

# HP Network Node Manager i Software Smart Plug-in Performance for Metrics/ Network Performance Server

Software Version: 9.00

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[Online Help](#)

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## Welcome to the Network Performance Server

The Network Performance Server (**NPS**) enhances NNMi's network management capabilities by introducing a foundation for network performance management.

With the infrastructure provided by the NPS, you can use add-in products like the HP NNM iSPI Performance for Metrics (**iSPI Performance for Metrics**) to view context-specific reports that help you understand performance bottlenecks in the network.

At the core of the foundation provided by the NPS is the **column-based** database management system (DBMS), which enables you to effectively store, access, and track the network performance data.

Different **extension packs** introduced by iSPI Performance products add rules and definitions to the NPS deployment to generate reports. These rules and definitions, enable the business intelligence component—the **BI Server**—to generate rich and elaborate reports.

### Documentation Conventions

The iSPI Performance documentation uses the following conventions:

Symbol	Meaning
<i>%nnminstalldir%</i>	<i>Windows only.</i> The environment variable for the NNMi application directory. This variable is automatically created by the NNMi installer. If you install the iSPI Performance on an NNMi (Windows) management server, all application files of the iSPI are placed here.
<i>%nnmdatadir%</i>	<i>Windows only.</i> The environment variable for the NNMi data directory. This variable is automatically created by the NNMi installer. If you install the iSPI Performance on an NNMi (Windows) management server, all the data and configuration files of the iSPI are placed here.
<i>&lt;Install_Dir&gt;</i>	<i>Windows only.</i> The iSPI Performance application directory. When you install the iSPI on the NNMi management server, the iSPI installer uses <i>%nnminstalldir%</i> as the application directory for the iSPI.
<i>&lt;Data_Dir&gt;</i>	<i>Windows only.</i> The iSPI Performance data directory. This directory contains all the configuration and data files used by the iSPI Performance. When you install the iSPI on the NNMi management server, the iSPI installer uses <i>%nnmdatadir%</i> as the data directory for the iSPI.

On Linux, the iSPI Performance installer directly installs the necessary files into the following directories:

- Application files: */opt/OV*
- Data and configuration files: */var/opt/OV*



## Administration Overview

The NNMi administrator is also an administrator for the iSPI Performance. The iSPI Performance accommodates one administrator at a time. This restriction avoids conflicts and satisfies OEM licensing requirements. Since administrator permissions are broad, and potentially hazardous in the wrong hands, anyone with administrator access to the BI Server Portal must be familiar with BI Server tutorials and BI Server documentation.

To run a report, or to access the ad hoc query features available from the BI Server Portal, you must be logged on to NNMi. When you launch NNMi, use the Fully-Qualified Domain Name (FQDN). This way of launching NNMi enables a security function known as Single Sign-On (SSO). When SSO is enabled, you need not log on a second time when you move from NNMi to a report.

## Overview of NPS Operations

The following topics contain background information, procedures for maintaining the NPS, and information about tasks that may be necessary from time to time:

- ["Location of Program and Runtime Files"](#)
- ["Tables and Data Dimensions "](#)
- ["Data Retention Defaults"](#)
- ["Single Sign-On Security\(SSO\)"](#)
- ["Monitoring the NPS Processes"](#)
- ["Time Changes and Time Zones"](#)
- ["Scheduling Reports"](#)
- ["Setting Thresholds for Metrics"](#)
- ["Support for Application Failover"](#)
- ["BI Server Portal"](#)
- ["Troubleshooting Tips"](#)

## BI Server Documentation

The following BI Server documents are copied to your system when you install the iSPI:

*BI Server Administration and Security Guide*

*BI Server Getting Started*

*BI Server Go! Office User Guide*

*BI Server Performance Tuning: Cheat Sheet*

*BI Server Performance Tuning: Settings*

*BI Server Troubleshooting Guide*

*BI Server Configuration User Guide*

*BI Server Connection Quick Tour*

*Query Studio Quick Tour*

*Query Studio User Guide*

To access these documents, click Help from the BI Server portal.

## Information about Commands

Click [here](#) to open a list of command links. On Windows, many of the commands listed on this page are Start menu options. Click the link to open a reference page. The reference page provides the following information about each command:

- Name
- Synopsis
- Description
- Author

## Location of Program and Runtime Files

The NPS consists of static application software files and dynamic runtime files. The default path for static application software is:

**Windows:** `C:\program files(x86)\HP\HP BTO Software`

**UNIX/Linux:** `/opt/OV`

The NNMPerformanceSPI directory contains the following folders:

- bin
- config
- Docs
- Installation
- extensionpacks
- java
- lib

The default path for the dynamic runtime files is:

**Windows:** `C:\Documents and Settings\All Users\Application Data\HP\HP BTO Software`

**UNIX/Linux:** `/var/opt/OV`

The performance of the NPS depends on the I/O performance of the disk subsystem where this directory resides. We strongly recommend that this data location is hosted on a high-performance file system, such as a local multi-disk RAID0/5 array.

The NNMPerformanceSPI directory contains the following folders:

- contentstore
- database
- Component\_Health
- Interface\_Health
- nnmappfailover
- logs
- PerfSPI\_Diagnostics
- rconfig

The above folders are placed by the default NPS installation. Additional folders may be present if additional extensionPacks (for example, Metrics customPoll, or Traffic extensionPacks) are present.

## Tables and Data Dimensions

The NPS uses three kinds of data tables to store data:

- Aggregate
- Live
- Archive tables

The BI Server automatically picks the appropriate table based on the selected granularity of the data and its time span.

- If you are looking for data with one hour grain and above it will pick the **aggregate table**
- If you are looking for data less than one hour grain and within last two days it will pick the **live table**
- If you are looking for data less than one hour grain and more than two days ago it will pick the **archive table**

The retention period for data in the aggregate table and the live table is not configurable; the retention period for archive data tables is configurable. The default retention period for archive data is 14 days. To adjust the default, use the Configuration Utility.

Increasing the retention of detail data provides longer online access to the fine-grained data, which is useful for forensic network analysis, but will require more disk space and require more computing resource when querying.

Each table is partitioned, the individual pieces are stored in multiple files, and the file format is proprietary. A measure, sometimes referred to as a fact, is a numeric value stored in a table. Every measure is defined in terms of multiple dimensions. For example, *bytesIn* is a measure. Without context, for example, without an interface and a time period, this measure has no meaning. Each table is defined by multiple dimensions.

## Data Retention Defaults

Data retention varies from table to table. Retention per-table is as follows:

- The live table retains data for 1 day
- The aggregate table retains data for 70 days
- The detail archive table retains data for 14 days

If you want to modify the default detail archive retention, use the [Configuration Utility](#).

## Single Sign-On Security(SSO)

Installing the NPS enables a security function known as Single Sign-on (SSO). SSO allows the NPS to recognize the same usernames and passwords that the NNMi Console recognizes. When SSO is enabled, a user who is already logged in to NNMi can move from NNMi to a report without having to log in again.

For SSO to operate, the following conditions must be met:

- The NNM system and the NPS system must be configured with fully qualified domain names.
- The user must use the fully-qualified domain (not "localhost" or the machine name minus the domain) when launching the NNMi console.

A fully-qualified domain name (FQDN) has this format:

```
http://<fully-qualified-hostname>/nnm
```

If the user launches NNMI using an unqualified host name, the SSO servlet will open a login window and force the user to log in again.

**Note:** If the address, or the domain, of the NNM management server or the NPS system changes after you install the NPS, you should re-run the enablement script on NNMI. Rerunning the enablement script will configure NNMI with updated location information.

### Direct Access to the NPS

You can access the NPS directly, without going through NNMI, by pointing your browser at:

```
http://<fully-qualified-serverName>:9300/PerfSpi/login
```

When the login window opens, enter the same username and password you use to launch NNMI. After you are authenticated, the Report Menu opens.

### Monitoring the NPS Processes

The NPS includes reports that monitor NPS processes. Click the **Self Diagnostics** tab on the Report Menu to view the available report links to:

- Calendar
- Chart Detail
- Heat Chart
- Most Changed
- Top N
- Top 10 Task Duration

Click [Self Diagnostics](#) for more details

### Scheduling Reports

Follow these steps to schedule a report:

1. Start the BI Server Portal (from the Start menu or from Report Links).
2. Click **BI Server Connection**. Open the report folder that contains the report you want to schedule.
3. Under the Actions column to the right, locate and click the schedule icon (calendar with clock). The schedule form opens.
4. Select a frequency. Your options are:
  - a. By day
  - b. By week
  - c. By month
  - d. By year
5. Select a start date and time.
6. Select an end date and time.
7. Click **OK**.

### Setting the Same Schedule for Multiple Reports

You can set the same schedule for multiple reports by creating a job. A job identifies a collection of reports, report views, or queries that are scheduled together and share the same settings. To set the same schedule for multiple reports:

1. Click the **New Job** button on the toolbar.

2. Give the new job a name and specify a folder. The new job wizard opens.
3. Select steps. Click **Set...**
4. Select the format and language for the job; click **OK**.
5. Select references to individual reports; click **Add**.
6. Move reports from **Available** to **Selected**.
7. You can submit the steps in sequence or all at once. If you want to modify the sequence of steps, click **Modify the sequence...** and then rearrange the sequence of steps.
8. Click **Finish**.
9. Select a frequency, indicate the start date, start time, stop date, and stop time.
10. Click **OK**.

### **Setting Thresholds for Metrics**

["Setting Thresholds"](#)

["Terminology"](#)

Until thresholds for Interface Health metrics are set, Interface Health reports will not track exception counts. Until thresholds for Component Health metrics are set, Component Health reports will not track exception counts.

NNMi does not set thresholds for performance metrics for you, automatically. Setting thresholds is a manual step. If you have the Interface Health and Component Health extension packs, you can set thresholds for the following metrics:

1. Discard rate in
2. Discard rate out
3. Error rate in
4. Error rate out
5. Utilization in
6. Utilization out
7. CPU 5 second utilization
8. CPU 1 minute utilization
9. CPU 5 minute utilization
10. Memory utilization
11. Buffer utilization
12. Buffer miss rate
13. Buffer failure rate

Although you may want to see exception counts as soon as possible, setting thresholds right away may not be feasible. This is because you probably won't be ready to set thresholds until you are better acquainted with the way your network behaves. You need to know what is normal for your network, and if you set thresholds prematurely, problems may arise. For example, if the thresholds are wrong, NNM may detect too many exceptions, and if you configure NNM to generate incidents in response to threshold conditions, NNM may generate too many incidents.

## Setting Thresholds

Follow these steps to set thresholds for a node group or an interface group. If you are setting thresholds for multiple node groups, or multiple interface groups, you are not required to set the same thresholds per group.

1. Open the NNMi console.
2. Select **Workspaces > Configuration > Monitoring Configuration**.
3. Click the Node Settings tab, or the interface settings tab.
4. Select a row in the table (a node group, or an interface group) and click the Open icon. The definition form opens.
5. Verify that Performance Monitoring is enabled for this node or interface group. Performance Monitoring is a prerequisite for threshold monitoring and you will see this option off to the left side of the window.
6. On the Threshold Settings tab, set threshold values for every attribute you want to monitor for threshold conditions.
7. When you are done, click **Save and Close** to return to the Interface/Node Settings form.
8. Click **Save and Close** to return to the Monitoring Configuration form.
9. Click **Save and Close**.

## Terminology

- High Value (**HV**): Any value above this value is in the high range; any value in the high range triggers a High status.
- High Value Rearm (**HVR**): Any value below High Value; indicates that the High status has ended.
- High Trigger Count (**HTC**): The number of consecutive polls a high value must remain the same before the status changes to High. A trigger count of 1 is usually appropriate.
- Low Value (**LV**): Any value below this value is in the low range; any value in the low range triggers a Low status.
- Low Value Rearm (**LVR**): Any value above Low Value; indicates that the Low status has ended.
- Low Trigger Count (**LTC**): The number of consecutive polls a low value must remain the same before the status changes to Low. A trigger count of 1 is usually appropriate.

## Support for Application Failover

Application Failover for NNMi ensures redundancy. Failover allows a secondary NNMi server to take over immediately following the failure of a primary NNMi server. Failover relies on jboss clustering technology, ongoing file system synchronization, and a Java keystore file that must be copied from NNM to the NPS. Copying the keystore file is a manual step.

The NPS supports NNMi Application Failover. From the perspective of anyone using the NPS, Application Failover is a transparent event, for users as well as for the administrator. Aside from a minor interruption in service lasting about 15 minutes while failover is in progress, users won't be aware that a failover took place, and the administrator won't be required to perform any special tasks related to failover.

The ability of the NPS to support application failover depends on files it retrieves from the primary server in the cluster. The NPS retrieves these files during startup. As soon as the NPS has the files, it begins monitoring the status of the primary server by checking for status changes every 5 minutes. If the NPS detects a status change, the following events take place automatically:

- The NPS determines which server is the new primary server
- The NPS redirects data collection to a shared directory on the new primary server

- The NPS begins collecting data (metrics and topology files) from the new primary server in the cluster

Immediately after these events take place, NPS users will be able to link from the NPS to NNMI views on the new primary server, just as they were able to do before failover.

**Prerequisites for Successful Application Failover**

Application Failover support will not succeed unless the following prerequisites are met:

1. Every installation of NNMI is set up and configured the same way.
2. You ran the NPS enablement script on every server in the cluster.
3. You responded to enablement script prompts exactly the same way each time you ran the enablement script.
4. On each server, you established the same path to the datafiles folder.
5. You copied a certificate (a java keystore file) from NNM to the NPS.

**Copying the Keystore File from NNMI to the NPS**

To copy the shared certificate file—`cluster.keystore`—from NNMI to the NPS, follow these steps:

1. Navigate to the `cluster.keystore` file on NNMI:

*Windows*

```
%NnmDataDir%\shared\nnm\conf\nnmcluster\cluster.keystore
```

*UNIX*

```
/var/opt/OV/shared/nnm/conf/nnmcluster/cluster.keystore
```

2. Copy `cluster.keystore` to the following directory:

*Windows*

```
%NnmDataDir%\NNMPerformanceSPI\nmappfailover\keystore
```

*UNIX*

```
/var/opt/OV/NNMPerformanceSPI/nmappfailover/keystore
```

The keystore is used to enable access to the NNMI cluster. We recommend using a secure copy mechanism, for example, SCP or USB key.

**Messages Related to Failover**

The following table provides a list of INFO, WARN, and ERROR messages that pertain to Application Failover.

Condition	Message	Comments
Failover not enabled	DEBUG: NNM Application Failover is not enabled.\n	Logged every 5 minutes if the DEBUG logging is enabled
Failover enabled	INFO: NNM Application Failover is enabled. Checking if active node has changed.\n	Logged every 5 minutes
Failover enabled	INFO: NNM Hostname currently used by NPS is: \$nnm_cur-	Logged every 5 minutes. Displays current NNM hostname being used by the NPS.

Condition	Message	Comments
	rent\n	
Failover enabled	INFO: \$getN-NMActiveScript reports active nnm node is: \$nnm_active\n	Logged every 5 minutes. Displays NNM hostname reported as the active node in the cluster.
Failover enabled but the active host has not changed.	INFO: Active NNM host is unchanged.\n	Logged every 5 minutes.
Failover enabled	INFO: Changing NPS configuration to use \$nnm_active\n	A configuration update is imminent. This message is logged only when the active node is different from the node currently used by the NPS.
Failover enabled and config files successfully updated	INFO: Configuration updated. Path to NNM is now \$newpath\n	Logged after the configuration file is successfully updated in response to an application failover.
Failover enabled but the NNM hostname is not in the path syntax	WARN: NNM Application Failover is not supported on same-system NNM/NPS installations\n	If the NPS is running on the same machine as NNN, the path does not contain the hostname.
Failover enabled but the NNM hostname is not in the path syntax	WARN: Cannot extract remote nnm hostname from value of PRSPI_NNMDIR (\$cfg{PRSPI_NNMDIR}).\n	The user may have specified the path in a non-conventional way (for example, by using a hard mount or drive mapping). If the path does not contain the remote NNM hostname, the NPS will not be able to detect application failover.
Failover enabled but the NNM hostname is not in the path syntax	WARN: Expected PRSPI_NNMDIR of form /net/hostname/var... or //hostname/PerfSpi\n	The user may have specified the path in a non-conventional way (for example, by using a hard mount or drive mapping). If the path does not contain the remote NNM hostname, the NPS will not be able to detect application failover.
Failover enabled but the nnm_details.xml file is not available.	ERROR: nnm_details.xml not found in \$newpath	This message is logged is there is no copy of nnm_details.xml on the remote NNM machine. This condition will occur if the nnmenableperfspi script was not run on that machine, since running the script is what creates the nnm_details.xml file. This condition could also occur if the machine configurations are not identical. For example, if the pathnames to the shared drive are not identical, the new path will be incorrect when the NPS substitutes the new hostname into the path. The configurations <b>must</b> be identical.



Condition	Message	Comments
Failover enabled but there is a file permissions error	ERROR: Unable to modify timestamp of \$newpath/nnm_details.xml: \$!	The NPS configuration will not change; a file permissions error is preventing the nnm_detail.xml file from being modified on the NNM server.
Failover enabled but unable to update the config file.	ERROR: Unable to write changes to config file. Will try again next time.\n	Failure to update the config file could be caused by another process that is locking the config file.

## Time Changes and Time Zones

### Semi-Annual Clock Changes

If you turn clocks back one hour, statistics for one hour will be recorded twice, once before the time change, and once immediately after the time change. Collecting statistics twice for the same hour will double the number of counts (volume in bytes, volume in packets) and double the number of samples aggregated into an average. If you turn clocks ahead one hour, a gap will occur, since no samples will be collectable for the missing hour. Counts for that hour will be zero, and counts for the whole day will be artificially low.

### Time Zones

NNM marks performance data with a universal time stamp known as *seconds since epoch*. The NPS converts NNM's universal time stamp into local time, as defined by the location of the NPS. From the perspective of a user in a different time zone, NPS data will be out of sync with the local time.

If the NPS and the NNMi management server are running on separate systems, make sure that the system clocks are matched. Otherwise confusion will arise as you move from one application to the other.

## Overview of NPS Utilities

The NPS provides several utilities. Follow the links below to read more about each one.

- [Log File Analyzer](#)
- [Log File Monitor](#)
- [Configuring the NPS](#)
- [Configuration Checker](#)
- [BI Server Portal](#)
- [Collecting Diagnostics for Support](#)
- [Resetting the iSPI](#)
- [Demo Data](#)
- [Backup and Restore](#)

### Analyzing Log Files

Use the Log File Analyzer to view:

- A daily summary of errors, warnings, and other notifications produced by each process within each extension pack

- Timing data for selected processes belonging to each extension pack
- Timing data for generating reports from the Report Menu

The Log File Analyzer tool analyzes the `prspi.log` and `PerfSPI_Diagnostic_Metrics.log` files.

### How to Launch

#### Windows

Select **Start > All Programs > HP > NNM iSPI Performance > Log File Analyzer**

#### Linux

1. Go to the following directory:  
`/opt/OV/NNMPerformanceSPI/bin`
2. Type the following command:  
`./log_analyzer.ovpl`

### Warnings, Errors, and Other Notifications

The summary data for warnings, errors, and other notifications covers the previous two weeks. The last summary covers today. Today's summary will be incomplete until midnight. Summary data indicates:

- Date
- Number of errors per process, if any
- Number of warnings per process, if any
- Number of processes with fatal errors, if any

For example:

```
prspi.20080729.log:
WARN - 240 in ETL.Component_Health
WARN - 268 in ETL.Interface_Health
WARN - 285 in MainServiceLoop
ERROR - 2 in MainServiceLoop

prspi.20090915.log:
WARN - 27 in ETL.Interface_Health
WARN - 714 in MainServiceLoop
FATAL - 1 in Utility.startBI
FATAL - 152 in ETL.Interface_Health
FATAL - 1 in Utility.installExtensionPack
```

A warning normally indicates a transient condition, usually a temporary mismatch, that will self-correct. If you see a warning message or a fatal error message, you may want to examine it in more detail by viewing the associated logfile in a text editor.

The last log in the list of logs is today's partially complete log. Today's partially complete log does not have a date attached to it. The file name for today's log is just this: `prspi.log`

### Timing Data

Under the summary of all warnings and errors, if you press **Enter**, you can continue to see the timing data.

The timing data shows:

- Total number of times a process executed over the previous two weeks
- Average execution time per process over the previous two weeks and standard deviation
- Maximum execution time per process over the previous two weeks
- Average number of records processed per execution
- Average number of records processed per second

## Log File Monitor

The log file viewer is Chainsaw 2.0. With Chainsaw, you can monitor DEBUG, INFO, WARN, ERROR, and FATAL messages as they reach the `prspi.log` file. The `perfspi.log` file contains every message generated since the last night at midnight. The path to `prspi.log` is:

### Windows

```
<Data_Dir>\NNMPerformanceSPI\logs
```

### Linux

```
/var/opt/OV/NNMPerformanceSPI/logs
```

### How to Launch

Follow these steps to launch the log file monitor:

### Windows

The log file monitor is a start menu option. Select:

**Start > All Programs > HP > NNM iSPI Performance > Log File Monitor**

### Linux

1. Go to the following directory: `/opt/OV/NNMPerformanceSPI/bin`
2. Type the following command: `./runChainsaw.ovpl`

## The Chainsaw Message Interface

The welcome page includes several tabs. To open the message interface, click this tab:

```
NNMPerformanceSPI/logs/prspi.log
```

The Chainsaw message interface opens, showing three panes:

- Event pane - top center
- Detail event pane - below the Event pane
- Tree logger pane - to the left of the Event pane

The event pane is constantly changing, showing the most recent message, as it arrives in `prspi.log`, and also showing additional information about that message in the detail event pane. The detail event pane indicates the following:

- Level
- Logger
- Time
- Thread
- Message
- NDC [null]
- Class [not used]

- Method [not used]
- Line
- File
- Properties
- Throwable [not used]

If you select an older message in the event pane, the detail event pane will refresh with additional information about the message you just selected. The logger tree pane shows the following folder:

#### Root Logger

The ETL folder, which belongs under the Root Logger folder, contains three loggers folders; one for each standard extension pack. If additional extension packs are installed (such as custom poll packages), additional loggers appears (one additional logger for each new package).

New messages generated by the loggers appear once in every few seconds in the event pane. If you want to see messages for one logger only, type that logger name in the `Refine focus on` field. For example:

**Refine focus on:** `Interface_Health`

You may expand the event pane by closing the logger tree pane and the detail event pane. Following is a partial list of Chainsaw version 2.0 features:

- Fully customize each tab the way you want it
- Control the frequency of updates
- Specify your own rules for color-coding events (the defaults are yellow for WARN, red for ERROR)
- Apply simple filters, or advanced expression-based filters
- Save memory by setting a cyclic-based view that looks at X events only

For more information about Chainsaw, run the tutorial under the Help menu or visit:

<http://logging.apache.org/chainsaw/quicktour.html>

## Configuring the NPS

If you install the NPS on the NNMi management server, NPS configuration takes place automatically during the installation.

