

# HP NNM iSPI Performance for Metrics Software

For the Windows® and Linux operating systems

Software Version: 8.13

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[Online Help](#)

Document Release Date: October 2009

Software Release Date: October 2009



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## Welcome to HP NNM iSPI Performance

The HP NNM iSPI Performance (**iSPI Performance**) enhances NNMi's network management capabilities by introducing a foundation for network performance management.

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

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

The iSPI Performance for Metrics and iSPI Performance for Traffic add rules and definitions to the iSPI Performance deployment to generate reports. These rules and definitions, embedded inside different **extension packs**, 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
<code>%nnminstalldir%</code>	<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.
<code>%nnmdatadir%</code>	<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.
<code>&lt;Install_Dir&gt;</code>	<i>Windows only.</i> The iSPI Performance application directory. When you install the iSPI on the NNMi management server, the iSPI installer uses <code>%nnminstalldir%</code> as the application directory for the iSPI.
<code>&lt;Data_Dir&gt;</code>	<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 <code>%nnmdatadir%</code> 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 iSPI Operations

The following topics contain background information, procedures for maintaining the iSPI Performance, 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\(SSO\)"](#)
- ["Location of Program and Runtime Files""Monitoring the iSPI Processes"](#)
- ["Time Changes and Time Zones"](#)
- ["Scheduling Reports"](#)
- ["Setting Thresholds for Metrics"](#)
- ["Support for Application Failover"](#)
- ["BI Server Portal"](#)
- ["Troubleshooting Tips"](#)

## Information About Product Installation and Licensing

The installation guide ships with iSPI software on the DVD. Installing the iSPI copies the installation guide from the DVD to the Docs directory on your system. The installation may be updated after the iSPI is released on DVD. For the latest edition of the document, go here:

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

### 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**

iSPI Performance software 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 NNMPPerformanceSPI directory contains the following folders:

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

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 iSPI 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 NNMPPerformanceSPI directory contains the following folders:

- contentstore
- database
- Component\_Health
- Interface\_Health
- nnmappfailover
- logs

- PerfSPI\_Diagnostics
- rconfig

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

## Tables and Data Dimensions

The iSPI Performance 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 iSPI Performance enables a security function known as Single Sign-on (SSO). SSO allows the iSPI Performance 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 SPI 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 iSPI server changes after you install the iSPI Performance, you should re-run the enablement script on NNMi. Rerunning the enablement script will configure NNMi with updated location information.

### **Direct Access to the iSPI Performance**

You can access the iSPI Performance 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 iSPI Processes**

The iSPI Performance includes reports that monitor iSPI 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.

NNM 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 iSPI Performance. Copying the keystore file is a manual step.

The iSPI Performance supports NNMi Application Failover. From the perspective of anyone using the iSPI Performance, 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 iSPI's ability to support application failover depends on files it retrieves from the primary server in the cluster. The iSPI Performance retrieves these files during startup. As soon as the iSPI Performance has

the files, it begins monitoring the status of the primary server by checking for status changes every 5 minutes. If the iSPI Performance detects a status change, the following events take place automatically:

- The iSPI Performance determines which server is the new primary server
- The iSPI Performance redirects data collection to a shared directory on the new primary server
- The iSPI Performance begins collecting data (metrics and topology files) from the new primary server in the cluster

Immediately after these events take place, iSPI users will be able to link from the iSPI to NNM 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 iSPI Performance 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 iSPI Performance.

### Copying the Keystore File from NNMi to the iSPI Performance

To copy the shared certificate file—`cluster.keystore`—from NNMi to the iSPI Performance, 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 Appli-	Logged every 5 minutes

Condition	Message	Comments
	cation Failover is enabled. Checking if active node has changed.\n	
Failover enabled	INFO: NNM Hostname currently used by iSPI is: \$nnm_current\n	Logged every 5 minutes. Displays current NNM hostname being used by the iSPI.
Failover enabled	INFO: \$getNNMActiveScript 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 iSPI 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 iSPI.
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/iSPI installations\n	If the iSPI is running on the same machine as NNM, 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 iSPI Performance 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 iSPI Performance will not be able to detect application failover.

Condition	Message	Comments
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 nnm-enableperfspi 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 iSPI substitutes the new host-name into the path. The configurations <b>must</b> be identical.
Failover enabled but there is a file permissions error	ERROR: Unable to modify timestamp of \$newpath/nnm_details.xml: \$!	The iSPI 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 iSPI converts NNM's universal time stamp into local time, as defined by the location of the iSPI. From the perspective of a user in a different time zone, iSPI data will be out of sync with the local time.

If the iSPI and the NNM management station 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 iSPI Performance Utilities

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

- [Log File Analyzer](#)
- [Log File Monitor](#)
- [Configuring the iSPI Performance](#)
- [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 iSPI Performance for Metrics

If you install the iSPI Performance for Metrics on the NNMI management server, iSPI configuration takes place automatically during the installation.

