

# HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance

for the Windows<sup>®</sup>, HP-UX, Linux, and Solaris operating systems

Software Version: 9.00

---

## Deployment Reference

Document Release Date: April 2010  
Software Release Date: March 2010



## Legal Notices

### Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

### Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

### Copyright Notice

© Copyright 2010 Hewlett-Packard Development Company, L.P.

### Trademark Notices

Acrobat® is a trademark of Adobe Systems Incorporated.

HP-UX Release 10.20 and later and HP-UX Release 11.00 and later (in both 32 and 64-bit configurations) on all HP 9000 computers are Open Group UNIX 95 branded products.

Java™ is a US trademark of Sun Microsystems, Inc.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

### Oracle Technology — Notice of Restricted Rights

Programs delivered subject to the DOD FAR Supplement are 'commercial computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement. Otherwise, programs delivered subject to the Federal Acquisition Regulations are 'restricted computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the restrictions in FAR 52.227-19, Commercial Computer Software-Restricted Rights (June 1987). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

For the full Oracle license text, see the license-agreements directory on the NNMi product DVD.

### Acknowledgements

This product includes software developed by the Apache Software Foundation.  
(<http://www.apache.org>)

This product includes software developed by the Indiana University Extreme! Lab.  
(<http://www.extreme.indiana.edu>)

This product includes software developed by The Legion Of The Bouncy Castle.  
(<http://www.bouncycastle.org>)

This product contains software developed by Trantor Standard Systems Inc.  
(<http://www.trantor.ca>)

## Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

## Support

Visit the HP Software Support web site at:

**[www.hp.com/go/hpsoftwaresupport](http://www.hp.com/go/hpsoftwaresupport)**

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

**<http://h20229.www2.hp.com/passport-registration.html>**

To find more information about access levels, go to:

**[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)**

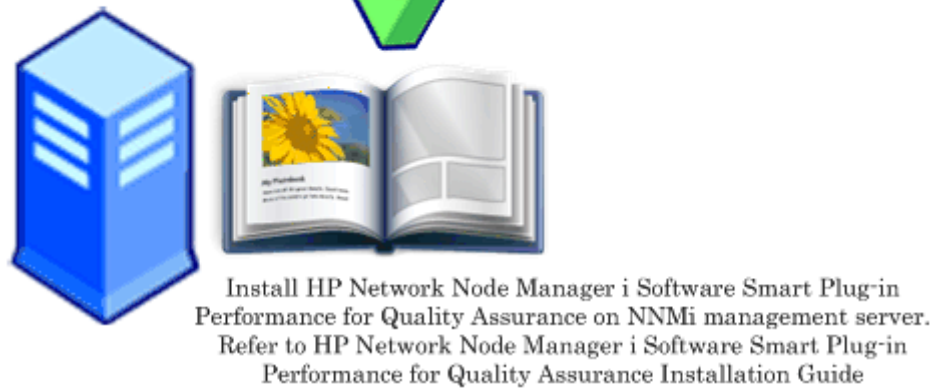
# Contents

<b>1</b>	<b>About This Guide</b> .....	<b>7</b>
	About This Guide .....	8
	Environment Variables that NNM iSPI Performance for QA Uses .....	9
	Windows .....	9
	UNIX .....	9
<b>2</b>	<b>Preparation</b> .....	<b>11</b>
<b>3</b>	<b>Deploying NNM iSPI Performance for QA</b> .....	<b>13</b>
	Pre-Deployment Considerations .....	13
	Co-Existence with Network Performance Server .....	13
	Scenario 1: Network Performance Server installed on the NNMi Management Server .....	14
	Deploying NNM iSPI Performance for QA with NNM iSPI for MPLS .....	14
	Deploying NNM iSPI Performance for QA with NNM iSPI for IP Telephony .....	15
<b>4</b>	<b>Before Discovering and Polling</b> .....	<b>17</b>
	Understand Basic NNM iSPI Performance for QA Concepts .....	17
	NNM iSPI Performance for QA Metrics .....	17
	Monitored Services .....	18
	Supported MIBs .....	18
	Understand the Discovery and Polling .....	18
	Discovery .....	18
	Polling .....	19
	Understand the Site and Threshold Configurations .....	19
	Site Configurations .....	19
	Threshold Configurations .....	20
<b>5</b>	<b>Best Practices</b> .....	<b>21</b>
	Pre-Install and Installation .....	21
	Before Discovering and Polling .....	22
	NNM iSPI Performance for QA Administration .....	22
<b>6</b>	<b>Deploying the NNM iSPI Performance for QA in an HA Cluster Environment</b> .....	<b>23</b>
	Configuring NNMi and NNM iSPI Performance for QA Together in an HA Cluster Environment ..	23
	Configure the NNM iSPI Performance for QA on the Primary Node .....	23
	Configure the NNM iSPI Performance for QA on the Secondary Node .....	24
	Configuring the NNM iSPI Performance for QA in an NNMi HA Cluster Environment .....	25
	Prerequisites to Configure the NNM iSPI Performance for QA on the Primary Node .....	25
	Prerequisites to Configure the NNM iSPI Performance for QA on the Secondary Node .....	25
	Unconfiguring the NNM iSPI Performance for QA from an HA Cluster Environment .....	26