If you install the NPS on a dedicated server, you must use the Configuration Utility to specify configuration details. During installation, the Configuration Utility opens and asks you necessary configuration details. After installation, you can anytime launch the utility to change the configuration data.

### How to Launch

#### Windows

The Configuration Utility is a **Start** menu option. Open the Configuration Utility by selecting:

**Start > All Programs > HP > NNM iSPI Performance > Configuration Utility**

#### UNIX

1. Go to the following directory:  
`/opt/OV/NNMPerformanceSPI/bin`
2. Type the following command:  
`./runConfigurationGUI.ovpl`

## Using the Configuration Utility

When the utility opens, you can specify the following details:

- **User account details:** *Not required when you install the NPS on an Linux system and NNMi is installed on a UNIX or Linux system.* The Configuration Utility enables you to specify the details of the system user account that enables the NPS to run necessary services.  
If you install the NPS on the NNMi management server (Windows), you must set this to the Local System account.  
If you install the NPS on a dedicated Windows system, you must select the Named User account option. Make sure you specify exactly the same account information that was used with the enablement script on the NNMi management server.
- **Path to the NPS datafiles folder:** Specifies the location of the NPS data files on the NNMi management server.  
If you install the NPS on the NNMi management server, a local path is displayed in this field, which you must *not* change.  
When you install the NPS on a dedicated server, the enablement script creates a shared space on the NNMi server. In this field, you must specify the location of shared space in the correct format.
- **Detailed data archive retention period:** Specify the archive table retention period (the default is 14 days; the maximum retention period is 70 days).
- **Stop and Start buttons:** You can use the Stop and Start buttons to stop and start necessary NPS processes.

**To make any of these changes to configuration parameters:**

1. Click **Stop**.
2. Make your change.
3. Click **Apply**.
4. Click **Start**.
5. Click **Exit**.

## Configuration Checker

You can easily verify proper configuration of the NPS by launching the Configuration Checker. The Configuration Checker verifies that the configuration file contains valid entries. If everything is okay, the following text displays:

```
INFO: Configuration File Validated OK
```

### How to Launch

#### Windows

Select **Start > All Programs > HP > NNM iSPI Performance > Configuration Checker**

#### UNIX

cd to the following directory: `/opt/OV/NNMPerformanceSPI/bin`

Type the following command: `./checkConfig.ovpl`

#### BI Server Portal

Use the BI Server Portal to accomplish these tasks:

1. Access reports from BI Server Connection.
2. Open **My Reports** and view reports with various filter preferences that you saved.
3. Set up a schedule for running summary reports.

4. Modify BI Server tuning parameters for large multi-user installations.
5. Set up email report delivery.

### How to Launch

#### Windows

Select **Start > All Programs > HP > NNM iSPI Performance > BI Server Portal**

#### UNIX

cd to the following directory: `/opt/OV/NNMPerformanceSPI/bin`

Type the following command: `./launchReport.ovpl`

#### Web Access

Point your browser at:

`http://<localhost>:9300/p2pd`

When the login page opens, type your ErsAdmin username and password.

#### BI Server Welcome Page

Launching the BI Server Portal utility opens the BI Server 8 Welcome page. The content of the welcome page varies according to role. An administrator sees the following options on the welcome page:

- View BI Server content (use BI Server Connection to access reports)
- Query your data (use Query Studio to create simple queries and reports)
- Analyze your data (use Analysis Studio to explore data dimensions and data hierarchies)
- Create reports (use Report Studio to create advanced reports)
- Manage events (use Event Studio to detect events, invoke tasks, and track events)
- Manage BI Server content (use BI Server Connection to search content, select output formats, set schedules, email content, and manage saved output versions.)

To access reports, click **BI Server Connection**. The BI Server Connection window opens, showing two tabs:

- Public Folders
- My Folders

Click **Public Folders** to display the following folders for available extension packs.

#### Collecting Diagnostics for Support

If you want to collect diagnostic data for Support, run the Diagnostics Collector utility. Support will use the data you supply to diagnose the problem.

### How to Launch

#### Windows

**Start > All Programs > HP > NNM iSPI Performance > Diagnostics Collector**

#### Linux

1. Go to the following directory:  
`/opt/OV/NNMPerformanceSPI/bin`

2. Type the following command:  
`./collectDiagnostics.ovpl`

After collecting data, the Diagnostics Collector saves the output in the form of a compressed `tar.gz` file. The path is:

**Windows:**

`<Data_Dir>\HPNNMPerformanceSPI\collectDiag`

**UNIX:**

`/var/opt/OV/HPNNMPerformanceSPI/collectDiag`

Forward the `tar.gz` file from the `collectDiag` folder to Support.

## Resetting the NPS

The reset utility provides four options:

1. Delete all data from database and keep all archived data
2. Delete all data from database and restore archived data for re-processing
3. Delete all data from database and delete all archived metrics/topology
4. Delete all data from database, delete all archived data and log files, and then restart all services

### How to Launch

**Windows**

Select **Start > All Programs > HP > NNM iSPI Performance > Reset Utility**

**Linux**

1. cd to the following directory: `/opt/OV/NNMPerformanceSPI/bin`
2. Type the following command: `./resetSPI.ovpl`

## Demo Data

The demo database is part of the NPS. The NPS installation places the demo database on the system. If you want to view reports using the demo data, you must enable the demo database.

Enabling the demo database does not disrupt any the ongoing data collection process of the NPS. When you disable the demo database, the NPS begins building reports using the real network data.

### How to Launch

**Windows**

To enable the demo database, Select **Start > All Programs > HP > NNM iSPI Performance > Demo Data Enable**.

To disable the demo database, Select **Start > All Programs > HP > NNM iSPI Performance > Demo Data Disable**.

**Linux**

To enable the demo database, go to the `/opt/OV/NNMPerformanceSPI/bin` directory, and then run the following command:

`./demoData.ovpl enable`

To disable the demo database, go to the `/opt/OV/NNMPerformanceSPI/bin` directory, and then run the following command:

```
./demoData.ovpl disable
```

## Backup and Restore

The NPS provides you with command-line tools to back up and restore all the NPS data.

### To back up the NPS data:

1. Log on to the NPS system with the same account that was used to install the NPS.
2. Run the following command:  
*On Windows:* `<Install_Dir>\NNMPerformanceSPI\bin\backup.ovpl -b <dir> [-c] [-d] [-f] [-v]`  
*On UNIX or Linux:* `<Install_Dir>/NNMPerformanceSPI/bin/backup.ovpl -b <dir> [-c] [-d] [-f] [-v]`

In this instance, `<dir>` is the location where you want to place the backed-up data. Do not use `<Install_Dir>` or `<Data_Dir>` with this option.

### Options

- Use the `-c` option to back up contentstore.
- Use the `-d` option to backup the database.
- Use the `-f` option to backup all NPS files.
- Use the `-v` option for verbose output.

You must specify a valid directory location as an argument of the `-b` option. If you do not specify any other options, the backup script by default backs up contentstore and the database.

The duration of the backup process depends on the size of the database you want to back up. Before you start the backup process, verify the disk space used by the data that you want to back up, and then make sure the system has as much available free disk space. Although the script produces compressed output, the backup process requires sufficient temporary disk space.

### To restore the NPS data:

1. Log on to the NPS system with the same account that was used to install the NPS.
2. Run the following command:  
*On Windows:* `<Install_Dir>\NNMPerformanceSPI\bin\restore.ovpl -b <file> [-v]`  
*On UNIX or Linux:* `<Install_Dir>/NNMPerformanceSPI/bin/restore.ovpl -b <file> [-v]`

In this instance, `<file>` is the backup file that you want to restore. You can use the `-v` option for verbose output. The restore operation overwrites all the preceding NPS data.

**Note:** If you change the password of the database after a backup operation, you have to change it again after restoring the backed-up database.



## Using Reports

The NPS generates different types of reports with the help of the data available in its repository (column-based DBMS) and the rules defined in extension packs. Reports help you view the operational performance of metrics over a period of time. The NPS also enables you to modify the default settings of a report to view additional attributes related to the monitored element.

The NPS presents the following types of reports:

- **Calendar:** The Calendar report uses a traditional, calendar-style layout to show hourly statistics of two metrics. When you open a report, you can view the statistics of two default metrics. You can use the options link to view the report for non-default metrics.
- **Chart Detail:** The Chart Detail report represents the actual values of two metrics at every display grain over a period of time. You can use the options link to view the report for non-default metrics.
- **Heat Chart:** The Heat Chart (or the normalized Heat Chart) report represents the *normalized* values of a metric, calculated at every hour of the day, in a tabular format. The NPS uses color codes to indicate the performance characteristic of the metric in this report.
- **Most Changed:** The Most Changed report displays the quantum of changes that a metric has undergone during the selected time range. The report presents details like the percentage growth rate of the metric.
- **Top N:** The Top N report displays the top ten values of the metric over the selected time range. In addition, the report enables you to view the graphical representation of the top ten values.
- **Dashboard:** The Dashboard Report provides an overview of the network elements available on your network by using a combination of gauges, heat charts, and ordered Top 5 lists. The focus of the report is element-based threshold breaches, which are classed as exceptions. Threshold breaches can point to a network-related problem or may indicate that your thresholds within NNMI need to be changed.
- **Headline:** The Headline Report provides a broad view of performance by presenting eight different graphs on a single page. This report enables you to view every aspect of performance at once. Use the graphs to view trends, spot-isolated spikes, exceptions, and verify that performance is meeting expectations.
- **Managed Inventory:** The Managed Inventory report lists the available topology attributes for the extension pack with the available number of values for each attribute.

## Launch Reports

You can launch reports created by the NPS or iSPI Performance products either from the Report Menu page (introduced by the NPS), or you can use the BI Server portal.

### To launch a report from the Report Menu page:

1. Log on to the NNMI console.
2. In the NNMI console, click **Actions > Reporting-Report Menu**. The Report Menu page opens.
3. On the Report Menu page, select a tab. The NPS presents the *Self Diagnostic* tab for the default, ready-to-use *Self Diagnostic* extension pack (to generate reports on the performance of the NPS itself). Depending on the number of the iSPI Performance products or extension packs available on the NPS system, you may see many other tabs.
4. Under a report type (like Chart Detail or Heat Chart), select the time range link (H, D, W, or M). The report for the selected time range opens.

**Tip:** On the NNMi Network Overview workspace, if you select a node, and then click **Actions > Reporting-Report Menu**, the Report Menu page presents reports created with the data collected from the selected node.

**Note:** If you want to navigate back to the NNMi console, go to the Network Topology tab on the Report Menu page, and then click **NNMi Console**. The Network Topology tab provides dynamic links to go back to NNMi workspaces depending on the topology objects currently selected in the NPS.

## Change Default Settings

The NPS generates reports with a set of parameters, which are set when you launch a report from the Report Menu page or the NNMi console. Every NPS report is built with the following sets of parameters:

- **Time controls**

The time controls help you set the time range for the report that you want to view. The NPS database stores the data collected from different nodes over a period of time. By using the time controls parameters, you can view a report created for the range of time of your choice. You can also select the [display grain](#)<sup>1</sup> of a report. When a report is rendered, the time range is always shown in the Filter Summary section at the top of the report.

- **Topology filters**

The topology filters enable you to create a report that is filtered, or constrained in scope, by specific topology attributes. By default, when you launch a report for the first time from the Report Menu page, the NPS generates the report that is not filtered. However, you can select a specific node or a set of nodes from the NNMi console (from the Topology Maps workspace), and then launch the Report Menu page to view reports only on the selected nodes. The topology filters extend this capability by offering a range of filters on the Report Menu page, which help you select the data to be included or excluded prior to viewing the report. When a report is rendered, the selected filters are always shown in the Filter Summary section at the top of the report.

- **Report options**

Reports display graphical and statistical representation of different operational characteristics of the network being managed. These characteristics are represented with metrics—parameters that indicate the health and operational performance of the network. While every report opens with the default metric set, the report options help you generate the report with the metrics of your choice.

### Change Time Controls

When initially launched from NNMi, the Report Menu page offers you the following different time ranges for every report—hour (H), day (D), week (W), and month (M). When you launch a report from the Report Menu page, the report shows representation of data collected over the selected range—relative to the most recent sample of data.

#### To change time controls:


1. Launch the report from the Report Menu page.
2. Click **Time Controls**. The Time Controls section appears.



---

<sup>1</sup>The display grain defines how samples of data are grouped across the time range. For example, a one hour chart with a display grain of five minutes displays 12 samples of data.

3. Change the following parameters:

- **Start Date/Time:** The Start Date/Time defines the point of origin of the report. The report shows the data collected from the time and date specified in the Start Date/Time field. The Start Date/Time is automatically set if you choose a relative time range (for example, Last 1 Hour, Last 1 Day, and so on). However, you can also set the Start Date/Time explicitly, in conjunction with a non-relative Time range (for example, 1 Hour, 1 Day, and so on)

To change the start date, click . A calendar opens. Select the date of your choice from the calendar.

To change the start time, click  or .

- **Time Range:** You can set the time range of the report in the Time Range box. You can select a fixed time range after setting Start Date/Time (for example, 1 Hour), or select a range of time relative to the most recent sample of data available on the system (for example, Last 1 Hour). If you select **Until Now**, the report displays the data collected from the specified time and date (in the Start Date/Time field) until the last polling cycle.

When you set the time range, the [display grain<sup>1</sup>](#) is automatically mapped to an appropriate [predefined setting](#). You can manually alter the display grain in the Display Grain box. However, too many data points on a chart can make the results difficult to read, and result in longer running reports that consume a significant amount of resource. The NPS database retains the data at grains of *Hour and Day* for 70 days, while the data at finer grains is retained for the number of days specified by the Detailed Data Archive Retention Period setting (adjusted with the [Configuration Utility](#)).

- **Auto Refresh:** The report gets automatically refreshed with the fresh samples of data if you select an auto refresh rate with a relative Time Range (for example, Last 1 Hour) in the Auto Refresh box.
- **Hour of Day:** To create a report with the metric values limited to specific hours of the day (for example, morning shift, night shift), use the Hour of Day box. For multiple selection, select the appropriate day from the list, and then hold the **Ctrl** button to select each additional hour.
- **Day of Week:** To create a report with the metric values at specific days of the week (for example, weekdays only, weekends only, and so on), use the Day of Week box. You should use this option only when the time range of the report is greater than a day. For multiple selection, select the appropriate day from the list, and then hold the **Ctrl** button to select each additional day.

4. Click **Confirm Selection**. The modified report appears.

#### Time Ranges with Default Display Grains

When you set a time range for a report, a predefined display grain is applied to the report. The following table shows the mapping between the time ranges with the default display grains.

Time Range	Display Grain
31 Days	1 Day
7 Days	1 Day

---

<sup>1</sup>The display grain defines how samples of data are grouped across the time range. For example, a one hour chart with a display grain of five minutes displays 12 samples of data.

Time Range	Display Grain
1 Day	1 Hour
12 Hours	1/2 Hour
2 Hours	5 Minutes
1 Hour	5 Minutes
30 Minutes	1 Minute
15 Minutes	1 Minute
5 Minutes	As Polled
1 Minute	As Polled
Until Now	Adjusted appropriately based on Start Date/Time

Your choice of display grain defines the data source for the reports.

The following three types of data sources exist within NPS:

- Internal Summary tables (data for up to 70 days)
- Internal Live tables (data for up to 1 day)
- Archive tables (data for up to 'N' days as set by the Configuration Utility)

Using a display grain of 1 hour or above ensures your reports will source their data from the Internal Summary tables. Using a display grain of less than 1 hour, combined with a Start Date/Time within the last day, will result in the Live tables being used. Using a display grain of less than 1 hour, combined with a Start Date Time prior to the last day, will force the NPS to use the Archive tables to fulfil the query. In this last case, a warning message informs you that the report might be relatively slower, as it must perform more expensive and time-consuming database query to retrieve the data.

### Special Scenarios

- *Start Date/Time and Time Range extend beyond the available data:* The Start Date and Time automatically shift to allow the requested Time Range to be selected from the available data set.
- *Start Date/Time requested is prior to the oldest data:* If you request a Start Date/Time that is prior to the oldest data in the NPS, the Start Date and Time shift to coincide with the oldest data available. The Time Controls section notifies you of this after you make the selection.
- *Start Date/Time is not on the boundary of the display grain:* Graphs and charts always show data grouped into sample sets—the sample size is defined by the [display grain](#)<sup>1</sup>. If the Start Date/Time is not on the boundary of a display grain-sized sample, results can look unusual. The NPS always attempts to round down the Start Date/Time to the beginning of the nearest display grain-sized sample.

For example: a Start Time of 12.15 am and a Time Range of 1 Day will have a default Time Grain of 1 Hour—resulting in 24 samples. However, the samples for the hour representing 12.00 will only have

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<sup>1</sup>The display grain defines how samples of data are grouped across the time range. For example, a one hour chart with a display grain of five minutes displays 12 samples of data.

data from 45 minutes and will appear unusually low. To correct this, the Time Control will move the Start Date/Time back to begin at 12.00 am automatically.

### Adjust Time Ranges

The **Adjust the time range** icons provide convenient shortcuts to help you navigate to a different time range of a report. When you modify the time range of the report with the **Adjust the time range** icons, the NPS automatically assigns a Start Date/Time or suitable display grain for the report.

#### To adjust the time range of a report:

1. To display a shorter time span on the report, click  (**Adjust time- zoom in**). The report shows the data for the time range that is adjacent to and smaller than the original time range. Start time and display grain are automatically adjusted.
2. To display a wider time span on the report, click  (**Adjust time - zoom out**). The report shows the data for the time range that is adjacent to and larger than the original time range. Start time and display grain are automatically adjusted.
3. To shift the start time of the report, click  or . The origin of the report shifts along the time axis (X-axis).




### Set Topology Filters

The NPS generates reports created from different metrics that are polled from different nodes, interfaces, and other network elements. If you want to modify the report to contain data polled from select network elements, you can use the Topology Filters section. The Topology Filters section enables you to filter and generate reports on network elements with specific topology attributes.

All topology attributes shown in the list are obtained from NNMi or the collectors and pollers of iSPIs that you are using. You cannot add new attributes or delete existing attributes from this list. The NPS preserves the historical integrity of topology data such that any changes made to topology attributes (such as Interface Speed, ifAlias values, and so on) are not retroactively applied to the existing historical data, but only to new data.

**Note:** The Self Diagnostic tab displays reports on different NPS processes with the data collected from the NPS server. Therefore, you cannot see any node or interface-related attributes in the Topology Filters section of any Self Diagnostic reports.

#### To use Topology Filters:

1. Click **Topology Filter**. The Topology Folder section appears with the list of topology attributes.
2. Do one of the following for the topology attributes that you want to filter:
  - If you want to select just one value for a topology attribute, click , and then select a value of your choice.
  - If you want to select multiple values, click , and then select values of your choice (by using **Ctrl-click** or **Ctrl+Shift**).
  - If you want to search and select a value from a list of values, click .
3. If you want to apply different types of topology filters, click **Apply**, and then repeat [step 3](#). Clicking the Apply button suppresses the values from the other topology attributes that are irrelevant in the context of the selection that you have already made. To discard your selection, click **Reset**.
4. Click **Confirm Selection**. The NPS generates the report with the data specified.



**Note:** Cookies are used to preserve your preferred method of selecting each topology filter. For example, if you open a 'single value selector' for an attribute, the next time you run a report, the single-valued selector will already be opened. Do not open more selectors than you routinely use as they do add some overhead (extra time) to running the report.

**Tip:** You can also select the 'NOT' check box (  ) if you want to exclude selected objects from the report.

### Change Report Options

The Options link enables you to further customize the report with additional options that vary by report type. The link provides you with the ability to select the metrics that are displayed on the report.

#### To change Report Options:

1. Launch the report from the Report Menu page if not already launched.
2. Click **Report Options**. The Report Options section appears.
3. Change the following settings:
  - **Metrics:** A report displays the graphical or tabular representation of metrics associated with the monitored element. Most reports open with the data for a default set of metrics, which you can change with the help of the Primary/Secondary Metrics or Metrics box.
  - **Grouping By:** *Available only with select reports.* In the Grouping By box, select an attribute to define the grouping mechanism for the tabular data on the report. To select more than one attribute, click . A new Grouping By box with the list of attributes appears. To remove a grouping attribute, click .
  - **Top/Bottom N:** *Available only with the Top N report.* The Top/Bottom N option helps you specify the number and order of data points for use with the Top N and Most Changed reports.
  - **Display Time Series Chart:** *Available only with the Top N report.* The Display Time Series Chart option enables you to view the time series chart at the bottom of the Top N report.
4. Click **Confirm Selection**. The modified report appears.

**Note:** Cookies are used to preserve your choice of metrics; when you come back to the report in the future, the metrics that you selected the last time will be automatically used as the default metrics.

## Use Links

The Show Links link appears on the top of every report. The Show Links link enables you to navigate to related reports by preserving the time range, and if appropriate, the topology filter and metric settings selected on the report page.

#### To launch related reports from the report:

1. If necessary, configure the default time controls, topology, and metric settings.
2. Click **Show Links**. A new Report Links section appears above the report content. In the Report Links section, multiple tabs represent links to all related reports. When you launch a report from one of the links in this section, the resulting report appears with the settings configured in [step 2](#). You can launch a report from the same extension pack tab, or from a different extension pack tab. If you launch a report from a different extension pack tab, only the relevant topology filters are preserved. Since metrics typically vary between extension packs, the selected metric cannot be transferred to the target report.

3. To see the original report, click **Hide Links**.
4. Click here for an example.<sup>1</sup>

**Note:** You can launch reports for a different extension pack by using the Show Links link.

### Contextual Navigation

The NPS adds contextual links on the report content to navigate to related reports. By clicking a hyperlink on the report, you can navigate to related reports with the context of the original report.

#### To use the contextual navigation feature:

Move the mouse pointer on the report until it becomes a hand icon, and then click. The list of related reports appears.

#### Contextual Navigation

Report Type	Contextual Navigation Point
Calendar	X-axis; opens report links for reports with the same Date/time context and the same primary metric.
Heat Chart	<ul style="list-style-type: none"><li>• Hour of Day Row Header; opens report links for reports with the same Hour of Day filter of the selected row.</li><li>• Day of Month Header; opens report links for reports with the same Date/Time filter of the selected row.</li><li>• Data cell value; opens report links for reports with the same Hour of Day filter of the selected row and the same Date/Time filter of the selected date.</li></ul>
Headline	X-axis; opens report links for reports with the same Date/Time context and the same metric.
Dashboard	<ul style="list-style-type: none"><li>• Interface name from the Top 10 utilization, Response Time, or Discard charts; opens report links for reports with the same topology filter to selected interface and the same metric.</li><li>• Needles of the Exception Count gauges; opens report links for reports with the same metric.</li></ul>
Top N	Object name (for example, interface name or node name); opens report links for reports with the same topology filter.