If you install the iSPI Performance for Metrics 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 iSPI Performance for Metrics 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 iSPI to run necessary services. If you install the iSPI Performance for Metrics on the NNMi management server (Windows), you must set this to the Local System account. If you install the iSPI Performance for Metrics 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 NNM iSPI Performance datafiles folder:** Specifies the location of the iSPI Performance for Metrics data files on the NNMi management server. If you install the iSPI on the NNMi management server, a local path is displayed in this field, which you must *not* change. When you install the iSPI Performance for Metrics 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 iSPI 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 iSPI Performance for Metrics 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:

- Interface\_Health
- Component\_Health
- PerfSPI\_Diagnostics
- Interface\_Traffic (if the iSPI Performance for Traffic is installed)

## 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**

#### UNIX

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

A configuration file determines what the Diagnostics Collector collects. The path to the configuration file is:

#### Windows:

```
<Install_Dir>\NNMPerformanceSPI\SHS\hpnmperfspi-shs-config.xml
```

#### UNIX:

```
/opt/OV/NNMPerformanceSPI/SHS/hpnmperforspi-shs-config.xml
```

After collecting data, the Diagnostics Collector saves the output to the `CollectedData` folder. The path is:

#### Windows:

```
<Install_Dir>\NNMPerformanceSPI\SHS\CollectedData
```

#### UNIX:

```
/opt/OV/NNMPerformanceSPI/SHS/CollectedData
```

Forward the `CollectedData` folder to Support.

## Resetting the iSPI

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 iSPI Performance. The iSPI 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 iSPI Performance. When you disable the demo database, the iSPI Performance 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 iSPI Performance provides you with command-line tools to back up and restore all the iSPI data.

### To back up the iSPI data:

1. Log on to the iSPI system with the same account that was used to install the iSPI.
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 iSPI 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 iSPI data:**

1. Log on to the iSPI system with the same account that was used to install the iSPI.
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 iSPI data.

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



## Report Controls and Navigation

This section includes the following topics:

- [Report Menu](#)
- [Report Controls](#)
- [Report Navigation](#)

### Report Menu

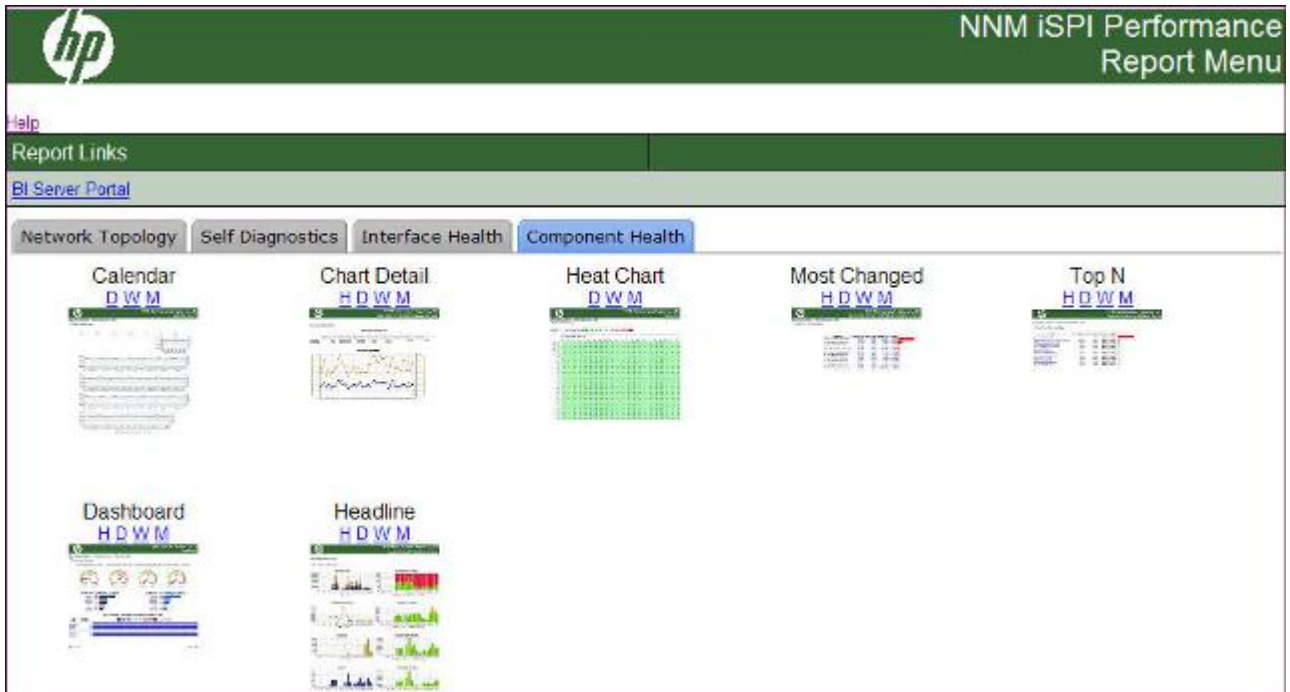
The Report Menu page is the introductory page of the iSPI Performance; the Report Menu page enables you to navigate to all available reports (including standard or customPoll iSPI Performance for Metrics reports and iSPI Performance for Traffic reports). When you launch reports from the NNMi console, the Report Menu page appears. You can launch the Report Menu page by pointing your browser at port 9300 of the iSPI Performance server.