<b>7</b>	<b>Deploying NNM iSPI Performance for QA in Application Failover Environment</b>	<b>27</b>
	Deploying the iSPI for Application Failover while Using Oracle Database	27
	Scenario 1: The iSPI is Installed with NNMi and Application Failover is configured on NNMi	27
	Scenario 2: The iSPI is Installed after NNMi is Configured for Application Failover	28
	Deploying the iSPI for Application Failover while Using the Embedded PostgreSQL Database	28
	Scenario 1: The iSPI is Installed with NNMi and Application Failover is Configured on NNMi	28
	Scenario 2: The iSPI is Installed after NNMi is Configured for Application Failover	28
<b>A</b>	<b>Troubleshooting</b>	<b>31</b>
	Troubleshooting the Error Encountered while Loading Data from the NNMi Management Server	31
	Problem Statement	31
	Resolution	31
	Troubleshooting Event Consolidation on Global Network Manager	31
	Problem Statement	31
	Resolution	31
	<b>Index</b>	<b>33</b>

# 1 About This Guide

Follow these steps before you start using this guide:



## About This Guide

This guide contains a collection of information and best practices for deploying HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance (referred to as NNM iSPI Performance for QA in the rest of the document). This guide is targeted to:

- HP Network Node Manager i Software (NNMi) and Network Performance Server (NPS) system administrator
- Network engineer
- HP support
- Engineer with experience in deploying and managing networks in large installations

HP updates this deployment reference, installation guide, support matrix, and the release notes for NNM iSPI Performance for QA and migration guide between product releases, as soon as critical new information becomes available. For information about retrieving an updated version of this document, see [Available Product Documentation](#).



# Environment Variables that NNM iSPI Performance for QA Uses

This document uses the following NNMi environment variables that are used in NNM iSPI Performance for QA too. These environment variables enables you to refer to file and directory locations. The default values are listed here. Actual values depend upon the selections made during NNMi installation.

## Windows

On Windows systems, the NNMi installation process creates the following environment variables so they are always available.

```
%NnmInstallDir%: <drive>\Program Files\HP\HP BTO Software
```

```
%NnmDataDir%: <drive>\Documents and Settings\All Users\Application  
Data\HP\HP BTO Software
```

## UNIX

On UNIX systems, you must manually create these environment variables.

```
$NnmInstallDir: /opt/OV
```

```
$NnmDataDir: /var/opt/OV
```



## 2 Preparation

Before installing NNM iSPI Performance for QA, read the following information about system hardware and software requirements described in the following table:

**Table 1 Software and hardware pre-installation checklist**

<b>Document Type</b>	<b>Document Path</b>
<i>HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance Installation Guide</i>	<b>Filename:</b> nmQASPI_InstallGuide_e n.pdf
	<b>Windows Media:</b> DVD main drive (root)
	<b>UNIX Media:</b> Root directory
	<b>NNM iSPI Performance for QA console:</b> Help > NNM iSPI Documentation Library > iSPI Performance for QA Install Guide
<i>HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance Release Notes</i>	<b>Filename:</b> nmQAispi_releasenotes_ en.html
	<b>Windows Media:</b> DVD main drive (root)
	<b>UNIX Media:</b> Root directory
	<b>NNM iSPI Performance for QA console:</b> Help > NNM iSPI Documentation Library > iSPI Performance for QA Release Notes

**Table 1 Software and hardware pre-installation checklist**

<b>Document Type</b>	<b>Document Path</b>
<i>HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance System and Device Support Matrix</i>	Filename: nmQAispi_supportmatrix _en.html
	Windows Media: DVD main drive (root)
	UNIX Media: Root directory
	NNM iSPI Performance for QA console: Help > NNM iSPI Documentation Library > iSPI Performance for QA System and Device Support Matrix

For current versions of all documents listed here, go to:

**<http://h20230.www2.hp.com/selfsolve/manuals>**

NNM iSPI Performance for QA ships with 60 day instant on unlimited license. When you reach your license limit, a message informs you that your license has expired. You can extend your license when you see this message.

# 3 Deploying NNM iSPI Performance for QA

You must install NNM iSPI Performance for QA on the NNMi management server. Also NNM iSPI Performance for QA must integrate with Network Performance Server to display the Quality of Service (QoS) reports.

