is in the following location:

- Windows Server 2008:

  C:\ProgramData\HP\HP BTO Software\log\nnm.log

- UNIX:

  /var/opt/OV/log/nnm/nnm.log#

For more information about NNMi logging, including the versioning of log files, see the *logging.properties* reference page, or the UNIX manpage.

Problem: Diagnostic flows are listed as "Not Submitted"

If the flows displayed on the Diagnostics tab of a Node or Incident form are classified as "Not Submitted," NNMi might be unable to find device credentials for the target node, or the HP OO Central SSL certificates might be incorrect.

Solution:

Check the nnm.0.0.log file (or an older log file) on the NNMi management server for SEVERE or WARNING messages from the same time frame as the failing flows.

If the error messages indicate that a password or logon information is missing, use the Communication Configuration form in the Configuration workspace of the NNMi console to create Default Device Credentials. Then use Regions and Specific Node Settings to provide any device credentials that differ from the defaults.

If the error messages indicate a missing hostname or other communication issue with the HP OO Central server, verify that the SSL certificates have been set up on the HP OO Central server. To set up SSL certificates on the HP OO Central Server, follow these steps:

1. Log on to the HP OO Central server.

2. Back up the following files:

   On Windows

   - %ICONCLUDE_HOME%\Central\conf\rc_keystore

   - %ICONCLUDE_HOME%\ras\Java\Default\webapp\conf\ras_keystore.jks

   On Linux

   > **Tip:** On Linux, make sure that the $ICONCLUDE_HOME environment variable is set to the installation directory of HP OO.

   - $ICONCLUDE_HOME/Central/conf/rc_keystore

   - $ICONCLUDE_HOME/ras/Java/Default/webapp/conf/ras_keystore.jks

3. Make sure the *NNM iSPI NET installation DVD* is mounted on the system.

4. Go to the media root, and then run the following command:

   On Windows

   adjustcerts.bat "%ICONCLUDE_HOME%"*<OO_SERVER_FQDN>*

   On Linux

   ./adjustcerts.sh "$ICONCLUDE_HOME"*<OO_SERVER_FQDN>*

In this instance, *<OO_SERVER_FQDN>* is the fully qualified domain name (FQDN) of the HP OO Central server.

The command recreates the HP OO Central SSL certificate; the newly created certificate includes the FQDN of the HP OO Central server.

5. In the root directory of the installation media, run the following file:

    On Windows 64-bit

    setup_x64.exe

    On Windows 32-bit

    setup.exe

    On Linux

    setup_linux.sh

    The installer program performs the following tasks:

    ▪ Sends the newly created HP OO Central SSL certificate to NNMi

    ▪ Installs NNM iSPI NET Diagnostic Flows and sets up the binding between HP OO Central and the NNMi management server

Problem: Diagnostic flow results report a communication problem with the device

This problem indicates that NNMi has the wrong device credentials for this device.

Solution:

Telnet or ssh to the device to check whether the device credentials are correct.

After you have verified that you have the correct username and password, correct or add the appropriate setting using the Default Device Credentials, Regions, or Specific Node Settings tab on the Communication Configuration form in the NNMi console Configuration workspace.

Problem: NNMi reports 0 diagnostic flows submitted

This problem indicates that you have attempted to run a diagnostic flow for a device that has no associated flows.

Solution:

Only certain types of devices have associated diagnostic flows. See the *NNM iSPI NET Diagnostics Server System and Device Support Matrix* for details about supported devices.

Problem: NNMi does not use credentials supplied in Specific Node Settings

If the Target Hostname field of the Specific Node Settings form does not exactly match the value of the node hostname attribute in the NNMi inventory, NNMi might not find the correct credentials for the device.

Solution:

If NNMi found a fully-qualified domain name for a node during discovery, this name must be used to identify the node in Specific Node Settings. For example, suppose NNMi discovery processes have identified the node by its fully qualified domain name:

rtr17.bldg3.example.com

You cannot use rtr17 or an IP address to identify the node in Specific Node Settings. You must use rtr17.bldg3.example.com. An IP address can be used only if NNMi does not have a fully-qualified domain name for the node.

To determine how NNMi has identified a node, open a Node form for the node from a topology map or a table view. The Hostname value in the Node form contains a fully qualified domain name or an IP address, depending on what NNMi found during discovery. Use the value from the Hostname field to identify the node in Specific Node Settings.

Visio Export Functionality Problems

Messages related to Visio export are logged to the nnm.0.0.log (and older) files on the NNMi management server. If you experience problems with exporting maps to Visio, check these log files for SEVERE and WARNING messages for the following classes:

- com.hp.ov.nms.ui.visio.*

- com.hp.ov.nms.ui.framework.web.servlets.VisioViewSerlvet

The nnm.0.0.log file is in the following location:

- Windows Server 2008:

  C:\ProgramData\HP\HP BTO Software\log\nnm\nnm.%g.%u.log

- Windows Server 2003:

  C:\Documents and Settings\All Users\Application Data\HP\HP BTO Software\log\nnm\nnm.%g.%u.log

- UNIX:

  /var/opt/OV/log/nnm/nnm.%g.%u.log

For more information about NNMi logging, including the versioning of log files, see the *logging.properties* reference page, or the UNIX manpage.

Problem: Cannot open the Visio file directly from NNMi

If the File Download window does not include the Open button, Visio is not installed on the computer where the NNMi console is running.

Solution:

Install the correct version of Visio (as described in the *NNMi System and Device Support Matrix*) on the computer running the NNMi console. Alternatively, you can save the file to the NNMi

management server and then move it to a different computer where the correct version of Visio is installed.

Problem: Visio file does not open correctly

The Visio installation might be an incorrect version or might be corrupted.

Solution:

Install the correct version of Visio (as described in the *NNMi System and Device Support Matrix*).

Problem: Node group map not exported with Saved Node Group Maps command

The node group might not be configured correctly.

Solution:

For each node group map you want to export with the Saved Node Group Maps command, verify that the **Include in Visio Export** check box is selected on the Node Group Map Settings form

Problem: Export is very slow

Each node on a map increases the export time.

Solution:

On the Node Group Map Settings form, reduce the values of the Maximum Number of Displayed Nodes and Maximum Number of Displayed End Points attributes.

Problem: Export file is too large

All information in the export increases the file size.

Solution:

In the Visio Map Export window, clear the **Include connection labels** check box. This configuration limits the amount of data exported for each connection, which results in a smaller file size.

Problem: No download window

One or both of the Visio Map Export and File Download windows do not open

Solution:

Check the nnm.0.0.log file (or an older log file) on the NNMi management server for SEVERE or WARNING messages.

Problem: Visio Export menu not enabled or gives Access Denied message

By default, the Visio export functionality requires that you sign in as an NNMi Operator 2 or Administrator.

Solution:

Ask the NNMi administrator to add you to the Operator 2 user group.

nnmooflow.ovpl Command Problems

Messages regarding the nnmooflow.ovpl command are logged to the nnm.0.0.log (and older) files on the NNMi management server. If the nnmooflow.ovpl command generates an error message, check these log files for SEVERE and WARNING messages for the classes beginning with the string com.hp.ov.nms.rba.

The nnm.0.0.log file is in the following location:

- Windows Server 2008:

    C:\ProgramData\HP\HP BTO Software\log\nnm\nnm.%g.%u.log

- UNIX:

    /var/opt/OV/log/nnm/nnm.%g.%u.log

For more information about NNMi logging, including the versioning of log files, see the *logging.properties* reference page, or the UNIX manpage.

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 Planning and Installation Guide (NNM iSPI Network Engineering Toolset Software 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.