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1

Go to a tab for an extension pack.

Under the Chart Detail report type, select **W**. The Chart Detail report opens with the data for the last one week.

On the Chart Detail report, click **Options**.

In the Report Options section, set the metric fields to non-default metrics, and then click **Confirm Selection**.

Click **Show Links**. The Report Links section appears with tabs for all the available extension packs. However, tabs display links to launch reports only on weekly data.

In the Report Links section, under Calendar, click **W**. The Calendar report opens with the data for the last one week. On the Calendar report, you can see the graph is generated with the metrics selected in [step d](#).

Report Type	Contextual Navigation Point
Most Changed	Object name (for example, interface name or node name); opens report links for reports with the same topology filter.

**Note:** You can launch a report from the same extension pack tab, or from a different extension pack tab. If you launch a report from a different extension pack tab, only the relevant topology filters are preserved. Since metrics typically vary between extension packs, the selected metric cannot be transferred to the target report.

## Create Bookmarks

The NPS enables you to create bookmarks for reports on the Report Menu page. These bookmarks encapsulate all the selected settings (Time, filters, Options) and enable you to be able to quickly visit the report, again from your browser. Bookmarks are also convenient for emailing and sharing reports.

**Note:** If you want the bookmark to open the report within the same time range as the original report, make sure to select a non-relative time range (for example, Start Date/Time with '1 Hour' and not 'Last 1 hour' as the time range). Otherwise, the report will show the most recent data.

### To create a bookmark for a report:

1. Launch a report.<sup>1</sup>
2. Make modifications to the default settings report depending on your requirements (see [Change Default Setting](#)).
3. Click **Show Bookmark**. A URL appears.
4. *Only for Microsoft Internet Explorer.* Click **Add Bookmark**. A bookmark to the report is automatically added to the browser with a new entry to the Favorites list.
5. *Only for Mozilla Firefox.* Create a new bookmark by using the displayed URL.

The bookmarked URL retains all the properties of the report (retains all the modifications done in step 2).

### Add URL Actions in the NNMi Console

After you generate a bookmark, you can create a new Actions menu item with the newly generated bookmark, which enables you to launch the report of your choice directly from the NNMi console.

### To add URL actions in the NNMi console to launch a report:

1. Generate the bookmark for the report of your choice.
2. In the NNMi console, select the Configuration workspace from the workspace navigation panel.
3. Select **User Interface Configuration**.
4. Navigate to the **Menu Items** tab.

---






1

In the NNMi console, click **Actions > Reporting-Report Menu**. The Report Menu page opens.

On the Report Menu page, select a tab. The NPS presents the `Self Diagnostic` tab for the default, ready-to-use `Self Diagnostic` extension pack. Depending on the number of the iSPI Performance products or extension packs available on the NPS system, you may see many other tabs.

Under a report type (like Chart Detail or Heat Chart), select the time range. The report for the selected time range opens.



5. Click  (**New**). The Menu Item form opens.
6. In the basics section of the Menu Item form, specify the following details:
  - **Menu Item Label:** The name of the report that you want to launch.
  - **Unique Key:** A unique identifier for the menu item. Type an identifier with the maximum of 80 characters. You can use alpha-numeric and period characters; do not use spaces and underline characters. To make sure that the value is unique, use the Java name space convention while specifying this value. Include the Menu Item Label value as part of the unique key as shown in the following example: `com.<company_name>.nmm.menu.item.<menu_item_label/>`.
  - **Author:** You can specify the default value Customer, or click  to add a new author name (for example: NPS).
  - **Parent Menu:** Retain the default value—Actions.
  - **Ordering:** Specify an integer between 1 and 100. The lowest number appears at the top of the Actions menu; the highest number appears at the bottom.
  - **Prepend Separator:** Selecting this option adds a horizontal line before the report menu item in the Actions menu.
  - **Enable:** Select this option to use the report bookmark.
7. Retain all other default settings in the Basics section.
8. In the Menu Item Context tab, click  (**New**). The Menu Item Context form opens.
9. In the Basics section, click , and then click  **New Launch Action**. The Launch Actions form opens.
10. In the Launch Actions form, specify a name in the Name box, add the bookmark URL in the Full URL section, and then click **Save and Close**.
11. Click **Save and Close** in the Menu Item Context form.
12. Click **Save and Close** in the Menu Item form.
13. Click **Save and Close** in the User Interface Configuration form.

Now you can launch the report from the Actions menu.

**Related Topics:**


[Create Bookmarks](#)

[Viewing Different Report Formats](#)

## View Different Report Formats

Other than the web-based HTML format, the NPS enables you to view a report in the following additional formats: PDF and Microsoft Excel.

**To view a report in a non-HTML format:**





1. Launch a report.<sup>1</sup>
2. Click .
3. Do one of the following:
  - For the PDF format, click **View in PDF Format**. A PDF version of the report appears in the same browser window.
  - For the Microsoft Excel format, click **View in Excel Options**, and then click **View in Excel 2007 Format**, **View in Excel 2002 Format**, or **View in Excel 2000 Single Sheet Format**. A Microsoft Excel version of the report opens. Only select reports are suitable for this format.

**Note:** The XML and CSV formats are not supported.

## Schedule Report Delivery

From the BI Server Portal, you can schedule the generation and delivery of reports. You can create schedules to email or print a report, or you can save the report on the NPS system once in every interval. You can modify the default settings of reports when you create schedules.

### To create a schedule:

1. Open the Report Menu page.
2. Click **BI Server**. The BI Server Portal opens.
3. On the BI Server Portal, select an extension pack of your choice. The list of reports provided by the extension pack appears.
4. Go to the row that includes the report of your choice, select the checkbox, and then click **Copy** (  ) on the toolbar.
5. Select the My Folders tab, and then click **Paste**(  ) on the toolbar.
6. Click **Set properties**(  ) under Actions.
7. Specify a name for the report, and then click **OK**.
8. Click **Schedule** (  ) to open the schedule page.
9. On the Schedule page, make the following selections:
  - **Frequency:** Select a frequency of your choice. The report generation will be scheduled with the frequency specified in this section.
  - **Start:** Specify the start time and date of the schedule.
  - **End:** Specify the end start and date of the schedule.

---

1

In the NNMI console, click **Actions > Reporting-Report Menu**. The Report Menu page opens.

On the Report Menu page, select a tab. The NPS presents the *Self Diagnostic* tab for the default, ready-to-use *Self Diagnostic* extension pack. Depending on the number of the iSPI Performance products or extension packs available on the NPS system, you may see many other tabs.

Under a report type (like Chart Detail or Heat Chart), select the time range. The report for the selected time range opens.

10. In the Options section, select the **Override the default values** option, and then specify the following details:
  - **Formats:** You can choose one or more formats from the HTML, PDF, and Microsoft Excel formats. The CSV and XML formats are not supported.
  - **Delivery:** You can print the report, email the report, or save the report on the NPS system. If you select email as the delivery mechanism, you must configure the BI Server with an email server.
11. In the Prompt values section, select the **Override the default values** option, and then click **Set**.
12. Make the Time Controls, Topology Filters, and Options selections, and then click **Finish**.
13. On the Schedule page, click **OK**.

**Note:** If you want the scheduled output to be available to all users, instead of copying the report into My Folders as recommended above, you can create a new folder (for example, Public Scheduled Reports) under Public Folders, and then copy the reports there before scheduling. Creating and Modifying the Public Folder content requires your user account to have the administrator access.

If you want to use the NPS to email reports, you must configure the BI Server to use an SMTP email server.

**To configure the BI Server to send emails:**

1. Launch the BI Server Configuration GUI.

On Windows:

```
<install_dir>\NNMPerformanceSPI\bin\runBIConfigGUI.ovpl
```

On UNIX/Linux:

```
/opt/OV/NNMPerformanceSPI/bin/runBIConfigGUI.ovpl
```

2. In the Explorer pane, select **Notification**.
3. Specify appropriate values for the following fields:
  - SMTP Mail server
  - Account and password
  - Default Sender
4. To test the connection, right-click **Notification** in the left pane, and then click **Test**.
5. Click **File > Save**.
6. Select **Yes** when prompted to restart the service `NNM iSPI Performance BIServer`.

## Create Custom Reports with Query Studio

With the Query Studio feature of the BI Server portal, you can create custom reports with the metrics from all available extension packs. You can combine metrics from all available extension packs while creating a custom report.

**Note:** HP does not offer any support for custom reports.

**To create new reports using multiple extension packs:**

1. On the Report Menu page, click **BI Server Portal**.
2. On the BI Server portal, select **All ExtensionPacks**.
3. From the top-right corner of the page, click **Launch > Query Studio**. Query Studio opens.

4. The available time granularities appear under a query subject Date/Time. Select a time range of your choice. To select the time range, expand the query subject Date/Time in the left pane, right-click the time range of your choice, and then click **Insert**. The time granularity appears in a column in the work area. To delete a time range from the work area, right-click the column for the time range, and then click **Delete**.
5. To add the topology context to the report, add topology attributes to the work area. The available topology attributes appear under a query subject Topology Attributes. Right-click a topology attribute, and then click **Insert**. The attribute appears in a column in the work area. To delete an attribute from the work area, right-click the column for the attribute, and then click **Delete**. Topology attributes from all installed extension packs will be listed, but not all topology attributes will be applicable to metrics from all extension packs. If you point the mouse arrow over a topology attribute, a tool tip appears and shows the extension packs that support that attribute.
6. In the left pane, expand **Topology Group**. The list of topology groups associated with the selected extension pack appears. You must select a topology group relevant for the metrics you plan to select. To select a topology attribute, right-click a topology attribute, and then click **Insert**. The attribute appears in a column in the work area. To delete an attribute from the work area, right-click the column for the attribute, and then click **Delete**.  
**Note:** Certain attributes like the Node Group and Interface Group attributes are available in a separate group ( *Topology Groups*) in the left pane.
7. The Topology groups tree can be expanded to allow Groups supported by the installed extension packs to be used in the report. Right-click a topology group name, and then click **Insert**. The attribute appears in a column in the work area. To delete the Group Name column from the work area, right-click the column, and then click **Delete**. Topology groups from all installed extension packs will be listed, but not all topology groups will be applicable to metrics from all extension packs. If you point the mouse arrow over a topology group, a tool tip appears and shows the extension packs that support that group.
8. In the left pane, expand **Metrics**. The list of available extension pack appears. Expand the extension pack of your choice, expand the [fact table](#) that holds the data that you want create the report with, right-click the metric of your choice, and then click **Insert**. The metric appears in a column in the work area. To delete a metric from the work area, right-click the column for the metric, and then click **Delete**.
9. Format the report with the toolbar in the work area.
10. Save the report.
11. You can view the report when you log on to the BI Server portal.

**Note:** For more detailed instruction on how to use Query Studio, you can use the online help that is included in the Query Studio toolbar (the ? icon).

## Fact Tables

The following three types of data sources exist within the NPS:

- Internal Summary tables (data for up to 70 days)
- Internal Live tables (data for up to 1 day)
- Archive tables (data for up to 'N' days as set by Configuration utility)

## Self Diagnostics

The Self Diagnostics extension pack monitors the health of the processes which function within the NPS. You can easily investigate how the processes within the NPS are performing by looking at Self diagnostic reports.

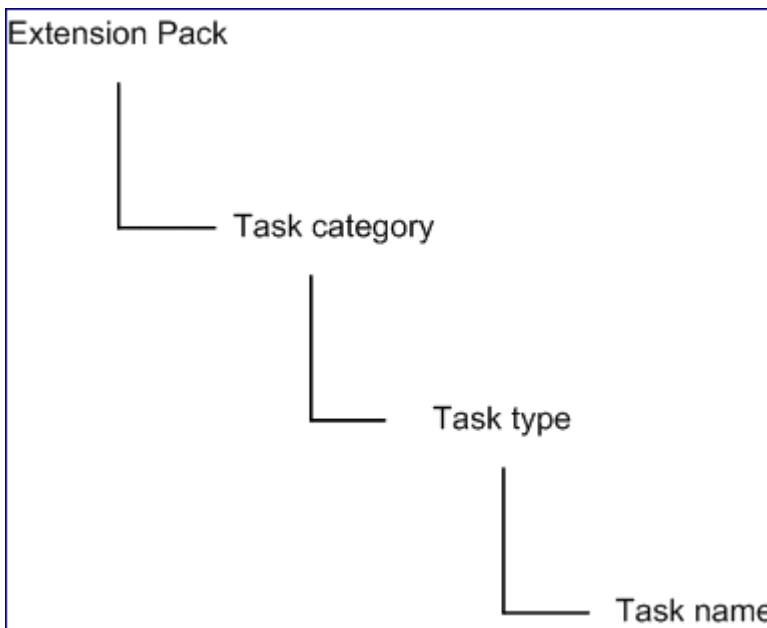
The Self Diagnostics extension pack has six reports that monitor the health of the internal processes:

- Calendar
- Chart Detail
- Heat Chart
- Most Changed
- Top N
- Top 10 Task Duration

### Monitor the Health of the NPS and Extension Packs

The reports generated by the Self Diagnostic extension pack helps you monitor the health and performance of the processes that build up the core functionality of the NPS. The reports also help you monitor the performance of different extension packs available on the NPS system.

The Self Diagnostic extension pack identifies every process on the NPS system as a task. Every task is grouped under relevant task type, task category, and extension pack in the following order:



#### Task Categories

The NPS uses two broad categories to group all processes—ETL and Report Generation.

#### Task Types

Under the ETL category, the NPS groups relevant process under the following task types:

- build\_groupcache\_from\_db
- build\_topcache\_from\_db
- checkAggregates

- process\_group\_dump\_file
- process\_metricsfiles
- process\_metricsfiles->bulkload archive table
- process\_metricsfiles->bulkload live table
- process\_metricsfiles->preprocessing
- process\_retention->aggregate table
- process\_retention->live table
- process\_retention->archive table
- process\_retention->timeDimension table
- process\_summary->Summary Child Proc
- process\_summary->Summary Parent Proc
- process\_topodump\_file

Under the Report Generation category, the NPS groups relevant process under the following task types:

- Calendar
- Chart Detail
- Dashboard
- Headline
- Heat Chart
- Most Changed
- Managed Inventory
- Top N

### Tasks

The NPS monitors and administers essential processes as tasks running on the NPS system. All such processes are introduced by different extension packs on the system. The processes are named in the following format:

*extension\_pack\_name*>.<task\_category>.<task\_type>

### Metrics

You can use the Self Diagnostics reports to report on the following metrics:

- Process Time (time in seconds for the task to complete)
- Number of Rows (applies to select tasks, such as ETL bulk loads, and so on)
- Available System Memory – shows free memory (on Linux, free and cached) enabling you to see if your system's memory usage is increasing, causing available memory to decrease. Low available memory can cause system performance to degrade.
- Available Disk Space – enables you to monitor your disk usage in the 'Data Directory' file system. By plotting the Available Disk trend over time, you can see if your disk usage has reached a steady state, or if you are on a trajectory to run out of disk space.

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics in a single, extended graph spanning over multiple days.

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

The Calendar Report defaults to:

- Task Categories, Task Types, and Task Names= All
- Dates/Times = Last 31 days
- Primary Metric = Process Time (secs)(avg)
- Secondary Metric = Process Time (secs)(avg)

**Note:** By default, both the metrics of this report are set to Process Time (secs)(avg). You can set the secondary metric to another value to see two graphs on this report.

The default view shows data for the current month. Depending on how long the NPS has been collecting data, you may have the option of looking at data for the previous 70 days if you use the option Until Now.

### Use Case

Use this report to observe:

- gradual trends over time
- isolated spikes
- to verify that an abnormal condition has returned to normal
- to make comparisons

This report also reveals:

- Day of week patterns
- Hour of day patterns

### Chart Detail Report

Use Chart Detail to go back in time, to a specific day, and examine sampled data for multiple metrics in detail. You can also examine averages and maximums for multiple metrics, and compare sampled data for any two metrics.

The following are the available filters in the Time Controls pane for Chart Detail Report:

- Start Date/Time
- Time Range
- Display Grain
- Hour of day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

The graph on this report tracks two metrics over the selected time period. Unless you modify the defaults, Chart Detail defaults to the following:

- Task Categories, Task Types, and Task Names = All
- Primary metric = Process Time (secs)(avg)
- Secondary metric = Process Time (secs)(avg)

**Note:** By default, both the metrics of this report are set to Process Time (secs)(avg). You can set the secondary metric to another value to see two graphs on this report.

The Chart Detail report enables you to view the data in the tabular format as well. To view the table, click **Options**, and then select Table. The Table appears instead of the chart. To view both the chart and the table, click **Options**, and then select Chart and Table.

## Heat Chart Report

The Heat Chart Report tracks the hourly performance of a single metric. The default metric is Process Time (secs) (avg). The default time period is the last 31 days. Performance is color-coded, making it easy to spot a condition that is gradually worsening and making it easy to distinguish satisfactory performance from unsatisfactory performance.

The following are the available filters in the Time Controls pane for Heat Chart Detail:

- Start Date/Time
- Time Range
- Display Grain
- Auto Refresh
- Hours of Day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

## Features and Defaults

The legend at the top of the report ties a range of normalized performance values to a particular color. Any value within that range will get that color. Beneath the legend, each day of the month is listed left to right, day 1 through 31. Down the side of the report is each hour of the day. Each cell inside the table is color-coded and each cell inside the table indicates a specific value. You can move the mouse pointer on a cell to view raw data.

The Heat Chart defaults to:

- Time Period = Last 31 days
- Hour of Day = All
- Day of Week = All
- Metric = Process Time (secs) (avg)



This report tracks percentages. If you open Heat Chart from a report that is using a non-supported metric (for example, Sample Count or Response Time) you will be told to open the report controls window and select an alternate metric.

### **Most Changed Report**

This report compares performance for two different (consecutive) time periods and ranks processes by the amount of change. The sort order is most-changed to least-changed.

The following are the available filters in the Time Controls pane for Most Changed Report:

- Start Date/Time
- Time Range
- Auto Refresh
- Hour of day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### **Features and Defaults**

This report contains one table and provides data for one metric only.

Following are the columns in the table:

- Performance for the previous time period
- Performance for the selected time period
- Growth, expressed as a percentage increase
- Change

The Most Changed report defaults to:

- Dates/Times = Last Day (and the day before)
- Hour of Day = All
- Day of Week = All
- Rank Metric = Process Time (secs)(avg)
- Top N Option = Top 10

If you select a month, the report will compare two months (the month you selected and the prior month); if you select a week, the report will compare two weeks (the week you selected and the prior week).

### **Top N Report**

This report ranks processes, by the metric you select. Use this report to spot the process that performed at the extremes. You can use this report to go back in time and investigate sampled data for process that are exhibiting unusual utilization levels. The default metric is Process Time (secs) (avg).

The following are the available filters in the Time Controls pane for Top N Report

- Start Date/Time: Default value depends on the default Time Range and data available in the database
- Time Range: Default is the last 1 hour

- Hour of day: Default is All
- Day of Week: Default is All

The following are the available filters in the Report Options for Top N Report. You can select the appropriate parameter from the drop-down.

- Top/Bottom 'N'
- Grouping by - default is "ExtensionPack"
- Metric – default is "Process Time (secs) (avg)"
- Display Time Series Chart
  - Select **Yes** to view the detail chart with the table
  - Select **No** to hide the chart and display only the table

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).



### Features and Defaults

Top N Summary defaults to:

- Time Period = Last Day
- Hour of Day = All
- Day of Week = All
- Rank Metric = Process Time (secs) (max)
- Top/Bottom N = Top 10

In addition to changing the metric, and modifying the time period, you can also change the ranking number using the below options:

- Top 5
- Top 10
- Top 25
- Bottom 5
- Bottom 10
- Bottom 25

By default, the report groups data by Qualified Component Name. You can select multiple grouping attributes by using the  (**Add New Grouping**) button. Use the  (**Remove Grouping**) button to remove a grouping attribute.

Click **Show Chart** to display the graphical representation of the metric values for the components over the selected time range.

Click **Show Chart** to display the graphical representation of the metric values for the components over the selected time range.

### Use Case

Check this report once a day to see which process may need special attention.

Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

### **Top 10 Task Duration Report**

The Self Diagnostics extension pack monitors the health of all the ETL and report generation processes on the NPS system. You can easily investigate how the ETL processes and reports are performing by using the Top 10 Task Duration Report.

This report monitors the Top 10 ETL and report generation processes and tracks the time taken by each process during the selected time range.

To change the Time Controls defaults, see ["Change Time Controls"](#).

### **Managed Inventory Report**

Use the Managed Inventory Report to view the list of available topology attributes. You can use the available attributes to filter the data of your interest and create a report that represents only the elements of your interest. The report presents the list of attributes in the form of a table; the Count column of the table indicates the number of entries for each attribute.

For the topology item Extension Pack, the Count column indicates the number of available extension packs on the NPS system.

For the topology item Task Category, the Count column indicates the number of task categories created by the NPS. This value is always two (ETL and Report Generation) irrespective of the number of the available extension packs.

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

## Troubleshooting Tips

Click the appropriate link from the lists below to display its details :

[NNMi console Action menu has no link to Reporting – Report menu](#)

[Does the BI Server have guidelines for tuning performance?](#)

[An error message says that NNMi is not polling one or more objects for performance data. What went wrong?](#)

[If I leave a report, and return later, I see a login screen. Why?](#)

[I'm waiting too long for reports to display. What can I do to improve the run-time?](#)

[When I leave my browser open for a while, I lose my connection and I can't get logged in again.](#)

[Where can I find more information about polling?](#)

[Why am I being asked to log in again when I navigate from NNMi to a report?](#)

[Why are exception counts missing from reports?](#)

### **NNMi console Action menu has no link to Reporting – Report menu**

The NNMi console does not display the **Reporting-Report menu** item in the **Action** menu if you do not completely (and successfully) run the enablement script. Follow the *Installation Guide* to run the enablement script (`nnmenableperfspi.ovpl`) on the NNMi management server.

### **An error message says that NNMi is not polling one or more objects for performance data. What went wrong?**

This message has more than one cause. The most likely cause is that NNMi is not polling the specified device, or devices, for performance data. To find out how polling is configured, go to the monitoring configuration form in NNMi and look at the polling attributes. Examine the polling attributes for the device and for any group the device belongs to. If the monitoring configuration details indicate that the device is being polled, then the problem is probably a topology synchronization issue.

NNMi and the NPS share topology information. Most of the time this information is fully synchronized. However, certain conditions will cause the iSPI's view of network topology to vary slightly from NNMi's view of network topology. A lack of topology synchronization can occur when:

- NNMi is running discovery
- NNMi rediscovers an existing network
- NNMi is adding or removing nodes, interfaces, or groups from polling policies

When these conditions occur, you will see:

- An error indicating that NNMI is not polling targeted objects for performance data
- "Unmanaged" next to nodes and interfaces in the Path Health report.