You can integrate NNM iSPI Performance for QA with the following HP Network Node Manager i-series Smart Plug-ins that enable you extend the capability of NNMi to monitor the overall health of the network.

- HP Network Node Manager iSPI for MPLS Software (NNM iSPI for MPLS)
- HP Network Node Manager iSPI for IP Telephony Software (NNM iSPI for IP Telephony)

Once integrated with the iSPIs, NNM iSPI Performance for QA enhances the capabilities of these iSPIs in the following ways:

- Enables you to view the quality of performance for the network elements managed by the iSPIs.
- Generates quality assurance reports for the health and performance of the network elements managed by the iSPIs.

## Pre-Deployment Considerations

Before you start deploying the NNM iSPI Performance for QA, you must plan the installation based on your deployment requirements. You must identify the ideal deployment scenario among the supported configurations and ensure that all the prerequisites are met before you begin the installation process.

The following factors impact the deployment of the NNM iSPI Performance for QA:

- Type of database configured with NNMi (embedded PostgreSQL or Oracle)
- Size of the network that you want to monitor
- Number of QA probes that you want to run.
- Size of the Network Performance Server that stores the NNM iSPI Performance information

Refer to the documents listed in [Preparation](#) to identify your deployment requirements.

## Co-Existence with Network Performance Server

You can deploy NNMi 9.00, the iSPIs for NNMi, NNM iSPI Performance for Metrics, and Network Performance Server on the same NNMi management server. Alternatively, you can deploy NNMi 9.00 and the iSPIs for NNMi on the NNMi management server and deploy NNM iSPI Performance for Metrics on a separate Network Performance Server.

## Scenario 1: Network Performance Server installed on the NNMi Management Server

This deployment scenario is recommended for development environments. In this scenario:

- NNMi database (embedded PostgreSQL or Oracle) stores information on discovered network nodes, latest representation of the network topology, incidents, and network health information from the following iSPIs:
  - NNM iSPI Performance for QA
  - NNM iSPI for MPLS
  - NNM iSPI for IP Telephony
- NNMi shares the collected information with Network Performance Server for NNM iSPI for Performance reporting.
- NNM iSPI Performance for Metrics stores the collected data in Network Performance Server.
- You can view the Quality Assurance reports that includes network performance metrics collected by NNM iSPI for MPLS and NNM iSPI for IP Telephony.

## Scenario 2: Network Performance Server installed on Separate Server

This deployment scenario is recommended for production environments. In this scenario:

- NNMi database (embedded PostgreSQL or Oracle) stores information on discovered network nodes, latest representation of the network topology, incidents, and network health information from the following iSPIs:
  - NNM iSPI Performance for QA
  - NNM iSPI for MPLS
  - NNM iSPI for IP Telephony
- NNM iSPI Performance for QA, NNM iSPI for MPLS, NNM iSPI for IP Telephony, and NNM iSPI Performance for Metrics shares metrics information using the \\FQDN\PerfSpi folder.
- NNMi shares the collected information with Network Performance Server through a shared data storage. This data is used to generate the NNM iSPI for Performance reports
- NNM iSPI Performance for Metrics stores the collected data in Network Performance Server.
- You can view the Quality Assurance reports that includes network performance metrics collected by NNM iSPI for MPLS and NNM iSPI for IP Telephony.

## Deploying NNM iSPI Performance for QA with NNM iSPI for MPLS

NNMi iSPI for MPLS, while integrated with NNM iSPI Performance for QA enables you to perform the following:

- View the specific QA probes configured for each VRF.
- Generate reports based on the performance of the selected VRF.
- Monitor the quality of the connectivity between multiple sites in the context of the selected VRF.

To deploy NNM iSPI Performance for QA with NNM iSPI for MPLS, both software must be installed on the same NNMi management server.

You must deploy NNM iSPI Performance for QA while deploying NNM iSPI for MPLS. For information on deploying NNM iSPI for MPLS, see *HP Network Node Manager i Software Smart Plug-In for MPLS Deployment Reference*.

## Deploying NNM iSPI Performance for QA with NNM iSPI for IP Telephony

NNM iSPI for IP Telephony integrates with NNM iSPI Performance for QA to launch the Quality Assurance reports for the health and performance of the voice path of Cisco IP Telephony network. You can also measure the health and performance of your VoIP network.

While integrated with NNM iSPI for IP Telephony, NNM iSPI Performance for QA metrics enable you to perform a trend analysis for any persistent performance problems of Cisco IP Telephony or VoIP network.

For example, if voice calls passing through two IP routers are facing persistent voice quality problems, you can use Quality Assurance metrics like Round Trip Time (RTT), Jitter, or Mean Opinion Scores (MOS) for the network path between these IP routers to reveal the cause of the problem.

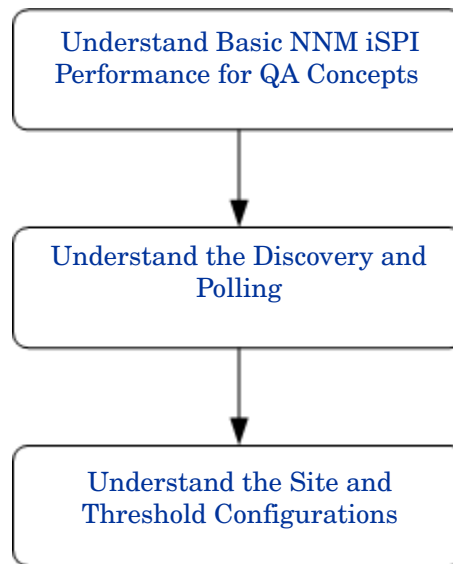
To deploy NNM iSPI Performance for QA with NNM iSPI for IP Telephony, both software must be installed on the same NNMi management server.

You must deploy NNM iSPI Performance for QA while deploying NNM iSPI for IP Telephony. For information on deploying NNM iSPI for IP Telephony, see *HP Network Node Manager i Software Smart Plug-In for IP Telephony Deployment Reference*.





## 4 Before Discovering and Polling



### Understand Basic NNM iSPI Performance for QA Concepts

NNM iSPI Performance for QA enables you to monitor all QA probes that are running in the network. The types of QA probes the NNM iSPI Performance for QA enables you to monitor are as follows:

- Cisco IP SLA tests with CISCO-RTTMON-MIB
- DISMAN Ping using RFC 4560

The QA probe must be configured on a node or interface managed by the NNMi for NNM iSPI Performance for QA to discover the QA probe.

### NNM iSPI Performance for QA Metrics

NNM iSPI Performance for QA measures the network performance using the following metrics:

- RTT (msecs and usecs)

RTT can either be measured in milliseconds or in micro seconds based on the precision configured for the QA probe.

- Positive Jitter (source to destination, destination to source, two way)

- Negative Jitter (source to destination, destination to source, two way)
- Percentage Packet Loss (source to destination, destination to source, two way)
- MOS

Using the QA Probes form, you can analyze the QA probe status and the threshold states based on these metrics.

## Monitored Services

NNM iSPI Performance for QA recognizes the following service types:

- UDP Echo
- ICMP Echo
- UDP
- TCP Connect
- VoIP

## Supported MIBs

NNM iSPI Performance for QA loads the network performance information in NNMi using the following MIBs:

- CISCO-RTTMON-MIB
- DISMAN-PING-MIB

# Understand the Discovery and Polling

## Discovery

- NNM iSPI Performance for QA discovers the QA probes configured on the nodes and interfaces managed by NNMi.
- NNM iSPI Performance for QA discovers the shadow routers configured for your Multiprotocol Label Switching (MPLS) network. You can integrate NNM iSPI Performance for QA with NNM iSPI for MPLS to yield more benefits from this feature.
- NNM iSPI Performance for QA discovers the following during each NNMi configuration poll:
  - The newly added or updated QA probes
  - Update the destination IP address to hostname and update the interfaces for the newly added managed nodes
- NNM iSPI Performance for QA resolves the target IP address of a QA probe by the IP address specified for a hostname. If the target IP address is not available in NNMi, NNM iSPI Performance for QA resolves the target address by launching DNS query during discovery.

As resolving the target address of the QA probes using DNS lookup may not always be correct, you can disable DNS lookup. Set the startup value for the property `com.hp.ov.nms.spi.qa.disco.dns` to **false**. You can locate this property in the following folder:

Windows: %NnmDataDir%\shared\qa\conf\nms-qa.jvm.properties

UNIX: \$NnmDataDir/shared/qa/conf/nms-qa.jvm.properties

- NNM iSPI Performance for Metrics uses the QA probe names resolved during discovery to generate the Quality Assurance reports.
- Each on-demand or scheduled NNMi configuration poll re-discovers the QA probes configured on the polled nodes.

## Polling

- NNM iSPI Performance for QA polls the QA probe results every time the QA probes runs. In other words, polling frequency for NNM iSPI Performance for QA is equal to the QA probe frequency.
- The NNM iSPI Performance for QA poller measures the collected metrics against the configured thresholds and calculates the threshold violation states.  
You can view the threshold violation states using the QA Probes form.
- NNM iSPI Performance for QA supports sub-minute polling.  
By default the SNMP polling interval for the discovered QA probes is equal to the frequency of the IP SLA operations. If the operation frequency is less than 60 seconds for a QA probe, NNM iSPI Performance for QA applies sub-minute polling for that QA probe.
- Cisco IOS IP SLA allows for configuration of a history distribution of statistics for reporting a statistical distribution of response times. NNM iSPI Performance for QA does not support this feature. You must redefine the IP SLA QA probes on the source router as having no history, or history distribution-of-statistics-kept 1 to generate correct Quality Assurance reports on.