### **If I leave a report, and return later, I see a login screen. Why?**

The NPS will force your browser to display a login window under the following circumstances:

- You are trying to access the NPS without being authenticated by NNMI
- You pointed your browser at the NPS without logging into NNMI first
- Your browser session has expired

Simply log in again to return to the NPS.

### **Does the BI Server have guidelines for tuning performance?**

BI Server has tuning performance guidelines for single-server systems and distributed systems. The iSPI Performance is a single-system installation. When reading the BI Server documents about performance tuning, ignore the text about distributed systems.

There are two parameters that are especially important:

- Maximum number processes for the Interactive Report Service
- Maximum number processes for the Batch Report Service

If you have a lot of concurrent users, you may need to allocate more server resources to processing queries. Do that by resetting the maximum number of interactive services to 2 per processor. If you have fast processors, you could set the maximum number of interactive services to 3.

For example:

You have a system with 16 processors.

2 processes \* 16 processors = 32 interactive services.

### **I'm waiting too long for reports to display. What can I do to improve the run-time?**

If the run time seems longer than it should be, take these steps:

1. If the problem appeared suddenly, find out if a topology reset took place on NNMI.
2. If no reset took place, find out if one or more interface groups were recently added to performance monitoring.
3. Create a report view with the desired prompts and schedule this report view to run on a regular basis. Then view the scheduled output, or bookmark a URL to view the scheduled output.
4. Filters can improve report performance. A report on a specific node group is generally faster than a report on All Nodes/Interfaces; the same logic applies to the time dimension.
5. Are too many users bogging down the system? If yes, enable more parallel BI Server processes. Follow the recommendations in BI Server tuning guides.
6. Check hardware statistics, especially aggregate CPU usage. More CPUs may be needed. Verify that disk speed is adequate. For large networks, a RAID5 8-spindle is recommended.
7. Check if memory is exhausted.

8. Run the same report again. Data caching, which took place the first time you ran the report, will decrease the run time the next time you run the same report.

### **When I leave my browser open for a while, I lose my connection and I can't get logged in again.**

The inactivity timeout setting for the NPS is one hour. If your browser is inactive for an hour, your session will expire. If your session expires, the NPS will force you to log in again. The login window requires a special administrator username and password.

#### **To access the reports after exceeding the timeout limit:**

1. Close the timeout login window.
2. Log into the NNMi console using the standard URL:  
*http://fully-qualified-hostname:port/nnm*
3. Navigate to the iSPI Performance report that you were using.

### **Where can I find more information about polling?**

Performance polling has an impact on NNMi and it also has an impact on your network. If you enable additional performance polling, NNMi will have to allocate a portion of its resources to handle the additional polling, and your network will have to accommodate an increase in SNMP traffic. So that system and network resources are used wisely, not wasted, it is important to limit performance polling to the devices you care about most.

Performance polling is enabled by the NNMi administrator. Follow these steps to locate applicable help topics:

1. Launch the NNM console.
2. Click Help → **Help for Administrators**.
3. Select **Monitoring Configuration**.

If you want to create a new node group, this involves setting device-level filters. After you create the new node group, you may want to use the group as a way to filter NNMi views, and you might also want to add the node group as a filter to the iSPI element selection tree.

Creating node groups, and using the filter options, are NNMi administrator tasks. Follow these steps to locate applicable help topics:

1. Launch the NNMi console.
2. Click Help → **Help for Administrators**.
3. Select **Monitoring**.

### **Why am I being asked to log in again when I navigate from NNMi to a report?**

When you launched the NNM console, you probably failed to use NNM's fully-qualified domain name (FQDN).

Whenever you move from NNMi to the a report, account information is passed between your NNM login session and the NPS using cookies in your browser. A function known as Single Sign-On (SSO) makes it possible for you to move from NNM to a report without having to log in a second time.

For SSO to operate, the following conditions must be met:

- The NNMi system and the NPS system must be configured with fully qualified domain names.
- You must use the fully-qualified domain in your browser (not "localhost" or the machine name minus the domain) when you launch the NNMi console.

A fully-qualified domain name (FQDN) has this format:

`http://fully_qualified_domain_name:port/nnm`

If NNMi and the NPS are installed on the same machine, the SSO function will operate if you use either of these:

- NNM's FQDN
- NNM's IP address

The NPS is responsible for configuring use of NNMi's IP address; this step takes place automatically, when the NPS is installed.

## Why are exception counts missing from reports

Reports will not track exception counts unless high and low thresholds are set in NNMi. If reports are not showing exception counts, the NNMi administrator has not set thresholds.

If iSPI reports are not showing exceptions, then it is possible that network performance is still being evaluated and no one is in a position to set good thresholds.

How to set thresholds is explained in NNMi online help. Immediately after thresholds are set, exceptions will begin to register in reports.

## The NPS stops functioning and does not show any reports

After installing the NPS, if you modify the IP address, hostname, or MAC address of the NPS server, you cannot restart the NPS server. As a result, you cannot view any reports. To resolve this, you must perform additional configuration steps.

Before changing the IP address, hostname, or MAC address of the NPS server, follow these steps:

1. On the NPS server, run the following command:

On Windows:

```
<install_dir>\NNMPerformanceSPI\bin\stopAll.ovpl
```

On Linux:

```
/opt/OV/NNMPerformanceSPI/bin/stopALL.ovpl
```

2. Open the BI Server configuration GUI with the following command:

On Windows:

```
<install_dir>\NNMPerformanceSPI\bin\runBIConfigGUI.ovpl
```

On Linux:

```
/opt/OV/NNMPerformanceSPI/bin/runBIConfigGUI.ovpl
```

3. Click **File > Export As**.
4. Specify a location and a file name in the dialog box, and then click **Save**. The configuration data is saved in the XML format.
5. Delete the following directories manually:

On Windows:

```
<install_dir>\nonOV\cognos\c8\configuration\signkeypair
```

```
<install_dir>\nonOV\cognos\c8\configuration\encryptkeypair
```

On UNIX/Linux:

```
/opt/OV/nonOV/cognos/c8/configuration/signkeypair
/opt/OV/nonOV/cognos/c8/configuration/encryptkeypair
```

6. Copy the XML file saved in step 3 to the following directory:

On Windows:

```
<install_dir>\nonOV\cognos\c8\configuration
```

On UNIX/Linux:

```
/opt/OV/nonOV/cognos/c8/configuration
```

This problem does not appear if you change the IP address, hostname, or MAC address of the NPS server after you perform step 1 through 6.

## Errors and Warnings

Type	Message	Cause/Suggested Actions
WARN	Attempting to extend allocated space for DBSPACE {DB_SPACE} using dbsize.ovpl	The database requires additional disk space; the ETL process will allocate more.
WARN	Attempting to restart HP BI Server Processes	The BI server process has stopped while ETL is running. ETL will attempt to restart the process.
WARN	Attempting to restart HP DB Server	The database server process has stopped while ETL is running. ETL will attempt to restart the process.
ERROR	Automatic NNM HA add-on configuration failed: Exit Code {EXIT_CODE}	High availability configuration failed.
WARN	BI Processes not running.	The BI server process has stopped while ETL is running.
ERROR	BI Processes still not running.. restart attempt failed.	The BI server process has stopped while ETL is running. ETL has attempted to restart the process but failed to do so, and ETL cannot continue. Try starting the BI server process manually using startBI.ovpl.
ERROR	Cannot extract remote nnm hostname from value of PRSPI_NNMDIR ({PRSPI_NNMDIR})	On a dedicated server installation, the configuration entry for the NNMi shared directory should contain the name of the NNMi server. Failure to determine this hostname affects application failover configurations.
ERROR	Cannot find the OV Install Dir <{DIR}>.	<i>%nnminstalldir%</i> does not exist. Check the NNMi installation.



Type	Message	Cause/Suggested Actions
ERROR	Cannot find the nnm.ports.properties file to establish port for jboss http server.	If the jobs port cannot be determined the iSPI cannot be enabled. Check the NNMi installation.
ERROR	Check NNM HA environment then run nnmenableperfspi.ovpl.	Enabling iSPI in an HA environment must be done in a specific order. See the HA-specific topic in the NNMi Deployment Guide for more information.
ERROR	Check your environment for NNM environment variables then run nnmenableperfspi.ovpl.	Some or all required NNMi variables cannot be determined. Check the NNMi installation.
ERROR	Command Failed: {PERL} getNNMActiveScript: {CHILD_ERROR}	An application failover specific script has failed. Check your application failover environment.
ERROR	Command Failed: {UNZIP} {ZIPFILE}: {CHILD_ERROR}	An error occurred unzipping the identified file. The CHILD_ERROR may give more information (corrupt zip file, permissions issue etc.)
ERROR	Command: {OVDIR}/misc/nnm/ha/nnm-haclusterinfo.ovpl -config NNM -get HA_PERF_SPI_ADAPTER_DIR	A high availability specific script has failed. Check your high availability environment.
ERROR	Command: {OVDIR}/misc/nnm/ha/nnm-haclusterinfo.ovpl -config NNM -get NNM_INTERFACE	A high availability specific script has failed. Check your high availability environment.
ERROR	Command: {OVDIR}/misc/nnm/ha/nnm-haconfigure.ovpl NNM -addon PerfSPIHA	A high availability specific script has failed. Check your high availability environment.
ERROR	Configuration file contains errors.	The iSPI configuration file contains errors, check the associated error messages for specifics.
ERROR	Configuration: Unable to access directory {PRSPI_METRICS}	The shared directory for metrics is inaccessible. Check that NFS or Samba is operating properly.
ERROR	Configuration: Unable to access directory {PRSPI_NNMDIR}	The main shared directory is inaccessible. Check that NFS or Samba is operating properly.
ERROR	Configuration: Unable to access directory {PRSPI_TOPODUMP}	The shared directory for topology information is inaccessible. Check that NFS or Samba is operating properly.
ERROR	Configuration: directory {PRSPI_METRICS} must have write access	The shared directory for metrics is not writable. Check your NFS or samba configuration and file permissions.

Type	Message	Cause/Suggested Actions
ERROR	Configuration: directory {PRSPI_TOPODUMP} must have write access	The shared directory for topology information is not writable. Check your NFS or samba configuration and file permissions.
ERROR	Configuration: java not found in 'java_dir' ({java_dir})	The HP Java installation appears to be corrupted.
ERROR	Configuration: perl not found in 'perl_dir' ({perl_dir})	The HP Perl installation appears to be corrupted.
ERROR	Configuration: {NAME} not defined.	A required configuration parameter is not defined.
ERROR	Configuration: {NAME} value must be a valid path. Invalid value: {VALUE}	A required configuration parameter must be a valid path and it is not.
ERROR	Configuration: {NAME} value must be numeric. Invalid value: {VALUE}	A required configuration parameter must be numeric and it is not.
ERROR	DB Processes still not running.. restart attempt failed.	The database server process has stopped while ETL is running. ETL will have attempted to restart the process but failed to do so. ETL cannot continue. Try starting the database server process manually using startDB.ovpl
WARN	DBSPACE {DBSPACE}, FILE {FILE}: Cannot extend because there is no reserve space left.	The database needs to be extended but cannot because there is no disk space available. You should free existing disk space or add new disks before your database runs out of space.
WARN	DBSPACE {DBSPACE}, FILE {FILE}: Cannot extend {PATH} because there is insufficient disk space left on file system.	The database needs to be extended but cannot because there is no disk space available. You should free existing disk space or add new disks before your database runs out of space.
WARN	Database Processes not running!	The database server has stopped while ETL is running
WARN	Dropping connection_id {CONNECTION_ID}	The specified connection is being dropped. This is normally a transparent operation for report users.
WARN	Error - Unable to remove the nnm actions for iSPI for Performance	Check NNM is running. You can also remove actions from the NNMi console.
WARN	Error running dbisql: {DB_ERROR} ({SQL})	The described SQL error occurred. Check for other messages associated with this one.

Type	Message	Cause/Suggested Actions
WARN	Expected PRSPI_NNMDIR of form /net/hostname/var... or //hostname/PerfSpi	On a dedicated server install the NNM directory path should be one of the forms shown.
WARN	Extension Pack {EXTENSION_PACK}: process not running. Restarting	An ETL process had to be restarted.
WARN	Failed archiving logfile PerfSPI_Diagnostic_Metrics.log	The log archive process failed.
WARN	Failed archiving logfile prspi.log	The log archive process failed.
ERROR	Failed building extensionPack for new or updated NNM metadata: {METADATA}	This should not be encountered by customers.
ERROR	Failed chdir to {DIR}: {OS_ERROR}	Failed changing directory to the specified directory, the OS error may give more information (directory does not exist, permissions etc.)
WARN	Failed command:copy({FILE_LIST}):{OS_ERROR}	Failed copying the specified files, the OS error may give more information (directory does not exist, permissions etc.)
ERROR	Failed command:copy({FILE_LIST}):{OS_ERROR}	Failed copying the specified files, the OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
ERROR	Failed command:fork():{OS_ERROR}	Failed forking (creating a new process), the OS error may give more information (lack of system resource, etc..) The program immediately exits.
ERROR	Failed command:mkpath({PATH_LIST}):{OS_ERROR}	Failed creating the specified directories, the OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
WARN	Failed command:mkpath({PATH_LIST}):{OS_ERROR}	Failed creating the specified directories, the OS error may give more information (directory does not exist, permissions etc..)
ERROR	Failed command:move({FILE_LIST}):{OS_ERROR}	Failed moving the specified files, the OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
WARN	Failed command:move({FILE_LIST}):{OS_ERROR}	Failed moving the specified files, the OS error may give more information (directory does not exist, permissions etc..)

Type	Message	Cause/Suggested Actions
ERROR	Failed command:open({HANDLE},{ARGS});{OS_ERROR}	Failed opening the specified file, the arguments and OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
ERROR	Failed command:open({HANDLE},{FLAG},{ARGS});{OS_ERROR}	Failed opening the specified file, the arguments and OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
WARN	Failed command:opendir(DIR,{DIR Configuration: {NAME} not defined.NAME});{OS_ERROR}	Failed opening the specified directory, the OS error may give more information (directory does not exist, permissions etc..)
WARN	Failed command:system({COMMAND});{CHILD_ERROR}	Failed running the specified system command, the OS error may give more information (lack of system resources etc..)
ERROR	Failed command:system({COMMAND});{CHILD_ERROR}	Failed running the specified system command, the OS error may give more information (lack of system resources etc..) The program immediately exits.
ERROR	Failed command:unlink({FILE_LIST});{OS_ERROR}	Failed removing the specified files, the OS error may give more information (directory does not exist, permissions etc..) The program immediately exits.
WARN	Failed command:unlink({FILE_LIST});{OS_ERROR}	Failed removing the specified files, the OS error may give more information (directory does not exist, permissions etc..)
ERROR		Failed copying file from specified source to destination, the OS error may give more information (directory does not exist, permissions etc..)
	Failed copying {SRC} to {DEST}: {OS_ERROR}	
ERROR	Failed creating {FILE}: {OS_ERROR}	Failed creating the specified file, the OS error may give more information (directory does not exist, permissions etc..)

## Welcome to the iSPI Performance for Metrics

The iSPI Performance for Metrics enables the combination of NNMI and iSPI Performance to produce rich and insightful reports from the network performance data collected by NNMI. With the introduction of extension packs that add definitions to generate reports, the iSPI Performance for Metrics presents you with ready-to-use report templates that offer meaningful representation of the aggregated data gathered from NNMI.

The iSPI Performance for Metrics introduces the following extension packs:

- **Interface health:** Creates reports that help you examine the MIB II interface statistics.
- **Component Health:** Creates reports that examine memory, CPU, and buffer utilization.
- **Path Health:** Uses data from the other two sources—Interface Health and Component Health—to create reports on network paths built with a combination of nodes and interfaces.

The iSPI Performance for Metrics removes most of the labor required to detect a network problem and pinpoint the cause. The iSPI Performance for Metrics automates the following chores:

- Exception reporting
- Ranking
- Trending

Exception reporting highlights threshold conditions, providing an easy way to spot abnormal performance. Ranking sorts elements by the metric of your choice and allows you to identify network elements with unusually high or unusually low values. If an element in the network is experiencing unusual or extreme performance, ranking will make that element easy to spot. Trending looks at a period of time and lets you see whether performance is stable, getting worse, or improving.

In addition to reporting exceptions, ranking elements, and displaying trends, the iSPI Performance for Metrics lets you drill down on any aggregate of data until you isolate the node, interface, or component responsible for the condition you are investigating. After you locate the element, you can drill down on the time dimension as well and find out precisely when the condition started.

iSPI Performance for Metrics query features let you modify a report by applying filters to the network dimension and the time dimension. Use the network topology filter to modify the report on a particular node group or a particular node. Use time dimension filter to select a particular day, week, or month. In addition, you can also filter data by day-of-week and by hour-of-day. Some reports let you replace the primary and secondary metric with any metrics you choose, and some reports let you modify the scope and direction of ranking. For example, you can specify that you want to look at the Top 25 elements instead of the default Top 10, and you can specify that you want to look at the Bottom 5 elements instead of the Top 5.

## Component Health Reports

The Component Health reports show the performance data for network components in your environment. Graphs and charts on Component Health reports reflect the details related to the following elements of devices:

- CPU
- Memory
- Buffer
- SNMP response time

Use Component Health reports to determine if an interface is over-utilized or if it needs an upgrade.

## Opening Reports from NNMi

From the NNMi Console, you have these options:

Click the **Reporting - Report Menu** option under the **Actions menu**; launch reports from the Report Menu.

Launch pre-filtered iSPI reports directly from NNM

If you are interested in a particular node group, node, or interface, you will probably want to launch a pre-filtered report from NNMi; otherwise, open a workspace view from NNMi, move to the iSPI, and begin your investigation from the Report Menu. To move from NNMi to the iSPI:

1. Log in to the NNMi Console.
2. Select a workspace.
3. Open a view (nodes, interfaces, components, or incidents).
4. Select **Actions > Reporting - Report Menu page**

## Glossary of Metrics

### Memory Utilization

Percentage of memory in use compared to the total amount of memory available.

- Memory Utilization (Avg%)
- Memory Utilization (Max%)
- Memory Utilization Exceptions (Avg%)
- Memory Utilization Exceptions (#samples)

### Buffer Utilization

Percentage of buffer space in use compared to the total amount of buffer space available.

- Buffer Utilization (Avg%)
- Buffer Utilization (Max%)
- Buffer Utilization Exceptions (Avg%)
- Buffer Utilization Exceptions (#samples)

### Buffer Miss Rate

A counter measures the number of buffers available in the buffer pool. An exception is recorded when the number of buffers drops below a minimum number. The miss rate percentage shows how the number of below-minimum samples compares to total samples.

- Buffer Miss Rate (Avg%)
- Buffer Miss Rate (Max%)
- Buffer Miss Rate Exceptions (Avg%)
- Buffer Miss Rate Exceptions (#samples)

### Buffer Failure Rate

A counter measures the number of times buffer creation fails due to insufficient memory. An exception occurs when the number of failures crosses a threshold. The buffer failure rate is a percentage that shows how the number of buffer creation failures compares to the total number of buffer creations.

## **iSPI Performance for Metrics Online Help**

Welcome to the iSPI Performance for Metrics

- Buffer Failure Rate (Avg%)
- Buffer Failure Rate (Max%)
- Buffer Failure Rate Exceptions (Avg%)
- Buffer Failure Rate Exceptions (#samples)
- Buffer NoMemory Rate Exceptions (Avg%)
- Buffer NoMemory Rate Exceptions (#samples)

### **CPU Utilization**

Percentage of CPU utilization in use compared to the total amount of CPU capacity available. (This metric maps to the CPU 1m utilization value from NNM.)

- CPU Utilization (Avg%)
- CPU Utilization (Max%)
- CPU Utilization Exceptions (Avg%)
- CPU Utilization Exceptions (#samples)

### **CPU 5-Second Utilization**

This metric averages CPU utilization over a 5-second period, providing a snapshot of the past 5-seconds at the time of polling. Available from Cisco devices only.

- CPU 5s Utilization (Avg%)
- CPU 5s Utilization (Max%)
- CPU 5s Utilization Exceptions (Avg%)
- CPU 5s Utilization Exceptions (#samples)

### **CPU 1-Minute Utilization**

This metric averages CPU utilization over a 1-minute period, providing a snapshot of the previous minute at the time of polling. Available from Cisco and Nortel Passport devices.

- CPU 1m Utilization
- CPU 1m Utilization (Avg%)
- CPU 1m Utilization (Max%)
- CPU 1m Utilization Exceptions (Avg%)
- CPU 1m Utilization Exceptions (#samples)

### **CPU 5-Minute Utilization**

This metric averages utilization over a 5-minute period, providing a snapshot of the previous 5 minutes at the time of polling. Available from Cisco devices only.

- CPU 5m Utilization
- CPU 5m Utilization (Avg%)
- CPU 5m Utilization (Max%)
- CPU 5m Utilization Exceptions (Avg%)
- CPU 5m Utilization Exceptions (#samples)

### **Response Time**

The time it takes a node to respond to an SNMP request from NNMI



- Response Time (Avg msec)
- Response Time (Max msec)
- Period Length (sec)

### **SampleCount**

The number of samples. Some nodes do not support the full range of metrics. To avoid skewing the averages, separate counts are kept for each metric received.

- SampleCount (All)
- SampleCount (Memory)
- SampleCount (Buffers)
- SampleCount (CPU)
- SampleCount (Buffer Miss)
- SampleCount (Buffer Failure)
- SampleCount (Buffer NoMem)
- SampleCount (CPU5s)
- SampleCount (CPU1m)
- SampleCount (CPU5m)

### **NodeCount**

The number of nodes polled.

### **ComponentCount**

The number of components polled.

### **Reports**

The Component Health extension pack presents the following reports:

- Calendar
- Chart Detail
- Heat Chart
- Most Changed
- Top N
- Managed Inventory
- Dashboard
- Headline

#### **Calendar Report**

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics in a single, extended graph spanning over multiple days.

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

#### **Features and Defaults**

The Calendar Report defaults to:



## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- Nodes/Components = All
- Dates/Times = Last 31 days
- Primary Metric (Yellow in the graph) = Memory Utilization (avg)
- Secondary Metric (blue in the graph) = CPU 5min Utilization – Exception Rate (max)

The default view shows the data for the current month. Depending on how long the iSPI has been collecting data from NNM, you may have the option of looking at data for the previous two months as well as last 31 days.

**Note:** If you set the Time Range below 24 hours, the following message appears:

This report is not designed to operate with a time range of less than 24 hours. Please modify your time selections.

You can use the following Time Controls parameters:

- Start Date/Time
- Time Range
- Auto Refresh

### Use Cases

Use this report to observe:

- gradual trends over time
- to spot isolated spikes
- to verify that an abnormal condition has returned to normal
- to make comparisons

For example, to compare the data of the last 31 days, or to compare data for last month to data for the preceding month.