# Understand the Site and Threshold Configurations

## Site Configurations

- A site is a collection of QA probes configured on the network elements managed by NNMi. A network element can be a node, an interface, a Virtual Routing and Forwarding instance (VRF) in a Virtual Private Network (VPN), and so on. NNM iSPI Performance for QA enables you to create sites when you need to categorize these network elements into groups. For example, a site can be created based on the geographic proximity of the network elements, the similar node groups, or similar node IDs.
- Sites are identified by their names. A site name must be unique. Site names are case-sensitive.
- NNM iSPI Performance for QA enables you to export the new or updated site configurations in an XML file and import them whenever required. You can specify the location to store this XML file as you require.
- NNM iSPI Performance for QA associates each QA probe with a specific site. A QA probe can be associated with only one source site.

The QA probe associations for each site are re-computed during each configuration poll. Using the Re-Compute Probes Associations feature you can re-compute the associations as you require.

- NNM iSPI Performance for QA reflects deletion of sites immediately and recomputes the QA probes associations for the deleted sites.

The QA probe associations for a newly added or updated site are re-computed during the configuration poll. You can also use the Re-Compute Probes Associations feature to re-compute the associations.

## Threshold Configurations

- A threshold can be defined on all the metrics available for the QA probes associated with an existing site.
- You must define a source site for the threshold, while defining the destination site for the threshold is optional.
- NNM iSPI Performance for QA calculates the threshold states for the metrics while polling the QA probe information.
- NNM iSPI Performance for QA enables you to generate incidents if a threshold is violated. You can also specify after how many threshold violations NNM iSPI Performance for QA should generate the incident.
- You can view the threshold state and incidents generated for each discovered QA probe using the QA probes form.

# 5 Best Practices

## Pre-Install and Installation

- Refer to the *HP Network Node Manager i Software Smart Plug-in Performance for Quality Assurance System and Device Support Matrix* at <http://h20230.www2.hp.com/selfsolve/manuals> for the hardware sizing guidelines.
- Install NNM iSPI Performance for QA on the NNMi management server.
- Install NNM iSPI Performance for QA and NNM iSPI for MPLS on the same NNMi management server to integrate NNM iSPI Performance for QA with NNM iSPI for MPLS.
- Install NNM iSPI Performance for QA and NNM iSPI for IP Telephony on the same NNMi management server to integrate NNM iSPI Performance for QA with NNM iSPI for IP Telephony.
- Install NNMi on the management server before installing the iSPIs for NNMi.
- Install the Network Performance Server before installing the NNM iSPI Performance for QA.
- Create the Web Server Client user for NNM iSPI Performance for QA in NNMi.

If you already have iSPIs installed in the NNMi management server, you can use the existing Web Server Client username and password.

- Use the NNMi database (embedded PostgreSQL or Oracle) for NNM iSPI Performance for QA.
- Do not modify the value for the NNMi Java Naming and Directory Interface (JNDI) Port in the Parameters for QA iSPI to NNMi and NNMi to QA iSPI Communication dialog box, while installing the NNM iSPI Performance for QA.
- Use secure mode of transmission. Select **isSecure** for secured communication in the Parameters for QA iSPI to NNMi and NNMi to QA iSPI Communication dialog box.
- Look at the following file to find the ports you need to open up, if you have firewalls activated:

Windows: %NnmDataDir%\shared\qa\conf\nms-qa.ports.properties

UNIX: \$NnmDataDir/shared/qa/conf/nms-qa.ports.properties

- Start the QA process using the following command before you start using NNM iSPI Performance for QA:

```
ovstart -c qajboss
```

## Before Discovering and Polling

- If you have shadow routers configured, seed the shadow routers and set the SNMP community strings for the shadow routers. Do not set up the community strings for the physical routers.
- Configure the sites.
- Configure site-wide thresholds.

You can set up threshold for the following services:

- UDP Echo
- ICMP Echo
- UDP
- TCP Connect
- VoIP

You can set up thresholds for all [NNM iSPI Performance for QA Metrics](#).

- Export the site and threshold configuration before you start discovering QA probes. You can edit the exported XML file manually.

Import the site and threshold configurations when required.

## NNM iSPI Performance for QA Administration

- NNM iSPI Performance for QA enables you to view the QA probes configured locally. You can also forward incidents from the Regional Network Managers to Global Network Managers and consolidate them on the Global Network Manager.
- Use the following commands to backup and restore configuration information and polled data:
  - Backup: `nnmbackup.ovpl`
  - Restore: `nnmrestore.ovpl`

For information on these commands, see *NNMi Documentation Library > Reference Pages* in the NNMi console.

# 6 Deploying the NNM iSPI Performance for QA in an HA Cluster Environment

You can install NNMi and NNM iSPI Performance for QA in a High Availability (HA) environment to achieve redundancy in your monitoring setup. The prerequisites to configure the NNM iSPI Performance for QA in an HA environment is similar to NNMi. For information, see *NNMi Deployment Reference*.

You can configure the NNM iSPI Performance for QA for the following scenarios:

- Configuring NNMi and NNM iSPI Performance for QA together in an HA environment.
- Configuring the NNM iSPI Performance for QA in an NNMi environment.

## Configuring NNMi and NNM iSPI Performance for QA Together in an HA Cluster Environment

You can configure NNMi and NNM iSPI Performance for QA on the primary node and secondary node in an HA environment. For more information about how to install NNMi on an HA environment, see *NNMi Deployment Reference*.

### Configure the NNM iSPI Performance for QA on the Primary Node

To configure the NNM iSPI Performance for QA on the primary node, follow these steps:

- 1 Install NNMi and then NNM iSPI Performance for QA. After you install the NNM iSPI Performance for QA, install the NNM iSPI Performance for QA Non-Production licenses. For more information, see <https://webware.hp.com/welcome.asp>.
- 2 Configure NNMi in an HA cluster environment on the primary node. For information, see *NNMi Deployment Reference*.
- 3 Run the following command to find the virtual hostname:

```
nnmofficialfqdn.ovpl
```

- 4 Modify the following files from the `$NnmdataDir/shared/qa/conf/` or `%NnmdataDir%\shared\qa\conf` to show the Virtual FQDN instead of hostname:

File Name	Value
QA.jvm.properties	<hostname>.selfsigned
nms-QA.address.properties	jboss.nnm.host
nms-QA.jvm.properties	Djava.rmi.server.<hostname>
nnm.extended.properties	com.hp.ov.nms.spi.qa.nnm.<hostname>
nnm.extended.properties	com.hp.ov.nms.spi.qa.spi.<hostname>

- 5 Start the NNMi HA resource group by the following command:

- For Windows:

```
%NnmInstallDir%\misc\nnm\ha\nnmhastartrg.ovpl NNM\ <resource_group>
```

- For UNIX:

```
$NnmInstallDir/misc/nnm/ha/nnmhastartrg.ovpl NNM\ <resource_group>
```

For more information, see *NNMi Deployment Reference*.

The NNM iSPI Performance for QA and NNMi must start after this step. If NNMi or the NNM iSPI Performance for QA do not start, see *Troubleshooting the HA Configuration from NNMi Deployment Reference*.

- 6 Configure the NNM iSPI Performance for QA by the following commands:

- For Windows:

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

- For UNIX:

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

## Configure the NNM iSPI Performance for QA on the Secondary Node

To configure the NNM iSPI Performance for QA on the secondary node, follow these steps:

- 1 Configure NNMi on the secondary node. For information, see *Configuring NNMi on the Secondary Cluster Node*. After you install the NNM iSPI Performance for QA, install the NNM iSPI Performance for QA Non-Production licenses. For more information, see <https://webware.hp.com/welcome.asp>.
- 2 Modify the following files from the `$NnmdataDir/shared/qa/conf/` or `%NnmdataDir%\shared\qa\conf` to show the Virtual FQDN instead of hostname:

File Name	Value
QA.jvm.properties	<hostname>.selfsigned
nms-QA.address.properties	jboss.nnm.host
nms-QA.jvm.properties	Djava.rmi.server.<hostname>
nnm.extended.properties	com.hp.ov.nms.spi.qa.nnm.<hostname>
nnm.extended.properties	com.hp.ov.nms.spi.qa.spi.<hostname>

- 3 Configure the NNM iSPI Performance for QA on the secondary node by the following commands:

- For Windows:

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

- For UNIX:

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



## Configuring the NNM iSPI Performance for QA in an NNMi HA Cluster Environment

You can configure the NNM iSPI Performance for QA on the primary node and secondary node in an NNMi HA cluster environment. For more information about how to install NNMi in an HA environment, see *NNMi Deployment Reference*.

### Prerequisites to Configure the NNM iSPI Performance for QA on the Primary Node

Before you start configuring the NNM iSPI Performance for QA, make sure that NNMi is running on the primary node in an HA cluster environment. In addition, update the NNMi in the maintenance mode to prevent failover. Follow the steps documented in the *NNMi Deployment Reference* to put NNMi into the maintenance mode. Make sure that NNMi (ovjboss) is running by the following command: `ovstatus -c`.