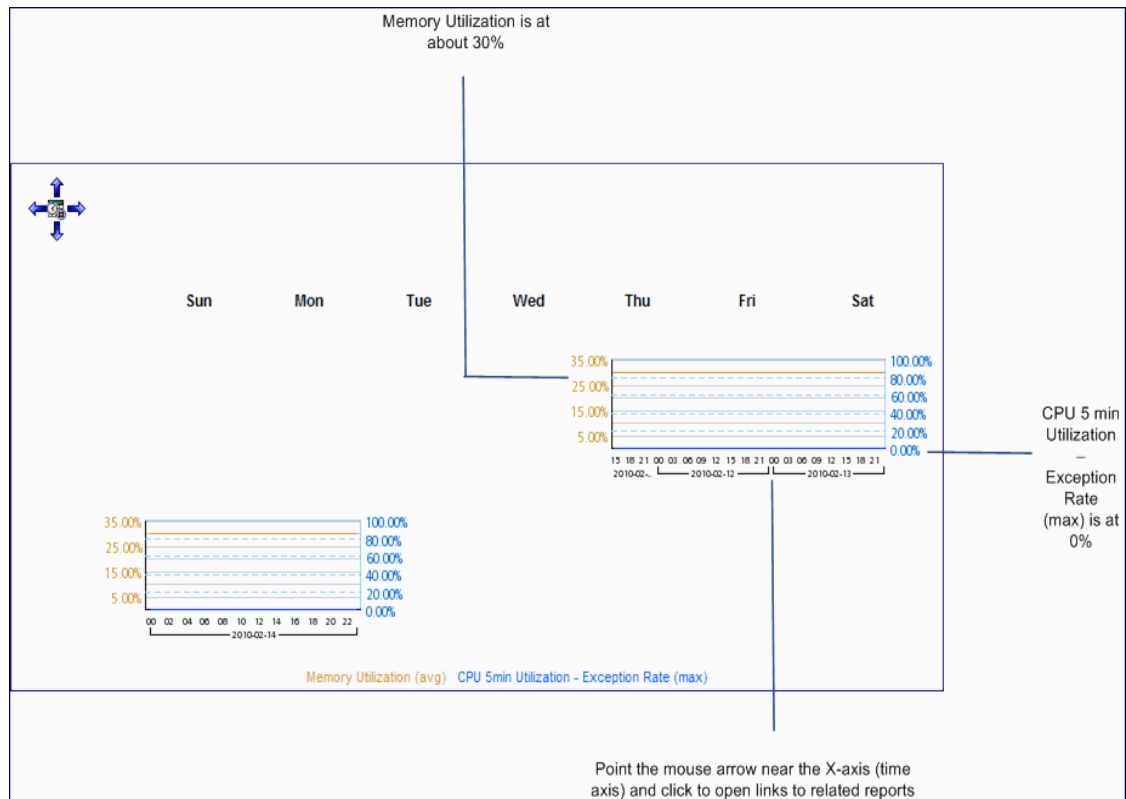
This report also reveals:

- Day of week patterns
- Hour of day patterns

For example, if utilization is spiking on Tuesdays, or if response time issues are occurring daily at 11:00 a.m., the report will highlight these events.

### Guided Tour - Component Health Calendar Report

The following image shows a typical calendar report for the components on your network:



### Chart Detail Report

Use the Chart Detail Report to examine sampled data for any two metrics in detail. This report contains a graph representing data samples of two metrics.

You can use the following Time Controls parameters:

- Start Date/Time
- Time Range
- Display Grain
- Auto Refresh
- Hours of Day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

The graph on this report tracks two metrics over the selected time period. Unless you modify the defaults, Chart Detail defaults to the following:

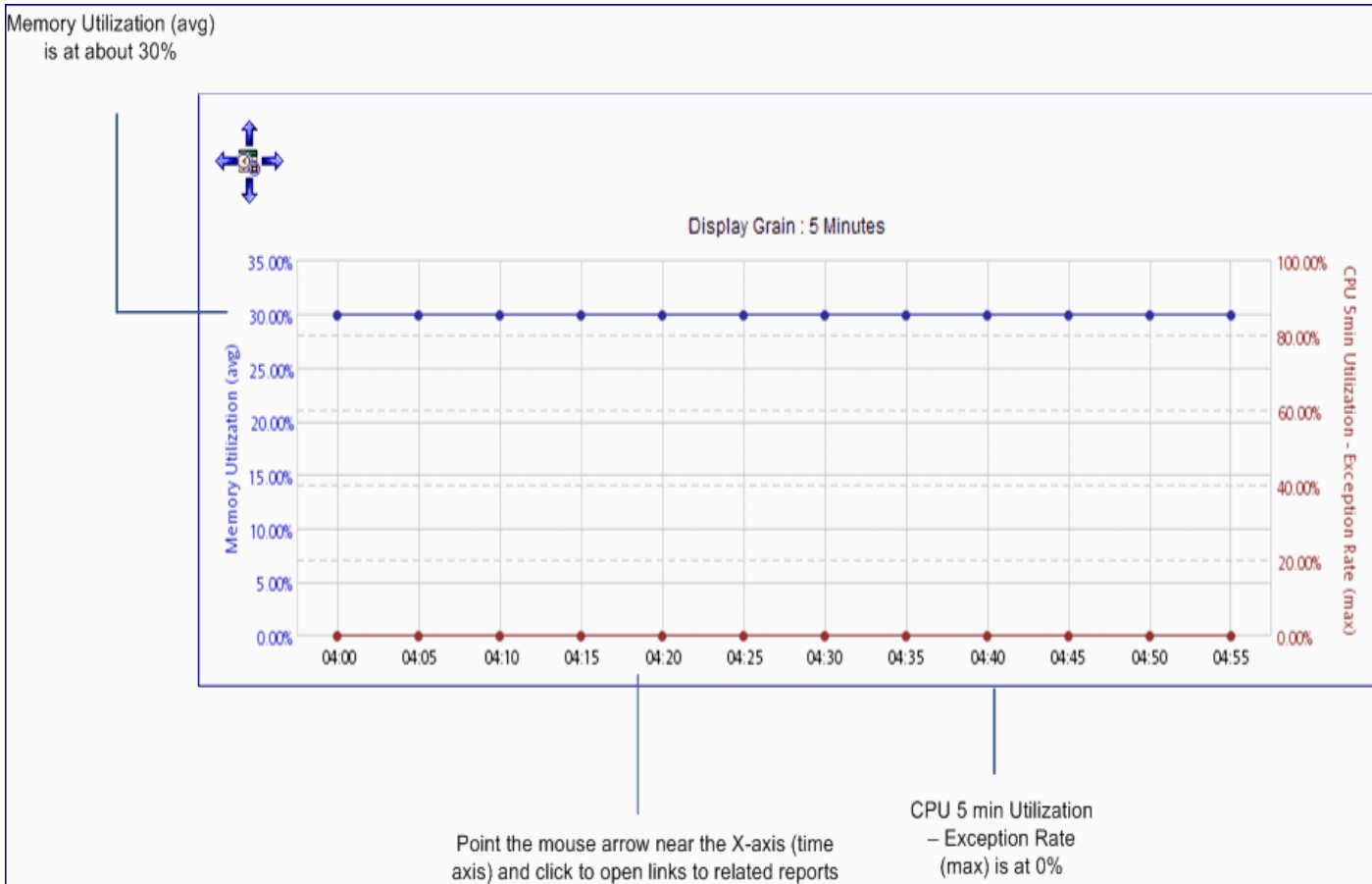
- Nodes/Components = All
- Primary metric = Memory Utilization (avg)

- Secondary metric = CPU 5 min Utilization - Exception Rate (max)

The Chart Detail report enables you to view the data in the tabular format as well. To view the table, click **Options**, and then select Table. The Table appears instead of the chart. To view both the chart and the table, click **Options**, and then select Chart and Table.

**Guided Tour - Component Health Chart Detail Report**

The following image shows a typical Chart Detail report for the components on your network:



**Heat Chart Report**

The Heat Chart Report tracks the hourly performance of a single metric. The default metric is Memory Utilization (avg). The default time period is the last 31 days. Performance is color-coded, making it easy to spot a condition that is gradually worsening and making it easy to distinguish satisfactory performance from unsatisfactory performance.

You can use the following Time Controls parameters:

- Start Date/Time
- Time Range
- Display Grain
- Auto Refresh

- Hours of Day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### **Features and Defaults**

The legend at the top of the report maps a range of normalized performance values to a particular color. Beneath the legend, a table represents the normalized values of a performance metric (rows of the table represent hours of the day; columns of the table represent days). Each cell inside the table is color-coded and each cell inside the table indicates a specific value of the metric.

You can move the mouse pointer on the cell to see the raw data of each hour.

The Heat Chart defaults to:

- Nodes/Components = All
- Time Period = Last 31 days
- Hour of Day = All
- Day of Week = All
- Metric = Memory Utilization (avg)

While selecting the Time Controls parameters, you can choose the following values:

- A specific day other than Last Day
- A specific week this month (or partial week)
- A specific week in a previous month (or partial week)
- Last 31 days
- A previous month

**Note:** If you set the Time Range below 24 hours, the following message appears:

`This report is not designed to operate with a time range of less than 24 hours.  
Please modify your time selections.`

This report tracks percentages. If you open Heat Chart from a report that is using a non-supported metric (for example, Sample Count or Response Time), you will be told to open the report controls window and select an alternate metric.

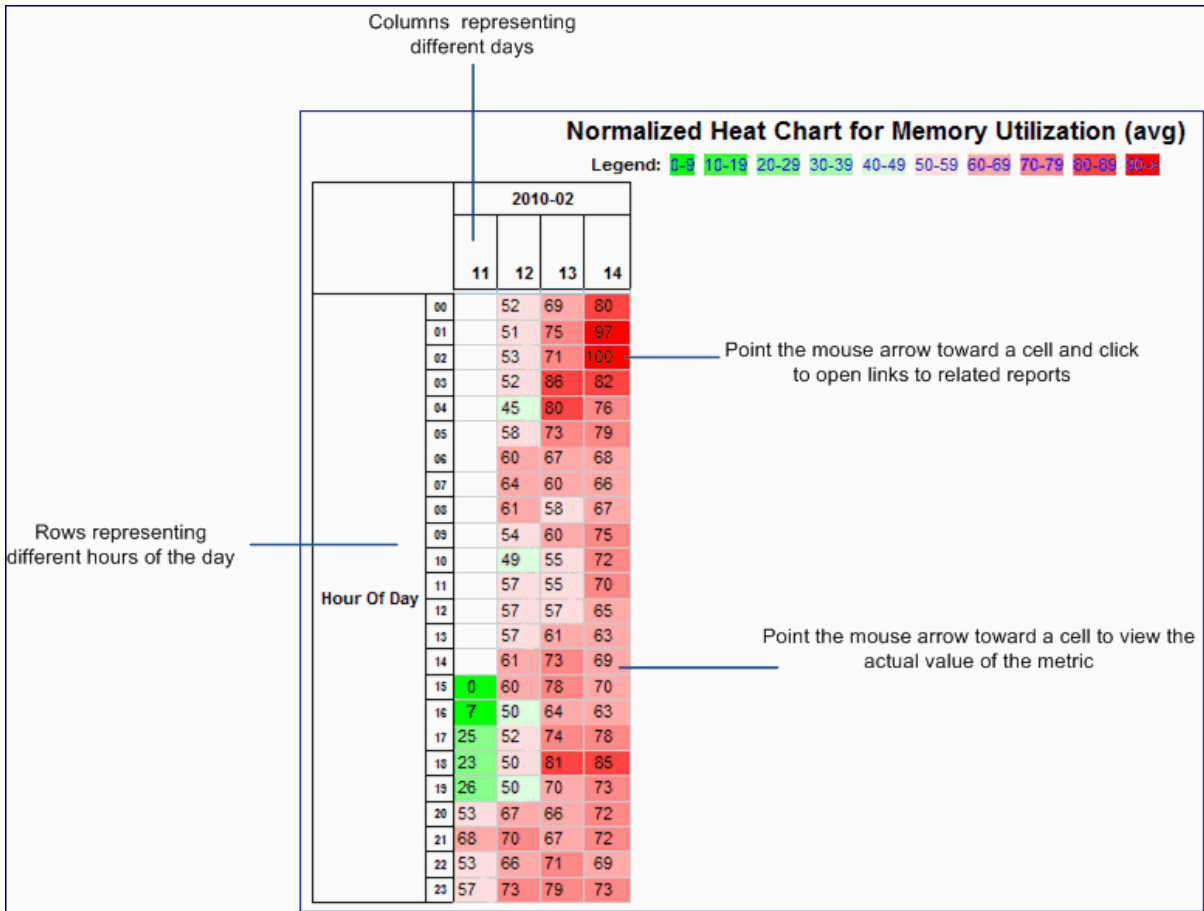
### **Use Case**

Use the Heat Chart to identify:

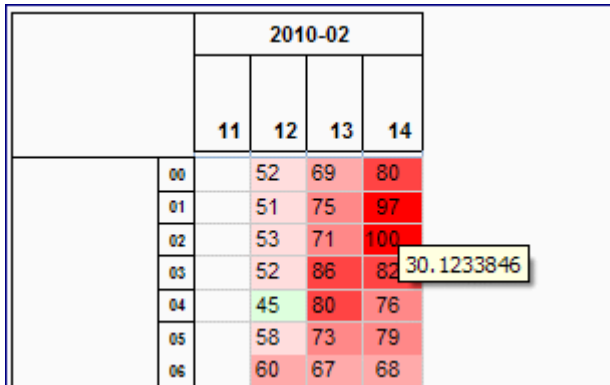
- gradual shifts from one range of performance to another range
- to spot an isolated instance of poor performance that affected the results for one day
- to spot day-of-week or hour of day patterns
- to verify that an abnormal condition returned to normal after a problem was corrected

### **Guided Tour - Component Health Heat Chart Report**

The following image shows a typical Heat Chart report for the components on your network:



To view the actual value of the metric at a specific hour, point the mouse arrow toward the desired cell.



**Most Changed Report**

This report compares performance the components for two different (consecutive) time periods and ranks components by the amount of change. The sort order is most-changed to least-changed.

You can use the following Time Controls parameters:

- Start Date/Time
- Time Range

- Auto Refresh
- Hour of day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### **Features and Defaults**



This report contains one table and provides data for one metric only.

The table presents the following columns:

- Component
- Performance for the previous time period
- Performance for the selected time period
- Growth, expressed as a percentage increase
- Change

The Most Changed report defaults to:

- Grouping by Elements = Qualified Component Name
- Start Date/Time = Depends on default Time Range and data available in the database
- Time Range = Last 1 hour
- Hour of Day = All
- Day of Week = All
- Rank Metric = Memory Utilization (Avg%)
- Top N Option = Top 10

By default, the report groups data by Qualified Component Name. You can select multiple grouping attributes by using the  (**Add New Grouping**) button. Use the  (**Remove Grouping**) button to remove a grouping attribute.

### **Use Case**

Use this report to identify components that saw significant change from one time period to the next. Significant change could point to a developing problem. The report shows the rate of change in the Growth Rate column. You can change the ranking metric and you can change how many elements are listed.

**Note:** Since the Most Changed report compares performance in two continuous time periods, the "Until Now" option for All Dates/Times is not a valid time period. Selecting "Until Now" for Time Range will display the following error:

*This report does not operate with the current time interval. Please modify your selection.*

### **Guided Tour - Component Health Most Changed Report**

The following image shows a typical Most Changed report for the components on your network:

Qualified Component Name	Change of Memory Utilization (avg)		Growth Rate (%)	Change
	Previous Period	Current Period		
	From: Aug 28, 2009 5:30:00 AM To: Aug 29, 2009 5:30:00 AM	From: Aug 29, 2009 5:30:00 AM To: Aug 30, 2009 5:30:00 AM		
<a href="#">I/O on (mplsce02)</a>	60.38%	59.81%	-0.93%	-0.56%
<a href="#">I/O on (mplsce03)</a>	41.38%	41.52%	0.34%	0.14%
<a href="#">I/O on (mplsce04)</a>	53.23%	53.33%	0.19%	0.10%
<a href="#">I/O on (mplsce71)</a>	30.00%	29.91%	-0.29%	-0.09%
<a href="#">I/O on (mplsp04)</a>	42.61%	42.68%	0.15%	0.06%
<a href="#">Processor on (mplsce03)</a>	33.26%	33.31%	0.13%	0.04%
<a href="#">I/O on (mplshadow)</a>	44.91%	44.94%	0.07%	0.03%
<a href="#">I/O on (mplsce05)</a>	34.24%	34.27%	0.08%	0.03%
<a href="#">I/O on (mplsce22)</a>	27.97%	28.00%	0.09%	0.03%
<a href="#">I/O on (mplsce07)</a>	43.99%	44.01%	0.05%	0.02%

**Headline Report**

The Headline Report provides a broad view of performance. This report enables you to view every aspect of performance at once. You can use the graphs to view trends, identify isolated spikes, and verify that performance is meeting expectations.

You can use the following Time Controls parameters:

- Start Date/Time
- Time Grain
- Display Grain
- Hours of Day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

**Features and Defaults**

The Headline Report contains the following graphs:

- Average Memory Utilization and Exceptions
- Average Buffer Utilization and Exceptions
- Average CPU Utilization and Exceptions

**Note:** The Headline report does not provide options to create graphs on other metrics.

The Headline Report defaults to:

- Components = All
- Time Period = Last 1 Hour

- Hours of Day = All
- Days of Week = All

### Use Case

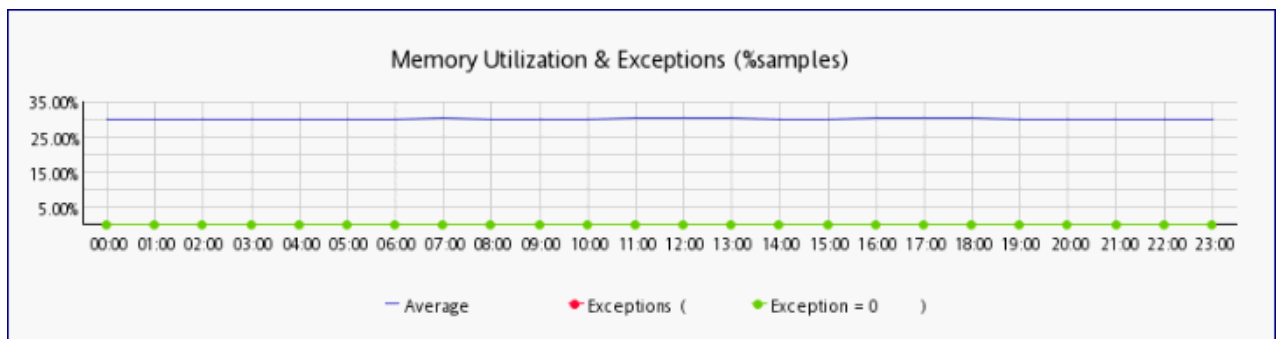
This report shows the data for exceptions only if thresholds for performance metrics are set in NNMi. For the set thresholds, if the performance exceptions occur, exceptions will appear as red stars in the range graphs.

If you are viewing data for a single day, the metrics are aggregated to the hourly level. All other time periods show data aggregated to the daily level.

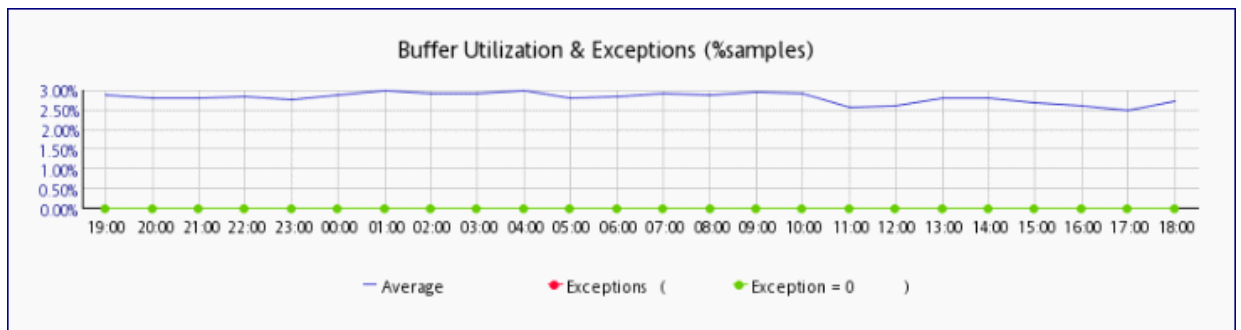
### Guided Tour - Component Health Headline Report

The following image shows a typical Headline report for the components on your network:

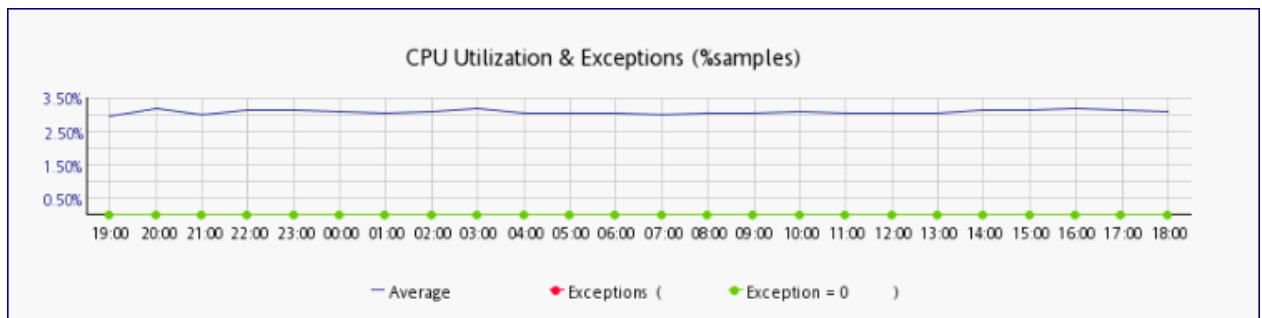
#### Memory Utilization and Exceptions



#### Buffer Utilization and Exceptions



#### CPU Utilization and Exceptions





### Dashboard Report

The Dashboard report provides an overview of the components available on your network using a combination of gauges, heat charts, and ordered Top 5 lists. The focus of the report is component-based threshold breaches, which are classed as exceptions. Threshold breaches can point to a network-related problem or may indicate that your thresholds within NNMi need to be changed.

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

Like all other reports, the Dashboard report includes a Time Control and a Topology Filter that enable you to modify the time range displayed and the network elements whose data will be used to form the report.

The Dashboard report also includes a Group By option. You can group the data within the report using the grouping option. For example: if you use a grouping option of Node Name, all Availability exceptions that fall within the time and topology constraints are grouped by Node Name and displayed as a percentage of the total samples in the left gauge.

The gauges across the top-5 lists provide the following exception count statistics:

- Memory Utilization Exceptions (% samples)
- Buffer Utilization Exceptions (% samples)
- Buffer Miss Rate Exceptions (% samples)
- CPU Utilization Exceptions (% samples)

If you want to investigate any of the gauge values further, click on the needle. The Report Menu will appear with all of your current selections and the appropriate metric from the gauge. From here, you can choose an appropriate report to provide further details.