To configure the NNM iSPI Performance for QA on the primary node, follow these steps:

- 1 Install the NNM iSPI Performance for QA.
- 2 Remove NNMi from maintenance mode. For information, see *Removing an HA Resource Group from Maintenance Mode* from the *NNMi Deployment Reference*.
- 3 Start configuring the NNM iSPI Performance for QA by the following commands:

- For Windows:

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

- For UNIX:

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

- 4 Stop NNMi and NNM iSPI Performance for QA to initiate the failover by the following command:

```
ovstop -c
```

### Prerequisites to Configure the NNM iSPI Performance for QA on the Secondary Node

Before you start configuring the NNM iSPI Performance for QA, make sure that NNMi is running on the secondary node in an HA cluster environment. Stop NNMi and NNM iSPI Performance for QA by using `ovstop -c` to initiate the failover. In addition, change NNMi into the maintenance mode to prevent failover. Follow the steps documented in the *NNMi Deployment Reference* to put NNMi into the maintenance mode. Make sure that NNMi (ovjboss) is running by the following command: `ovstatus -c`.

To configure the NNM iSPI Performance for QA on the secondary node, follow these steps:

- 1 Start installing the NNM iSPI Performance for QA. While installing the NNM iSPI Performance for QA, the following errors appear:

- Create Database User
- Create Database

Ignore the error messages and Click **OK**. The database is created on the primary node while installing the NNM iSPI Performance for QA and exists on the shared disk.

- 2 Remove NNMi from maintenance mode. For information, see *Removing an HA Resource Group from Maintenance Mode* from the *NNMi Deployment Reference*.
- 3 Start configuring the NNM iSPI Performance for QA by the following commands:

- For Windows:

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

- For UNIX:

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

- 4 Stop NNMi and NNM iSPI Performance for QA to start the failover back to the primary node by the following command:

```
ovstop -c
```

## Unconfiguring the NNM iSPI Performance for QA from an HA Cluster Environment

To remove the NNM iSPI Performance for QA from an HA cluster environment, first unconfigure the NNM iSPI Performance for QA from the secondary node and then from the primary node.

To unconfigure the NNM iSPI Performance for QA from an HA cluster environment, follow these steps:

- 1 Remove the NNM iSPI Performance for QA by the following command:

- Windows:

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

- For UNIX:

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

- 2 Remove NNMi from an HA cluster environment. For information, see *NNMi Deployment Reference*.

# 7 Deploying NNM iSPI Performance for QA in Application Failover Environment

Configuration tasks to configure application failover for the iSPIs are similar to the configurations tasks to configure NNMi for application failover. Refer to the *NNMi Deployment Reference* for information about these configuration tasks.

## Deploying the iSPI for Application Failover while Using Oracle Database

### Scenario 1: The iSPI is Installed with NNMi and Application Failover is configured on NNMi

In this scenario, we make the following assumptions

- NNMi is installed in the Primary server mode in System1.
- NNMi is installed in the Secondary server mode in System2.
- Oracle is installed with Primary and Secondary server enabled for the application failover environment.

Follow these steps to deploy NNM iSPI Performance for QA in application failover environment:

- 1 Start NNMi on System1 as Primary server and install the iSPI on System1.
- 2 Install the iSPI with Oracle Database.
- 3 Merge the keystores on either System1 or System2 and copy them to the other system. For information on how to merge the keystores and copy them to another system, refer to the *NNMi Deployment Reference*.
- 4 Install the Non Production Licenses available for the iSPI on System1.
- 5 Stop NNMi on System1.
- 6 Start NNMi on System2.
- 7 Install the iSPI on System2.

To install the iSPI on the Secondary server (System2) use the same database instance, username, and password used on the Primary server (System1).

- 8 Install the Non Production Licenses available for the iSPI on System2.
- 9 Configure the iSPI for application failover between System1 and System2. The steps to configure the iSPIs for application failover are similar to the steps to configure NNMi for application failover. For information on how to configure the iSPI for application failover, refer to the *NNMi Deployment Reference*.

## Scenario 2: The iSPI is Installed after NNMi is Configured for Application Failover

- 1 Remove configuration for application failover from the NNMi Primary and Secondary servers.
- 2 Restore the old keystore and truststore specific to the Primary server and the Secondary server.
- 3 Unconfigure the iSPI for application failover using the following steps:
  - a Disable application failover for the iSPI following the steps discussed in the “*Disabling NNMi for Application Failover*” section in the *NNMi Deployment Reference*.
  - b Restore the keystore and the truststore for the systems that you backed up before configuring them for application failover.
- 4 Install the iSPI on both Primary and Secondary servers following the steps discussed in Scenario 1.
- 5 Install the Non Production Licenses available for the iSPI installed on System1 and System2.
- 6 Configure the iSPI for application failover.