The following top-5 lists tell you which nodes may be responsible for the exceptions showing up in the gauges:

- Top 5 Qualified Component Names by Memory Utilization Exceptions
- Top 5 Qualified Component Names by CPU Utilization Exceptions
- Top 5 Qualified Component Names by Buffer Utilization Exceptions and Buffer Utilization Heat Chart

If you want to investigate any of the Top 5 values further, you can click on the selected element. The Report Menu will appear with the appropriate metric from the Top 5 list and the selected element will be added to your topology filters.

The top-5 list for discard exceptions includes a heat chart. Use the heat chart to highlight patterns over time for the top 5 elements with discard exceptions.

Cells within the heat chart represent samples of time within the selected interval and the color of the cell indicates the discard exception rate as a percentage of the total number of samples. These cells represent a period of time and are equivalent to the display grain used in other chart-style reports. For each time range length, a default display grain is chosen. Display grains are selected dynamically by the report and can have one of the following values:

- 1 Minute
- 5 Minutes
- 30 Minutes

- 1 Hour
- 1 Day

When the NPS database has no data, the needle icons on the gauges on the Dashboard report do not appear.

**Use Case**

If the gauges are showing few or no exceptions, this means that none of your nodes, including the nodes in the top 5 lists, are experiencing problems with memory, buffer, or CPU utilization.

For example, your network is divided into groups that represent regions or strategic locations for your enterprise. With the grouping option set to Node Group name, the report lists each of your strategic Node Groups (as defined within NNMi) and provides the current statistics for exceptions within each group.

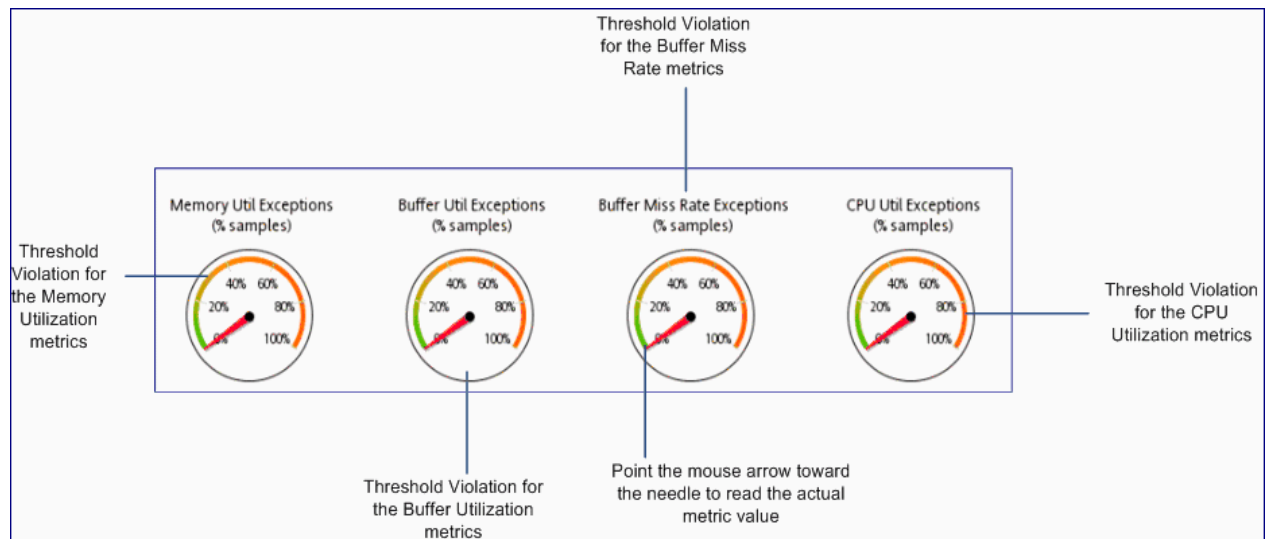
If an unexpected change in exception counts is noted, you can click the appropriate gauge needle or Node Group within the Top 5 lists, and then launch another report (such as Chart Detail) to investigate trends or changes within the network as they are occurring.

The thresholds that create exceptions are set from NNMi, not from the iSPI. If you want to set or modify thresholds, refer to the online help for NNMi administrators.

**Guided Tour - Component Health Dashboard Report**

The following image shows a typical Dashboard report for the components on your network:

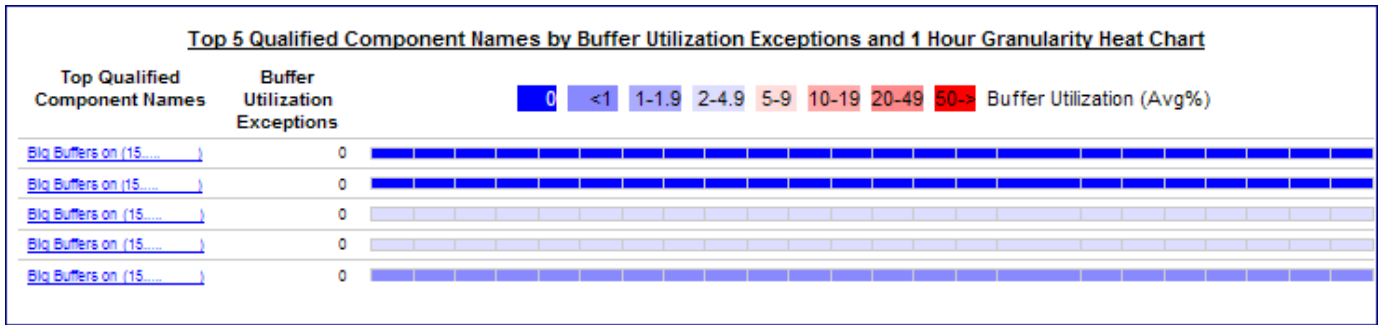
**Exception Gauges**



**Memory and CPU Utilization Exceptions**

<u>Top 5 Qualified Component Names by Memory Utilization Exceptions</u>		<u>Top 5 Qualified Component Names by CPU Utilization Exceptions</u>	
<a href="#">CLUSTER on (c55-sc)</a>	0	<a href="#">CPU of Routing Processor 1 on (ntcqw1loop)</a>	0
<a href="#">DRAM on (c55-sc)</a>	0	<a href="#">CPU of Routing Processor 1 on (ntcqw2loop)</a>	0
<a href="#">Fast on</a>	0	<a href="#">CPU of Routing Processor 5 on (cisco6509)</a>	0
<a href="#">Fast on (c55vlan)</a>	0	<a href="#">CPU of Switching Processor 1 on (ntcqw1loop)</a>	0
<a href="#">FLASH on (c55-sc0)</a>	0	<a href="#">CPU of Switching Processor 1 on (ntcqw2loop)</a>	0

**Buffer Utilization Exceptions**



**Top N Report**

This report ranks network elements by the metric you select. Use this report to spot the element that performed at the extremes. You can use this report to go back in time and investigate sampled data for elements that are exhibiting unusual utilization levels. The default metric is Memory Utilization.

The following are the available filters in the Time Controls pane for Top N Report:

- Start Date/Time - the default value depends on the default Time Range and data available in the database
- Time Range - default is the last 1 hour
- Hour of day – default is All
- Day of W

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

**Features and Defaults**

Top N Summary defaults to:

- Components = All
- Rank Metric = Memory Utilization (Avg %)
- Top/Bottom N = Top 10
- Group By = Qualified Component Name



In addition to changing the metric, and modifying the time period, you can also change the ranking number using the following options:

- Top 5
- Top 10
- Top 25
- Top 50
- Top 100
- Bottom 5
- Bottom 10
- Bottom 25
- Bottom 50
- Bottom 100

- Sort All in Descending
- Sort All in Ascending

The following are the available options in the Report Options for the Top N report. You can select the appropriate parameter from the drop-down:

- Top/Bottom 'N'
- Grouping by - default is "Qualified Component Name"
- Metric – default is "Memory Utilization (Avg %)"
- Display Time Series Chart
  - Select Yes to view the detail chart with the table
  - Select No to hide the chart and display only the table; default is No.

By default, the report groups data by Qualified Component Name. You can select multiple grouping attributes by using the  (Add New Grouping) button. Use the  (Remove Grouping) button to remove a grouping attribute.

Click **Show Chart** to display the graphical representation of the metric values for the components over the selected time range.

#### **Use Case**

Check this report once a day to see which elements may need special attention.

Check this report periodically throughout the day to see which elements are performing at the extremes and may need special attention.

#### **Managed Inventory Report**

Use the Managed Inventory Report to view the number of instances of each topology attribute seen in the collected data within the selected time range. For example, if the report is run for 'Last 1 Hour,' you will see the number of unique values for each attribute seen in the data collected over the last hour. This report can be useful for checking, for example, the number of nodes polled over any given time range.

You can use the available attributes to filter the data of your interest and create a report that represents only the elements of your interest. The report presents the list of attributes in the form of a table; the Count column of the table indicates the number of entries for each attribute. For example, count 5 for the topology item Node Location means all nodes on your network can be grouped based on 5 different locations that host the nodes.

You can use the following topology attributes with the Component Health reports:

- Qualified Component Name
- Component Name
- Component Type
- Component ID
- Component UUID
- Node Name
- Node Contact
- Node Location
- Node Family
- Node Vendor

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- Node ID
- Node UUID

To change the Time Controls defaults, see "[Change Time Controls](#)".

To change the Topology Filters defaults, see "[Set Topology Filters](#)".

The Managed Inventory report may take significant time to build if you select a time range greater than one day.

### Interface Health Reports

The Interface Health reports show the performance data for network interfaces. Graphs and charts on Interface Health reports reflect the details that help you identify the following:

- Interface utilization
- Errors in interfaces
- Interface discard rate
- Availability of interfaces

Use Interface Health reports to determine the status of the interfaces on your network.

### Opening Reports from NNMi

From the NNMi Console, you have the following options to open reports:

- Move from NNMi to the iSPI, and launch reports from the Report Menu.
- Launch pre-filtered reports directly from NNMi.

If you are interested in a particular node group, node, or interface, you will probably want to launch a pre-filtered report from NNMi; otherwise, open a workspace view from NNM, move to the iSPI, and begin your investigation from Report Menu. To move from NNM to the iSPI:

1. Log on to the NNMi console.
2. Select a workspace.
3. Open a view of nodes, interfaces, or incidents.
4. Select **Actions > Reporting - Report Menu**

### Related Topics

[Glossary of Metrics](#)

### Glossary of Metrics

- [Availability](#)
- [Discard - Packets](#)
- [Discard Rate](#)
- [Errors](#)
- [Exceptions and Exception Rates](#)
- [Interface Speed](#)
- [Range](#)
- [Response Time](#)
- [Sample Count](#)

- [Utilization](#)
- [Volume](#)

### **Availability**

Availability (Avg%): the average availability for all samples. Calculated by NNMI using multiple values including but not limited to ifOperStatus, ifLastChange, ifAdminStatus.

### **Discards Packets**

Total number of discarded packets, in and out combined, followed by number incoming packets and the number of outbound packets.

- Discards Packets (sum)
- Discards Packets In (sum)
- Discards Packets Out (sum)

### **Discard Rate**

Total number of packets with discards as a percentage of total packets (minimum, maximum, and average); followed by the number of discarded packets incoming, as a percentage of total incoming packets (minimum, maximum, and average), and the number of discarded packets outbound, as a percentage of total outbound packets (minimum, maximum, and average).

- Discard Rate (avg, min, and max)
- Discard Rate In (avg, min, and max)
- Discard Rate Out (avg, min, and max)

### **Errors**

Total number of packets with errors, in and out combined; number of incoming packets with errors; number of outbound packets with errors.

- Errors - Packets (sum)
- Errors - Packets In (sum)
- Errors - Packets Out (sum)

Total number of packets with errors as a percentage of total packets; followed by number of packets with errors received as a percentage of total packets received, and number of packets with errors transmitted, as a percentage of total packets transmitted.

- Error Rate (avg)
- Error Rate (min)
- Error Rate (max)
- Error Rate In (avg)
- Error Rate In (min)
- Error Rate In (max)
- Error Rate Out (avg)
- Error Rate Out (min)
- Error Rate Out (max)

### **Exceptions**

Utilization Exceptions: number of exceptions; percentage of samples above the normal range or below the normal range.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- Utilization Exceptions (#samples)
- Utilization Exceptions (%samples)

Discard Exceptions: number of packet discard exceptions; percentage of samples above the discard exception threshold.

- Discard Exceptions (#samples)
- Discard Exceptions (%samples)

Error Exceptions: number of packet error exceptions; percentage of samples above the error exception threshold.

- Error Exceptions (#samples)
- Error Exceptions (%samples)

Availability Exceptions: number of availability exceptions; percentage of samples showing ifOperStatus = down.

- Availability Exceptions (#samples)
- Availability Exceptions (%samples)

### Interface Speed (bps)

Period Length (sec): time represented by poller intervals.

### Range (Discard Rate, Error Rate, Utilization)

The average +/- 1 Standard Deviation.

Standard deviation is the square root of variance. Standard deviation measures the spread of data around the mean. When many data points are close to the mean, then the standard deviation is small; when many data points are far from the mean, then the standard deviation is large.

### Response Time

Network Delay (Avg msec): time for interface/device to respond to polling request

### Sample Count

Sample count = number of polled samples.

### Utilization

Utilization - Avg%: average utilization in; average utilization out

- Utilization In (Avg%)
- Utilization Out (Avg%)

Utilization - Max%: maximum utilization in (the largest value from any sample); maximum utilization out (the largest value from any sample)

- Utilization In (Max%)
- Utilization Out (Max%)

Utilization - Variance: the average of the squared differences between data points and the mean. Variance is tabulated in units squared.

- Utilization In (Variance)
- Utilization Out (Variance)

## Volume

- Volume - Packets (sum): total packet count in; total packet count out.
- Volume - Packets In (sum): total packet count in
- Volume - Packets Out (sum): : total packet count out
- Volume -Bytes (sum): total byte count in; total byte count out
- Volume - Bytes In (sum): total byte count in
- Volume - Bytes Out (sum): total byte count out

## Reports

The Interface Health extension pack presents the following reports:

- Calendar
- Chart Detail
- Heat Chart
- Most Changed
- Top N
- Managed Inventory
- Dashboard
- Headline

## Related Topics

[Glossary of Metrics](#)

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics in a single, extended graph spanning over multiple days.

To change the Time Controls defaults, see "[Change Time Controls](#)".

To change the Topology Filters defaults, see "[Set Topology Filters](#)".

To change the Report Options defaults, see "[Change Report Options](#)".

## Features and Defaults

The Calendar Report defaults to:

- Interfaces = All
- Dates/Times = Last 31 days
- Primary Metric (yellow in the graph) = Discards-Packets (sum)
- Secondary Metric (blue in the graph) = Availability- Exception Rate (max)

The default view shows data for the current month. Depending on how long the iSPI has been collecting data from NNMi, you may have the option of looking at data for the previous 70 days if you use the option Until Now.

**Note:** If you set the Time Range below 24 hours, the following message appears:

This report is not designed to operate with a time range of less than 24 hours. Please modify your time selections.

## Use Case



Use this report to observe:

- gradual trends over time
- isolated spikes
- to verify that an abnormal condition has returned to normal
- to make comparisons

This report also reveals:

- Day of week patterns
- Hour of day patterns

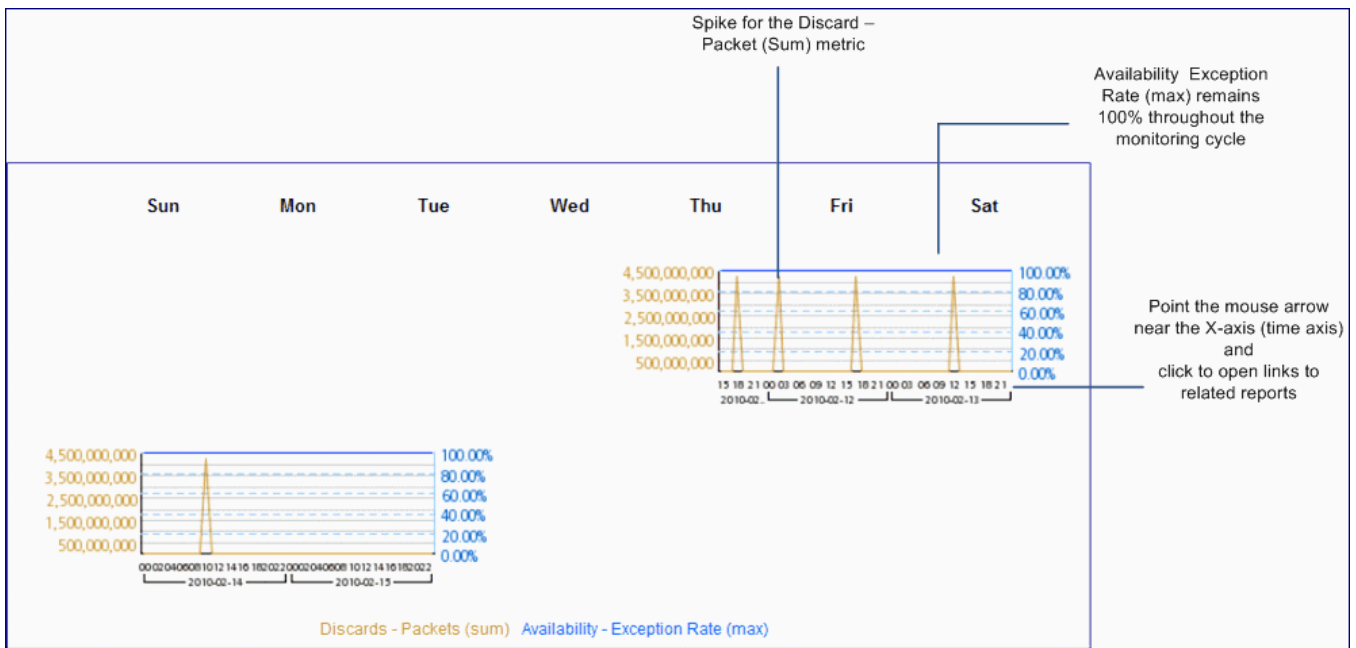
For example, if utilization is spiking on Tuesdays, or if response time issues are occurring daily at 11:00 a.m., the report will highlight these events.

**Related Topics**

[Guided Tour - Interface Health Calendar Report](#)

**Guided Tour - Interface Health Calendar Report**

The following image shows a typical calendar report for the interfaces on your network:



**Related Topics**

[Calendar Report](#)

**Chart Detail Report**

Use the Chart Detail Report to examine sampled data for any two metrics in detail. This report contains a graph representing data samples of two metrics.

The following are the available filters in the Time Controls pane for Chart Detail Report:

- Start Date/Time
- Time Range
- Display Grain
- Hour of day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

The graph on this report tracks two metrics over the selected time period. Unless you modify the defaults, Chart Detail defaults to the following:

- Interfaces = All
- Primary metric = Discards - Packets (sum)
- Secondary metric = Availability - Exception Rate (max)

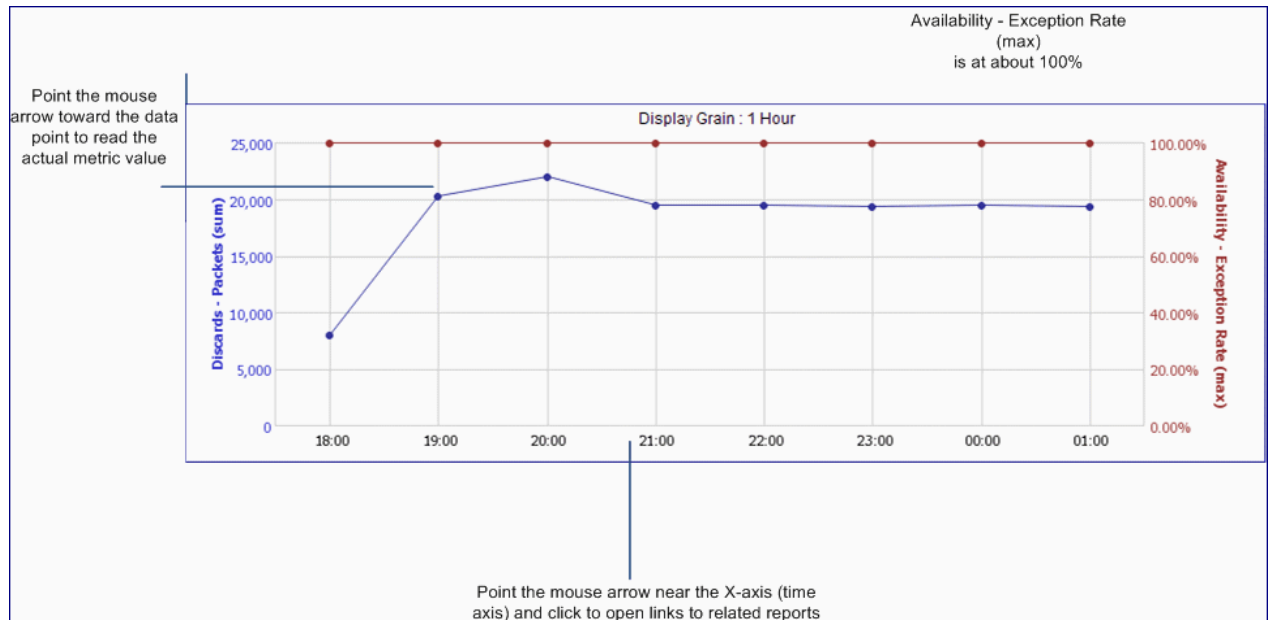
The Chart Detail report enables you to view the data in the tabular format as well. To view the table, click **Options**, and then select Table. The Table appears instead of the chart. To view both the chart and the table, click **Options**, and then select Chart and Table.

### Related Topics

[Guided Tour - Interface Health Chart Detail Report](#)

### Guided Tour - Interface Health Chart Detail Report

The following image shows a typical Chart Detail report for the interfaces on your network:



### Related Topics

[Chart Detail Report](#)

### Dashboard Report

The Dashboard Report provides an overview of the interfaces available on your network using a combination of gauges, heat charts, and ordered Top 5 lists. The focus of the report is interface-based threshold breaches, which are classed as exceptions. Threshold breaches can point to a network-related problem or may indicate that your thresholds within NNMI need to be changed.

While exceptions usually point to actual problems, it is possible that a high number of thresholds merely indicates that your thresholds are not set properly, in which case your thresholds need to be changed.

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

Like all other reports, the Dashboard Report includes a Time Control and a Topology Filter that enable you to modify the time range displayed and the network elements whose data will be used to form the report.

The Dashboard report also includes a Group By option. The Group-By option only applies to three top 5 lists. You can group the data within the report using the grouping option.

The gauges across the top provide the following exception count statistics:

- Availability Exceptions (% samples)
- Utilization Exceptions (% samples)
- Discard Rate Exceptions (% samples)
- Error Rate Exceptions (% samples)

If you want to investigate any of the gauge values further, click on the needle. The Report Menu will appear with all of your current selections and the appropriate metric from the gauge. From here, you can choose an appropriate report to provide further details.

The following top-5 lists tell you which elements may be responsible for the exceptions showing up in the gauges:

- Top 5 elements by Utilization Exceptions
- Top 5 elements by Availability Exceptions
- Top 5 elements by Discard Exceptions

If you want to investigate any of the Top 5 values further, you can click on the selected element. The Report Menu will appear with the appropriate metric from the Top 5 list and the selected element will be added to your topology filters.

The top-5 list for discard exceptions includes a heat chart. Use the heat chart to highlight patterns over time for the top 5 elements with discard exceptions.

Cells within the heat chart represent samples of time within the selected interval and the color of the cell indicates the discard exception rate as a percentage of the total number of samples. These cells represent a period of time and are equivalent to the display grain used in other chart-style reports. For each time range length, a default display grain is chosen. Display grains are selected dynamically by the report and can have one of the following values:

- 1 Minute
- 5 Minutes

- 15 Minutes
- 30 Minutes
- 1 Hour
- 1 Day

The defaults filter setting are:

- Nodes/Components = All
- Time Period = Last 1 Hour
- Hour of Day = All
- Day of Week = All

When the NPS database has no data, the needle icons on the gauges on the Dashboard report do not appear.

### **Use Case**

If the gauges are showing few or no exceptions, this means that none of your nodes, including the nodes in the top 5 lists, are experiencing problems with Availability, Utilization, Discard Rate, and Error Rate.

If, for example, your network is divided into groups that represent regions or strategic locations for your enterprise. Auto refresh would be enabled and set to 5 minutes, a time interval of 'Last 1 Hour' could be used. With the grouping option set to Node Group Name, the report will list each of your strategic Node Groups (as defined within NNMi) and provide the current statistics for exceptions within each group.

If an unexpected change in exception counts is noted, you can click the appropriate gauge needle, or Node Group within the Top 5 lists, and then launch another report (such as Chart Detail) to investigate trends or changes within the network as they are occurring.

The thresholds that creates exceptions are set from NNMi, not from the iSPI. If you want to set or modify thresholds, refer to online help for NNMi administrators.

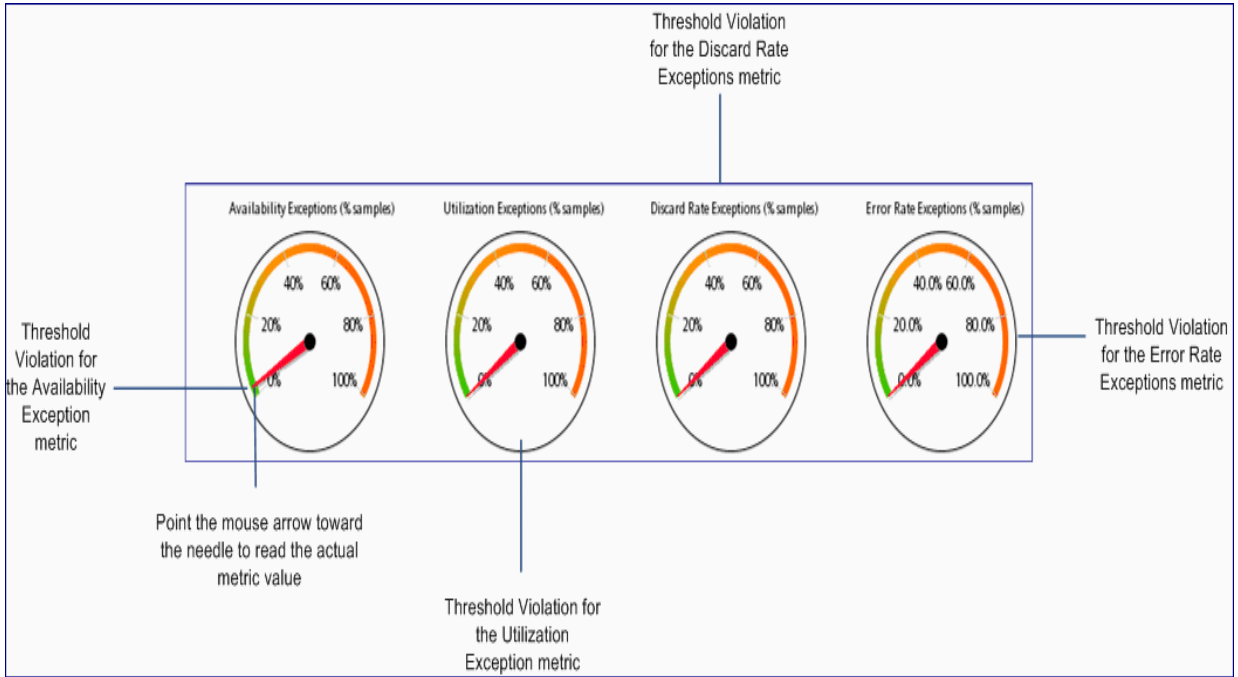
### **Related Topics**

[Guided Tour - Interface Health Dashboard Report](#)

### **Guided Tour - Interface Health Dashboard Report**

The following image shows a typical Dashboard report for the interfaces on your network:

### **Exception Gauges**



**Utilization and Availability Exceptions**

<u>Top 5 Qualified Interface Names by Utilization Exceptions</u>	<u>Top 5 Qualified Interface Names by Availability Exceptions</u>
<a href="#">1/1 on (15....)</a> 0	<a href="#">Gi3/1 on (ntcqw2loop)</a> 51
<a href="#">1/19 on (15....)</a> 0	<a href="#">Fa0/1 on (mplsce05)</a> 50
<a href="#">1/2 on (15....)</a> 0	<a href="#">Fa0/1 on (mplspe03)</a> 50
<a href="#">1/4 on (15....)</a> 0	<a href="#">Gi9/42 on (15....)</a> 50
<a href="#">1/7 on (15....)</a> 0	<a href="#">Fa2/48 on (cisco6509)</a> 49

**Discard Exceptions**

<u>Top 5 Qualified Interface Names by Discard Exceptions and 1 Hour Granularity Heat Chart</u>	
<u>Top Qualified Interface Names</u>	<u>Discard Exceptions</u> Discards (Avg%)
<a href="#">1/1 on (15....)</a>	0
<a href="#">1/19 on (15....)</a>	0
<a href="#">1/2 on (15....)</a>	0
<a href="#">1/4 on (15....)</a>	0
<a href="#">1/7 on (15....)</a>	0

**Related Topics**

[Interface Health Dashboard Report](#)

**Headline Report**

The Headline Report provides a broad view of performance. Presents 8 different graphs on a single page. This report enables you to view every aspect of performance at once. The default view is the yes-

terday's performance. Use the graphs to view trends, spot isolated spikes, exceptions, and verify that performance is meeting expectations.

The following are the available filters in the Time Controls pane for Headline Report:

- Start Date/Time
- Time Range
- Display Grain
- Hour of day
- Day of Week

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

### **Features and Defaults**

The Headline Report contains the following graphs:

- Volume (in and out)
- Availability
- Utilization (Avg %)—in and out; Utilization Exceptions—in and out
- Discard Rate (Max %)—in and out; Discard Rate Exceptions—in and out
- Error Rate (Max %)—in and out; Error Rate Exceptions—in and out

**Note:** The Headline report does not provide options to create graphs on other metrics.

The Headline Report defaults to:

- Components = All
- Time Period = Last 1 Hour
- Hours of Day = All
- Days of Week = All

### **Use Case**

The range data (for utilization, discard rate, and error rate) helps you measure the variance and enables you to decide on setting the thresholds if needed. This report shows data for exceptions only if thresholds for performance metrics are set in NNMi.

For the set thresholds, if the performance exceptions occur, exceptions appear as red stars on the range graphs.

If you are viewing data for a particular day, the metrics are aggregated to the hourly level. All other time periods show data aggregated to the daily level.

### **Related Topics**

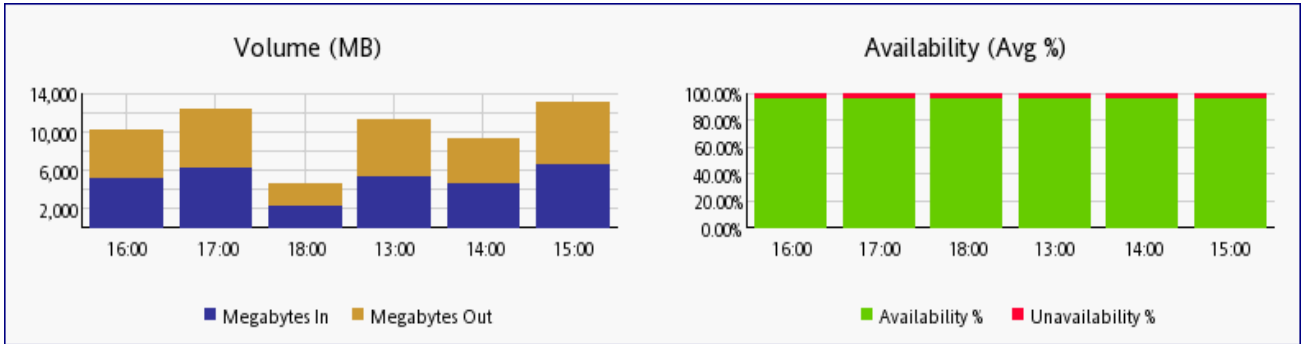
[Guided Tour - Interface Health Headline Report](#)

### **Guided Tour - Interface Health Headline Report**

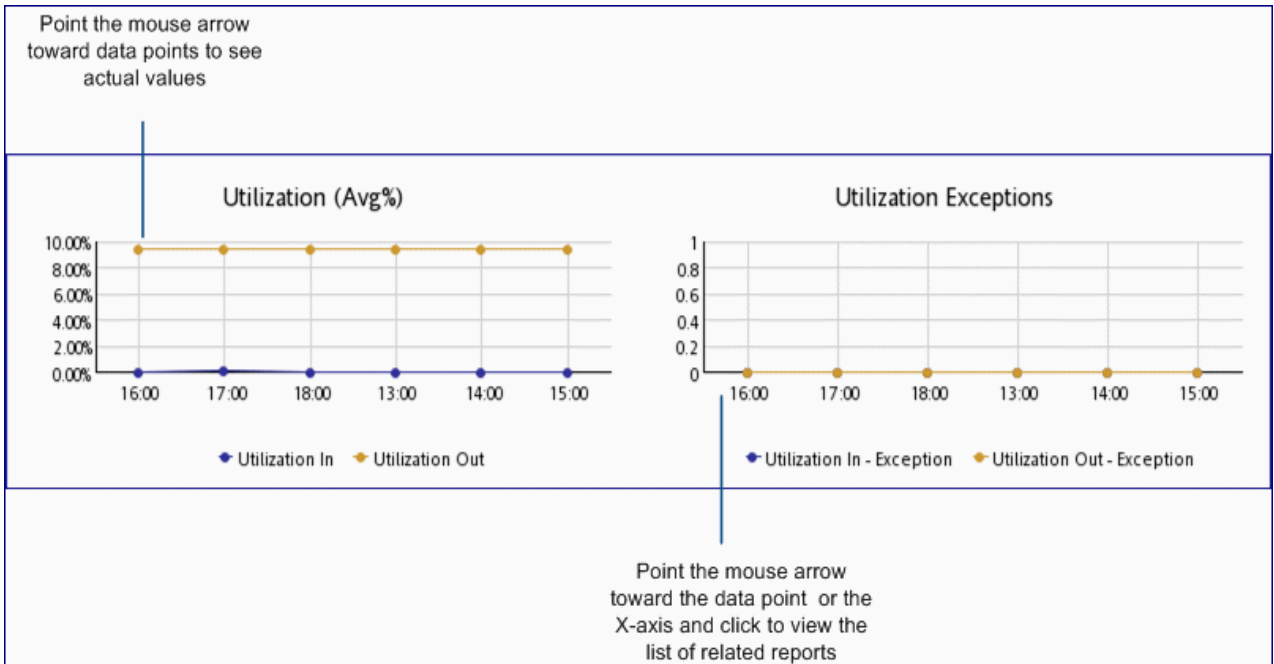
The following image shows a typical Headline report for the interfaces on your network:

### **Volume and Availability**

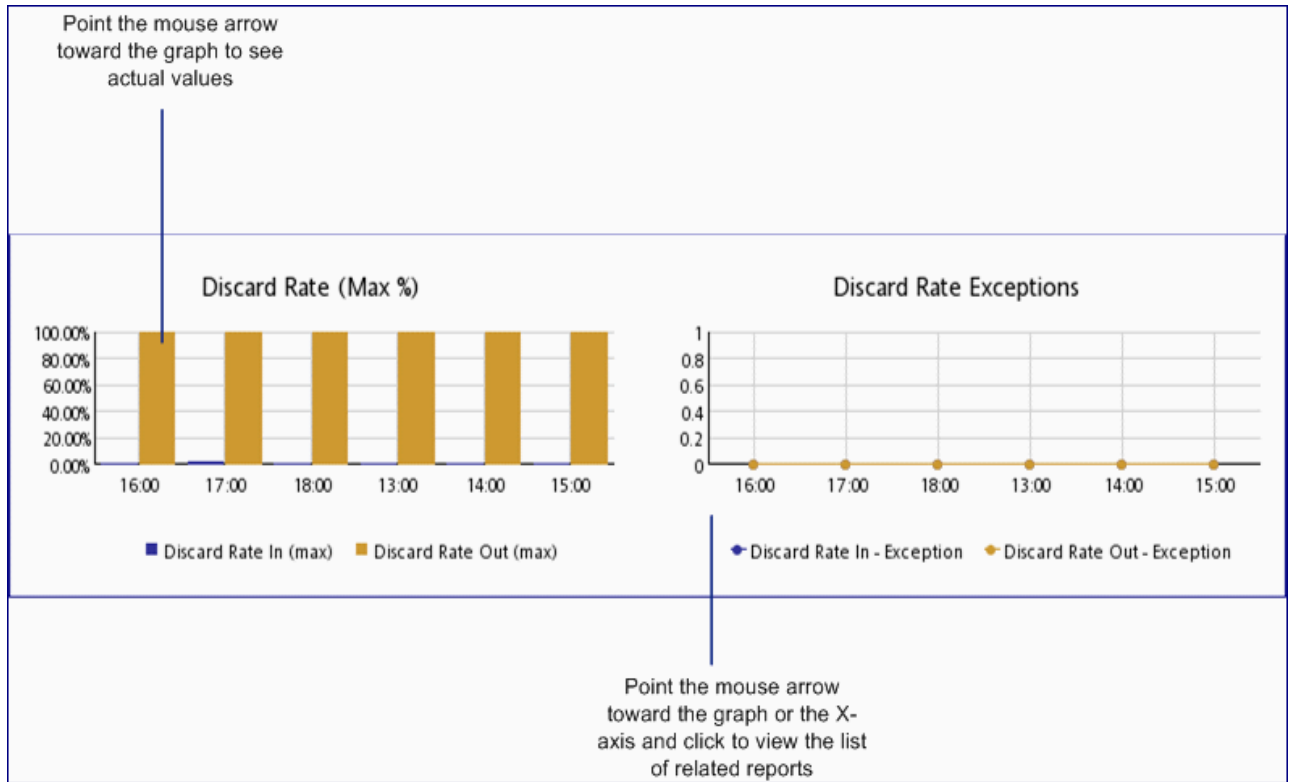
**iSPI Performance for Metrics Online Help**  
 Welcome to the iSPI Performance for Metrics



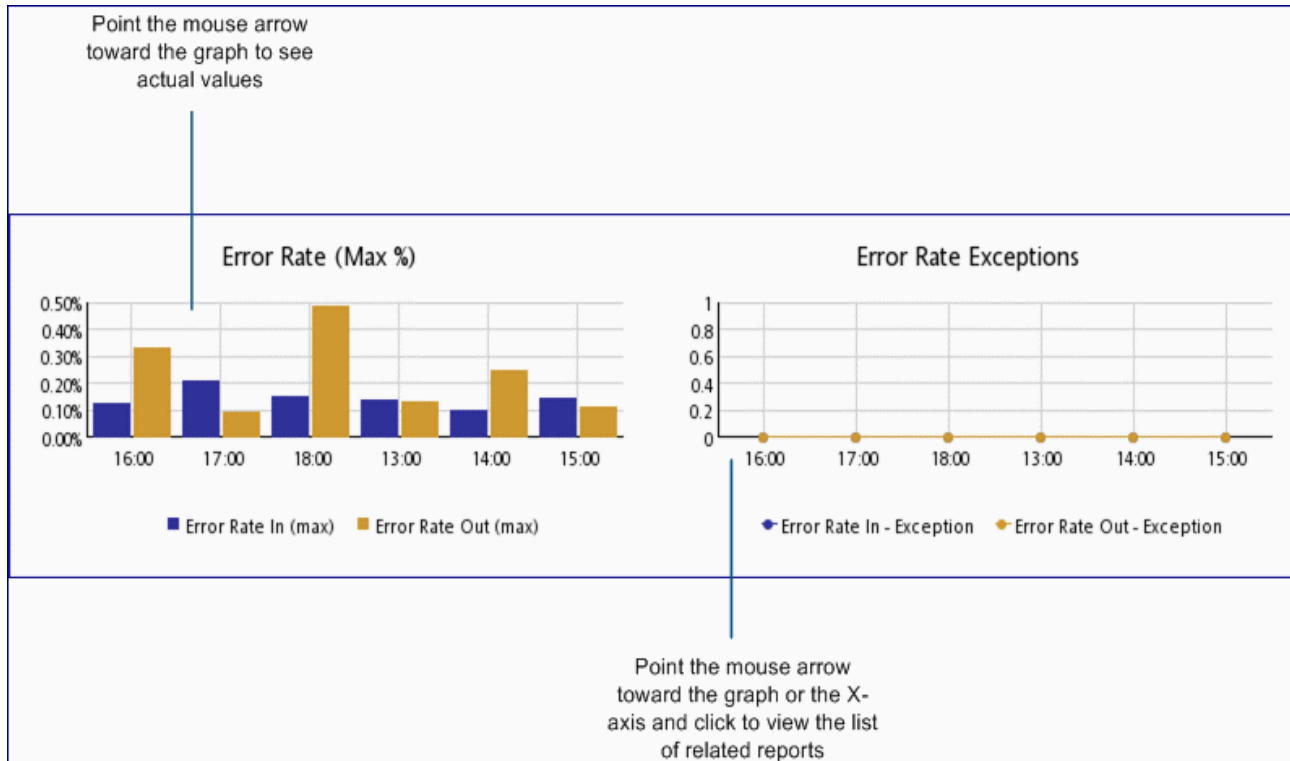
**Utilization and Exceptions**



**Discard Rate and Exceptions**



**Error Rate and Exception**



**Related Topics**



## Headline Reports

### **Most Changed Report**

This report compares performance the components for two different (consecutive) time periods and ranks components by the amount of change. The sort order is most-changed to least-changed.

To change the Time Controls defaults, see "[Change Time Controls](#)".

To change the Topology Filters defaults, see "[Set Topology Filters](#)".

To change the Report Options defaults, see "[Change Report Options](#)".

### **Features and Defaults**

This report contains one table. The table provides data for one metric only.

The table columns are:

#### **Interface**

- Grouping by Elements
- Performance for the previous time period
- Performance for the current time period
- Growth, expressed as a percentage increase
- Change

The Most Changed report defaults to:



- Grouping by Elements = Qualified Interface Name
- Start Date/Time = depends on default Time Range and data available in database
- Dates/Times = Last Day
- Time Range = Last 1 Hour
- Protocols = All
- Speeds = All
- Hour of Day HOD = All
- Day of Week DOW = All
- Ranking Metric = Discards – Packets (sum) Utilization (Avg %)
- Top N Option = Top 10
- Nodes or Interfaces = Node

#### **The report-specific options are:**

- Rank Metric
- Top N
- Nodes or Interfaces

#### **Your Top N options are:**

- Top 25
- Top 10
- Top 5

By default, the report groups data by Qualified Component Name. You can select multiple grouping attributes by using the  (Add New Grouping) button. Use the  (Remove Grouping) button to remove a grouping attribute.

**Use Case**

Use this report to spot nodes or interfaces that saw significant growth from the previous selected time period to the selected time period. Significant growth could point to a developing problem you need to know about. You can change the ranking metric and you can change how many elements are listed.

**Note:** Since the Most Changed report compares performance in two continuous time periods, the “Until Now” option for All Dates/Times is not a valid time period. Selecting “Until Now” for Time Range will display the following error:

*This report does not operate with the current time interval. Please modify your selection.*

**Related Topics**

[Top N Report](#)

**Guided Tour - Interface Health Most Changed Report**

The following image shows a typical Most Changed report for the interfaces on your network:

Qualified Interface Name	Discards – Packets (sum)		Growth Rate (%)	Change
	for the preceding time period	for the selected period		
	Previous Period	Current Period		
	From: Feb 21, 2010 8:30:00 PM To: Feb 22, 2010 8:30:00 PM		From: Feb 22, 2010 8:30:00 PM To: Feb 23, 2010 8:30:00 PM	
<a href="#">Gi9/1 on (15...)</a>	4,294,967,296	8,589,934,592	100.00%	<a href="#">4,294,967,296</a>
<a href="#">Fa0/1 on (hsop20)</a>	20,144,427	15,451,244	-23.30%	<a href="#">-4,693,183</a>
<a href="#">37 on (saproswed)</a>	17,743	4,896	-72.41%	<a href="#">-12,847</a>
<a href="#">Fa0/1 on (mlsace02)</a>	26	174	569.23%	<a href="#">148</a>
<a href="#">V11 on (15...)</a>	701	847	20.83%	<a href="#">146</a>
<a href="#">Fa0/0 on (mlsace07)</a>	93	230	147.31%	<a href="#">137</a>
<a href="#">Fa0/0 on (mlsace03)</a>	89	224	151.69%	<a href="#">135</a>
<a href="#">Gi0/2 on (rtomw2lssd)</a>	119	241	102.52%	<a href="#">122</a>
<a href="#">V11 on (15...)</a>	188	283	50.53%	<a href="#">95</a>
<a href="#">Fa0/0 on (mlsace02)</a>	27	105	288.89%	<a href="#">78</a>

**Related Topics**

[Most Changed Report](#)

**Top N Report**

This report ranks the elements, by the metric you select. Use this report to spot the element that performed at the extremes. You can use this report to go back in time and investigate sampled data for elements which are exhibiting unusual utilization levels.

The following are the available filters in the Time Controls pane for Top N Report:

- Start Date/Time - the default value depends on the default Time Range and data available in the database
- Time Range - default is the last 1 hour
- Hour of day – default is All
- Day of Week – default is All

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

To change the Time Controls defaults, see ["Change Time Controls"](#).