## Deploying the iSPI for Application Failover while Using the Embedded PostgreSQL Database

### Scenario 1: The iSPI is Installed with NNMi and Application Failover is Configured on NNMi

In this scenario, we make the following assumption:

The iSPI and NNMi are installed on stand-alone systems.

If NNMi is configured for application failover, the iSPI will automatically get configured for application failover.

Ensure to install the Non Production Licenses for the iSPI after installing the iSPI on Primary and Secondary servers

### Scenario 2: The iSPI is Installed after NNMi is Configured for Application Failover

- 1 Remove configuration for application failover from the NNMi Primary and Secondary servers.
- 2 Restore the old keystore and truststore specific to the Primary server and the Secondary server.
- 3 Unconfigure the iSPI for application failover using the following steps:
  - a Disable application failover for the iSPI following the steps discussed in the “*Disabling NNMi for Application Failover*” section in the *NNMi Deployment Reference*.
  - b Restore the keystore and the truststore for the systems that you backed up before configuring them for application failover.

- 4 Install the iSPI on both Primary and Secondary servers following the steps discussed in Scenario 1.
- 5 Install the Non Production Licenses for the iSPI on both Primary and Secondary servers.
- 6 Configure the iSPI for application failover.
- 7 Configure NNMi for application failover. Follow the instructions given in *NNMi Deployment Reference*.



# A Troubleshooting

## Troubleshooting the Error Encountered while Loading Data from the NNMi Management Server

### Problem Statement

While working with the NNM iSPI Performance for QA views, the following error message appears:

A problem occurred while loading the data from the NNMi management server for this component. Additional error information: Service Unavailable.

### Resolution

If NNM iSPI Performance for QA and NNMi are using a remote Oracle database, this error occurs when you restart the Oracle server. Follow these steps to resolve this error:

- 1 Stop the QA process using the following command:  
`ovstop -c qajboss`
- 2 Start the QA process using the following command:  
`ovstart -c qajboss`

## Troubleshooting Event Consolidation on Global Network Manager

### Problem Statement

The consolidated events are not displayed on the Global Network Managers.

### Resolution

If NNM iSPI Performance for QA is not installed on the Global Network Managers, the consolidated events are not displayed on the Global Network Managers. Follow these steps to resolve this problem:

- 1 Disable `-Dcom.hp.ov.nms.apa.nmsspi.status.APA_GENERATED_CIA_ENABLED`. Set the value for this flag as **false**.

You can locate the flag in the following file in the local system where NNM iSPI Performance for QA is installed:

Windows: %NnmDataDir%\shared\qa\conf\nms-qa.jvm.properties

UNIX: \$NnmDataDir/shared/qa/conf/nms-qa.jvm.properties

- 2 Run the following command on the Global Network Managers:

```
nnmconfigimport.ovpl -u <user> -p <password> -f incidentConfig_en.xml
```



# Index

## A

About This Guide, 7

## B

Best Practices, 21

- NNM iSPI Performance for QA Administration, 22

- Before Discovering and Polling, 22

- Pre-Install and Installation, 21

## D

Deploying NNM iSPI Performance for QA, 13

- Co-Existence with Network Performance Server, 13

- Pre-Deployment Considerations, 13

Deploying NNM iSPI Performance for QA in Application Failover Environment, 27

- Deploying the iSPI for Application Failover while Using Oracle Database, 27

- Deploying the iSPI for Application Failover while Using the Embedded PostGreSQL Database, 28

Deploying NNM iSPI Performance for QA with NNM iSPI for IP Telephony, 15

Deploying NNM iSPI Performance for QA with NNM iSPI for MPLS, 14

Deploying the NNM iSPI Performance for QA in an HA Cluster Environment, 23

- Configuring NNMi and NNM iSPI Performance for QA Together in an HA Cluster Environment, 23

- Configuring the NNM iSPI Performance for QA in an NNMi HA Cluster Environment, 25

## E

Environment Variables that NNM iSPI Performance for QA Uses, 9

- UNIX, 9

- Windows, 9

## P

Preparation, 11

## T

Troubleshooting, 31

## U

Unconfiguring the NNM iSPI Performance for QA from an HA Cluster Environment, 26

Understand Basic NNM iSPI Performance for QA Concepts, 17

- Monitored Services, 18

- NNM iSPI Performance for QA Metrics, 17

- Supported MIBs, 18

Understand the Discovery and Polling, 18

Understand the Site and Threshold Configurations, 19