To change the Topology Filters defaults, see ["Set Topology Filters"](#).

To change the Report Options defaults, see ["Change Report Options"](#).

### Features and Defaults

Top N Summary defaults to:



- Interfaces = All
- Rank Metric = Discard - Packets (sum)
- Top/Bottom N = Top 10
- Group By = Qualified Interface Name

In addition to changing the metric, and modifying the time period, you can also change the ranking number using the following options:

- Top 5
- Top 10
- Top 25
- Top 50
- Top 100
- Bottom 5
- Bottom 10
- Bottom 25
- Bottom 50
- Bottom 100
- Sort All in Descending
- Sort All in Ascending

The following are the available options in the Report Options for the Top N report. You can select the appropriate parameter from the drop-down:

- Top/Bottom 'N'
- Grouping by - default is "Qualified Interface Name"
- Metric – default is "Discards – Packets (sum)"
- Display Time Series Chart
  - Select Yes to view the detail chart with the table
  - Select No to hide the chart and display only the table; default is No.

By default, the report groups data by Qualified Component Name. You can select multiple grouping attributes by using the  (Add New Grouping) button. Use the  (Remove Grouping) button to remove a grouping attribute.

Click **Show Chart** to display the graphical representation of the metric values for the components over the selected time range.

### Use Case

Check this report once a day to see which elements may need special attention.

Check this report periodically throughout the day to see which elements are performing at the extremes and may need special attention.

### **Related Topics**

[Most Changed Report](#)

### **Managed Inventory Report**

Use the Managed Inventory Report to view the number of instances of each topology attribute seen in the collected data within the selected time range. For example, if the report is run for 'Last 1 Hour,' you will see the number of unique values for each attribute seen in the data collected over the last hour. This report can be useful for checking, for example, the number of nodes polled over any given time range.

You can use the available attributes to filter the data of your interest and create a report that represents only the elements of your interest. The report presents the list of attributes in the form of a table; the Count column of the table indicates the number of entries for each attribute. For example, count 5 for the topology item Node Location means all nodes on your network can be grouped based on 5 different locations that host the nodes.

You can use the following topology attributes with the Interface Health reports:

- Qualified Interface Name
- Interface Name
- Interface Alias
- Interface Descr
- Interface Index
- Interface Type
- Interface Physical Address
- Interface Speed (In:Out)
- Interface ID
- Interface UUID
- Node Name
- Node Contact
- Node Location
- Node Family
- Node Vendor
- Node ID
- Node UUID

To change the Time Controls defaults, see "[Change Time Controls](#)".

To change the Topology Filters defaults, see "[Set Topology Filters](#)".

The Managed Inventory report may take significant time to build if you select a time range greater than one day.

### **Path Health Overview**

Path Health displays icons representing the nodes and interfaces in a path. A vertical chain of nodes and interfaces represents the path from one managed element to another. Each step along the path (node or interface) shows a series of small pie charts and trend lines depicting activity and performance for that element over the previous six hours.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

Path Health helps you analyze the following:

- Ratio of exceptions per metric over the last hour (one pie chart per metric)
- Metric values over the last six hours (one graph per metric)

Use them to view whether the values are:

- static
- rising steadily
- falling steadily
- fluctuating

1. From one of the NNMi inventory views, select two elements.
2. Select **Action-->Path View** from the NNMi console to view the Path View page.

**Note:** The only way to launch Path Health is from a Path View in NNMi.

2. From the Path View, select **Actions-->Reporting - Path Health**

The **Path View** page opens with the following segment menus:

- **Source Node:** The first element of the selected path
  - **Destination Node:** The last element of the selected path
3. Select **Actions-->Reporting - Path Health** to create the Path Health report.

If the Path View is showing multiple paths between hops, NNMi will ask you to select a specific path. To make the choice, click the appropriate connecting line within NNMi. The colors on the screen will change when you make the selection. The Path Health option under Actions does not function until your selections are complete.

### Launch Path Health Reports for Nodes with Multiple paths

NNMi console may often present more than one path between your source and destination nodes. When you request the Path Health report using the **Actions > Reporting - Path Health** menu, the left-most icon on the path changes color if multiple paths exist between the source and destination nodes. To launch a Path Health report, select a particular path by clicking every visible node on the path, and then click **Actions > Reporting - Path Health**.

### Features and Defaults

The Path Health report pulls data from the following extension packs:

- Component Health
- Interface Health

From the Component Health collections, Path Health generates the following statistics for a node in a path:

- CPU exceptions last hour / CPU utilization last six hours
- Memory exceptions last hour / Memory utilization last six hours
- Buffer exceptions last hour / Buffer utilization last six hours

From the Interface Health collections, Path Health generates the following statistics for an interface in a path:

- Utilization exceptions last hour / Utilization over the last six hours
- Discard exceptions last hour / Number of discards per poll over the last six hours
- Error exceptions last hour / Number of errors per poll last six hours

The Path Health report pulls data from two Tables:

- Component Health Live Table
- Interface Health Live Table

### Use Case

Use Path Health to monitor the fault conditions that are showing up in a Path View. The performance data in Path Health can help you determine what is causing the fault condition you are seeing in the Path View.

If a node, or interface, or component, in the Path Health report is showing exceptions, you can easily find more information about those by clicking the links for node, interface, or component.

For example, if a node is showing CPU exceptions, you could open Report Menu, select a appropriate report, and then drill down on the node until you identify the specific component that is reporting problems.

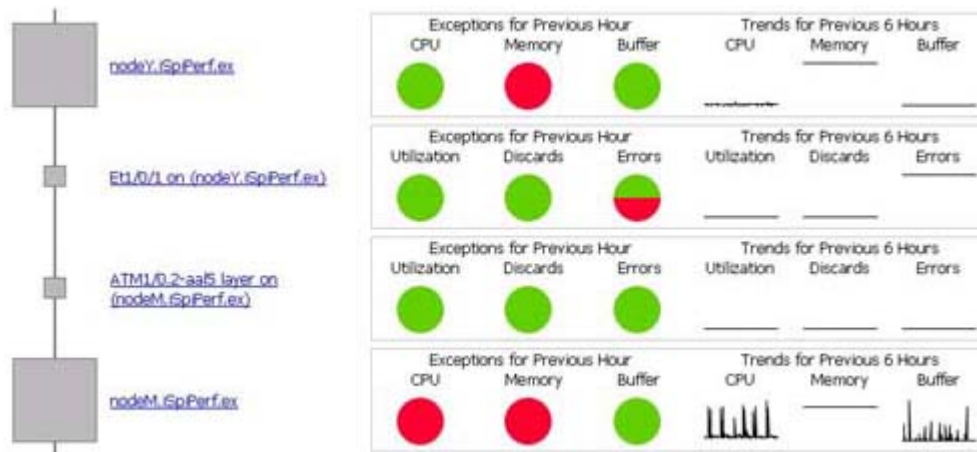
### Path Health Report

Path Health displays icons representing the nodes and interfaces in a path. A vertical chain of nodes and interfaces represents the path from one managed element to another. Each step along the path (node or interface) shows a series of small pie charts and trend lines depicting activity and performance for that element over the previous six hours.

Path Health helps you analyze the following:

- Ratio of exceptions per metric over the last hour (one pie chart per metric)
- Metric values over the last six hours (one graph per metric)

The selected Path View displays as shown below.



The pie chart enables you to view the comparison between the number of polls which are below or above the set threshold. The data shown in the pie chart represents the samples collected within the last hour.

The line graphs track sampled data over the previous six hours.

### Unknown Items

Unknown icons (icons associated with the ? icon) appear in the Path Health report for a device or interface that is not being polled for the required data. The Path Health report presents Component Health data for each node and Interface Health data for each interface. It is possible that a node can support the

Interface Health collections (MIB-II), but not the Component Health collections. For this reason, the report may display data regarding the inbound and outbound interfaces on a node but not about the node itself.

## Setting Polling Characteristics in NNMI

*Only if you use the iSPI Performance for Metrics.*

Performance polling has an impact on NNMI and it also has an impact on your network. If you enable additional performance polling, NNMI will have to allocate a portion of its resources to handle the additional polling, and your network will have to accommodate an increase in SNMP traffic. So that system and network resources are used wisely, not wasted, it is important to limit performance polling to the devices you care about most.

By default, NNMI enables performance polling for the following Node Group:

- Routers

These are some of the ways you can modify the performance polling defaults that will be in place right after the iSPI is installed:

1. Set thresholds for a node group that you are already polling for performance data (no thresholds are set by default).
2. Modify the frequency of performance polling.
3. Add nodes to the Important Nodes group, and enable performance polling for this group.
4. Enable performance polling for the select group.

Items 1 through 4 are monitoring configuration tasks. Monitoring configuration tasks are related to polling.

### Defining How a Node Group Will be Polled

If you want to enable polling, or modify polling, open the Monitoring Configuration window. Select:

**Workspaces > Configuration > Monitoring Configuration**

The Monitoring Configuration window has three tabs:

- Interface Settings
- Node Settings
- Default Setting

To configure polling for a node group, click the **Node Settings** tab, select the group you want to configure, and then click the Open icon. The **Node Setting** form opens. On the left side of this form, there are several options related to polling:

- ICMP and SNMP fault monitoring
- Performance monitoring
- Polling interval, defined by days, hours, minutes, and seconds

On the right side of this form you have a Threshold Settings form, where you can set High Value and Low Value thresholds for certain metrics that NNMI is polling.

### Creating a New Node Group and Setting the Filter Status

The following tasks are monitoring tasks:

- Creating a new node group in NNMI
- Making a node group function as a filter in various NNMI views
- Making a node group function as a filter in iSPI topology filters

To perform these tasks, you need to open the **Node Groups** window. Open that window by selecting:

**Workspaces > Configuration > Node Groups**

If you want to modify the filter status, open the node group you want to modify and look for the filter options on the left side of the window. If you want to create a node group, click the New icon and then define the contents of the group by setting device-level filters.

If you want operators to see a particular node group in iSPI topology filters, you must enable the **Add to iSPI Filter List** option on the left side of the Node Groups window.

See NNMI online help for Administrators if you need help creating new node groups or setting the filter status options.

## **Modifying Topology Attribute Values and Group Memberships from NNMI**

The topology attributes and groups help you filter the data and build the report with the data polled from nodes and interfaces of your interest. The NPS retrieves the topology attribute details from NNMI and other iSPIs. If you make modifications to topology attributes and group memberships from NNMI, the changes are reflected in the NPS within about an hour.

Changes are not applied retroactively to the existing data. Changes are always forward-looking; the NPS preserves the historical accuracy of the data 'as it was' when it was collected.

For example:

- If a new node is added to a group, it is only added for the new data collected going forward. The NPS cannot assume that the node was a member of the group in the past.
- If an interface attribute changes—for example, ifSpeed is changed from old to new value, it is only applied going forward. The NPS does not assume that the new speed applies to the historical data.

If you delete or change a member of a topology attribute, the old member continues to appear in the list of topology filters in NPS. The old attribute member continues to appear in the list of topology filters. If you select the old member, the data that was collected before making the change gets sampled in the report.

### **Example**

If you modify the node group name A to B in the NNMI console, the new node name gets reflected in NPS after at least an hour. Later on, the old node group name continues to appear in the list of Node Groups in the Topology Filters section. However, when you select A, you cannot retrieve data samples associated with A that are polled after changing the Node Group name to B.

For example, you might have an interface group called "Oracle Server Ports" identifying switch interfaces assigned to your Oracle Server cluster, but now you have a new server cluster available online, and you want to transfer your Oracle applications to the new one, and re-purpose the old servers to host the Microsoft Exchange Server.

Therefore, you rename "Oracle Server Ports" to "Exchange Server ports" and create a new interface group for "Oracle Server Ports" identifying the ports associated with the new servers. If you want to run a report at the end of the month to see the health of your "Oracle Server Ports" and your new "Exchange Server Ports" over the month, the NPS will define "Oracle Server ports" group to include the data collected for the original ports up until the point you made the change, and for the new ports after that point.

Similarly, the NPS will define the "Exchange Server ports" group to only include the ports from the point the group was renamed—it does not include the ports while they were still being used for Oracle.



## Overview of Custom Poller Configuration

Available only with the iSPI Performance for Metrics.

After the 30-day evaluation period, you can view reports based on Custom Poller collections only if you obtain a license for the iSPI Performance for Metrics.

NNMi's Custom Polling feature enables the NNMi administrator to take a proactive approach to network management by gathering additional device information using SNMP MIB variables.

For example, an NNMi administrator might want NNMi to monitor the Status of COM (communication) ports on all of your Windows servers.

Using Custom Poller, the NNMi administrator can also configure NNMi to do the following:

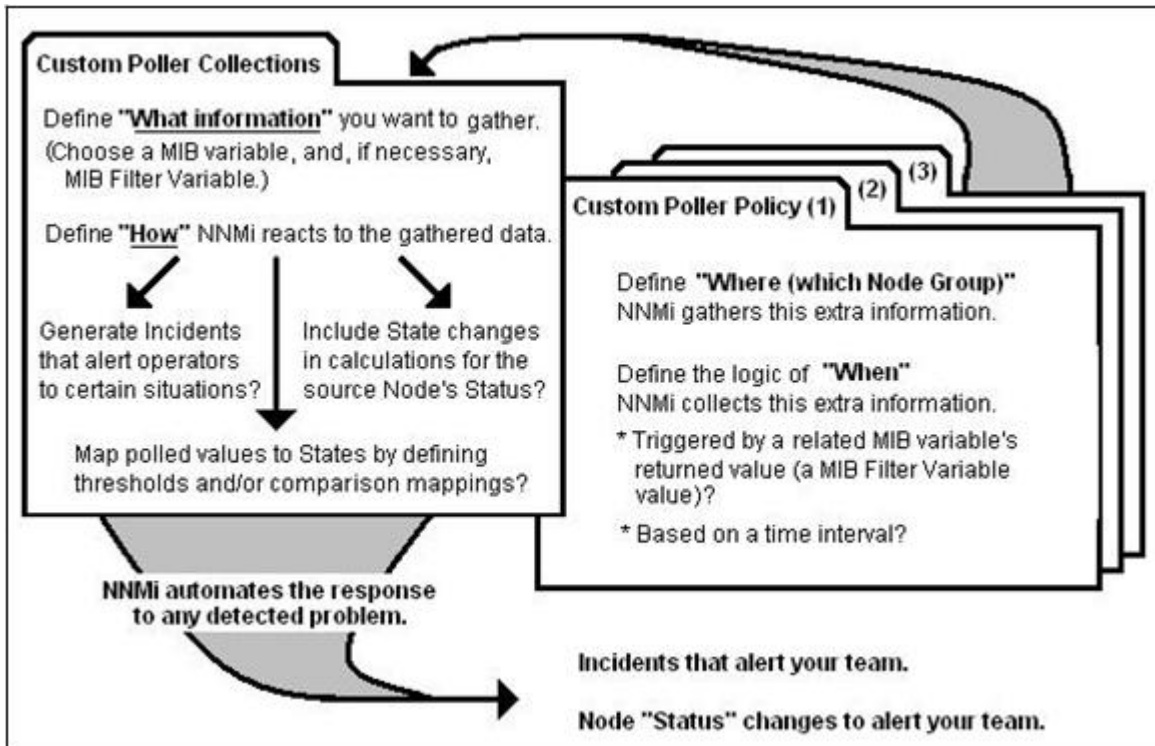
- Send incidents when certain MIB values are detected
- Map returned MIB values to States and include these States as part of node Status calculations.

The NNMi Custom Poller feature enables network operators to:

- View the list of topology nodes for which additional information is being polled as well as the name of the associated Policy.
- View the polling results. The first time the results for a specified MIB variable are discovered, the results appear in a Polled Instance object. The Polled Instance object is updated whenever a change in State is detected and includes the most current polled value that caused the State to change.
- View incidents that are generated by Custom Poller for a MIB Poll Variable.

You can use the data collected by Custom Poller collections to construct and view reports if you use the iSPI Performance for Metrics.

### Overview of Custom Poller Collections and Their Associated Policies



**Note:** See NNMi online help for more information on Custom Poller.

## Reports for Custom Poller Collections

If you use the Custom Poller feature of NNMi, you can configure the iSPI Performance for Metrics to create reports based on the data collected by NNMi's Custom Poller. The Report Groups tab in the Custom Poller Configuration form enables you to generate reports from the metrics obtained from Custom Poller collections.

The iSPI Performance for Metrics creates new extension packs to display reports generated from the data collected by Custom Poller collections.

### Mechanism of Creating Additional Extension Packs

When you add a report group to the Report Groups tab, NNMi creates an extension pack for each SNMP MIB table referenced in the Custom Poller collection. On the iSPI Performance Report Menu page, the extension pack reflects the name of the SNMP MIB table. Multiple Custom Poller collections are combined into a single extension pack if the collections use OIDs from the same MIB table.

## Create Extension Packs for Custom Poller Collections

To create an extension pack for a Custom Poller Collection, you must create a report group for a Custom Poller Collection from the NNMi console.

**Prerequisite:** You must log on to the NNMi console with the administrative privilege.






### Task 1: Create a Custom Poller Collection

Create a Custom Poller Collection in the Custom Poller Configuration form by following the instructions in *NNMi Help for Administrators*.

### Task 2: Create a Custom Poller policy

Create a Custom Poller policy in the Custom Poller Configuration form by following the instructions in *NNMi Help for Administrators*.

### Task 3: Create an extension pack for a Custom Poller Collection

1. **Navigate to the Custom Poller Configuration form.**
  - a. From the workspaces navigation pane, select the **Configuration** workspace.
  - b. Select **Custom Poller Configuration**.
2. In the Custom Poller Configuration form, go to the Report Groups tab.
3. Click **New** (). The Report Group form opens.
4. In the Report Group form, specify a name for the extension pack in the Basics section. Do not use spaces in the name.
5. In the Report Collections tab, click **New** (). The Report Collections form opens.
6. To add a Custom Poller Collection to the report group, click  (the Lookup icon):
  - To specify a Custom Poller Collection, click  (**Quick Find**).
  - To create a new Custom Poller Collection, click  (**New**).
7. Set the Report Data Type to one of the following values:
  - **Gauge:** Represents single non-cumulative values. Examples of Gauge data types include Response Time, Bit Rate, and Temperature. During aggregation, the iSPI Performance for Metrics calculates the minimum, maximum, and average values of gauge metrics.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- **Percent:** Represents single non-cumulative values that are formatted with a percent sign (%) and two decimal places. Examples of Percent data types include Utilization and Discard Rate. During aggregation, the iSPI Performance for Metrics calculates the minimum, maximum, and average values of percent metrics.
  - **Counter:** Represents incremental values. Examples of Counter data types include byte counts, packet counts, and flow counts.
8. In the Report Collections form, click **Save and Close**.
  9. In the Report Group form, click **Save and Close**. The iSPI Performance for Metrics creates a new extension pack and adds a new tab on the Report Menu page.

### Guidelines to Create Custom Poller Extension Pack

- You can associate a Custom Poller Collection to only one report group.
- If you associate more than one Custom Poller Collection with the same Report Group, make sure the combination of Collections generates a meaningful report. As a general guideline, select Collections whose MIB Variables represent the same index value across Custom Poller Collections.
- Avoid using keyboard symbols while naming the Custom Poller collection and customPoll OID. If you still use the following symbols <, >, ", ', &, \, they are replaced by a ! character in the report.
- Reports are not created if the # symbol is used in a customPoll name.

### Remove Custom Poller Extension Packs

If you want, you can remove the extension packs. The iSPI Performance for Metrics provides you with command line tools to remove Custom Poller extension packs.

#### To remove Custom Poller extension packs:

1. Log on with the administrative or root privileges to the system where the iSPI Performance for Metrics is installed.
2. Go to the following directory:
  - *On Windows:* <Install\_Dir>\NNMPerformanceSPI\bin
  - *On UNIX or Linux:* /opt/OV/NNMPerformanceSPI/bin
3. Run the following command to view the list of extension packs:  
**uninstallExtensionPack.ovpl**
4. Run the following command:  
**uninstallExtensionPack.ovpl -p <extension\_pack\_name>**

**Note:** You cannot recover the data associated with an extension pack if you inadvertently delete it. Make sure to type the correct extension pack name with the command. Do not delete the following default iSPI Performance for Metrics extension packs unless you want to remove iSPI Performance for Metrics reports: `Interface_Health`, `Component_Health`. If you delete the `Perf-SPI_Diagnostics`.extension pack, you will not be able to monitor the health of the NPS processes.

### Custom Poller Report Controls



You can use the standard report control links to access **Time Controls**, **Topology Filter**, **Report Options** and **Adjust Time Range** filters. You can search using any of the available attributes and set filters to create a report based on the modification.

**Note:** The functional aspects of the filters in Report Controls for Custom Poller extension packs are the same as default extension packs, but with few options.

## Time Controls

The Time Controls pane helps you change the default filters to create a report based on the modification.

### Filters

Filter	Usage
	<p>Click the drop-down calendar box and select the appropriate date.</p> <p>By default, the date is automatically set to the current date when you select the Time Range.</p>
	<p>To set the time manually, select the Hour/Minutes/Meridian options separately, and then select the value by clicking the arrow.</p> <p>By default, the time is automatically set to the current time when you select the Time Range.</p>
Time Range	<p>Click the drop-down menu to display the list of time ranges, and then select the appropriate time.</p> <p>If you select a time range that is beyond the <b>Start Date and Time</b>, the following message appears:</p> <p>Your start date/time is out of range. It will be adjusted.</p> <p>Click <b>OK</b> to adjust accordingly.</p>
Auto Refresh	<p>Click the drop-down menu, and then select the desired time to recreate the reports based on the set interval.</p> <p>By default, the Auto refresh is OFF.</p> <p>The Auto Refresh option appears on the Time Controls page only after the first report is generated.</p>

## Topology Filter

The Topology Filter enables you to quickly find or select an element from the topology table using selection mechanisms appropriate for the attribute type.

### Attributes and Related Parameters in the Topology Filter

Attribute	Parameter
Node Group Name	Contains the list of the available Node groups in the network.
Node Name	Contains the list of the available Node name in the network.
Node Contact	Contains the list of the available Node Contact in the network.
Node Location	Contains the list of the available Node Location in the network.
Node Family	Contains the list of the available Node Families in the network.

Attribute	Parameter
Node Vendor	Contains the list of the available Vendors in the network.
Node ID	Contains the list of the available Nodes ID in the network.
Node UUID	Contains the list of the available Node UUID in the network.
Index	Contains the list of the available Index in the network. This field contains the SNMP index OID values that identify specific MIB table instances polled by Custom Poller policies; if you want, you can use these SNMP index OID values to filter Custom Poller reports to show only specific instances from the MIB table (use in conjunction with the NodeName filter).

### Report Options

Report options provide a list of primary and secondary metrics for the selected Custom Poller extension pack.

**Note:** The metrics drop-down list differs according to the selected extension pack.

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