The Report Menu presents the following tabs:

- Network Topology
- Self Diagnostics
- Component Health (an iSPI Performance for Metrics Extension Pack)
- Interface Health (an iSPI Performance for Metrics Extension Pack)

**Note:** You can view more tabs if you add additional extension packs based on Custom Poller collections (available with the iSPI Performance for Metrics) or install the iSPI Performance for Traffic.

Select the appropriate tab to view its related Report links as shown in the following image.



Use the time range links available above the icons to create and view reports.

Available time ranges are:

- H = Last 1 Hour
- D = Last 1 Day

- W = Last 7 days
- M = Last 31 days

**Note:** The H (Last Hour) link is not available for Calendar and Heat Chart reports.


## Report Controls

The **Report** page provides access to **Time Controls**, **Topology Filter**, **Report Options**, **Adjust Time Range**, and **Show Bookmark** filter controls. You can search using any of the available attributes and set filters to create a report.

- View the details of Time Controls

The Time Controls pane enables you to adjust the start time, the duration, whether auto refresh should be enabled or not, and the display grain of the data (if appropriate). In addition, you can restrict the data included within your report to contain hours of the day, days of the week, or combinations of both.

The Time Control prompt page is available as a drop-down panel within all reports. If you choose to run a report directly from within the BI Server Portal page, you will be prompted for time selections prior to running the report.

Control	Function
	<p>Click on the drop-down calendar box and select the appropriate date.</p> <p>Use the Calendar and Time selectors to adjust your preferred Start Date/Time. Note that the Start Date/Time can be automatically adjusted by the system under the following circumstances:</p> <ul style="list-style-type: none"> <li>■ <i>Start Date/Time and Time Range extend beyond the available data:</i> The Start Date/Time will be moved back to allow the requested <i>Time Range</i> to be selected from the currently available data set.</li> <li>■ <i>Start Date/Time requested is prior to the oldest data:</i> If you request a Start Date/Time that is prior to the oldest data in the system, the Start Date/Time will be advanced to coincide with the oldest data available. Note that the Time Control advises you of this when your data set begins.</li> <li>■ <i>Time Range requested is 'Last X':</i> If you request a Time Range that is relative to the most recent sample of data, the Start Date/Time will be moved appropriately. In some cases, especially with a very recent installation, this may result in a Start Date/Time that appears to be older than the start of the first data collection interval.</li> <li>■ <i>Start Date/Time is not on the boundary of the Time Grain:</i> Graphs and Charts will always show data grouped into sample sets—the sample size is defined by the Time Grain. If the Start Date/Time is not on the boundary of a Time Grain sized sample, results can look unusual when displayed. The Time Control will always attempt to round down the Start Date/Time to the beginning of the nearest Time 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 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.</li> </ul>
Time Range	<p>Click the drop-down menu to display the list of time ranges, and then select the appropriate time.</p> <p>The time ranges fall into three distinct categories:</p>

Control	Function
	<ul style="list-style-type: none"> <li>■ Fixed Period Length starting at the given Start Date/Time</li> <li>■ Fixed Period Length relative to the most recent sample stored in the system until now</li> </ul> <p>If you choose a Time Range that is relative to the most recent data (for example: Last 1 Hour), the system will attempt to modify the Start Date/Time accordingly.</p> <p>Selecting a Time Range will automatically set the Time Grain to an appropriate value. For some reports, you may change the grain manually.</p> <p><b>Note:</b> Too many data points on a chart can make the results difficult to read.</p>

Time Grain

The Time Grain defines how samples of data are grouped across the Time Range. A 1 Hour chart with a Time Grain of 5 Minutes will display 12 samples of data. Adjusting the Time Range will automatically set the Time Grain to a default value, but the Time Grain can be adjusted manually using the drop down selector. To avoid partial samples of data being grouped together, the Start Date/Time value will be adjusted to the boundary of the default Time Range.

Time Range	Default Time Grain
31 Days	1 Day
7 Days	1 Day
1 Day	1 Hour
12 Hours	1 Hour
2 Hours	5 Minutes
1 Hour	5 Minutes
30 Minutes	Minute
15 Minutes	Minute
5 Minutes	As Polled
1 Minute	As Polled
Until Now	Present time

Your choice of Time Grain defines the data source for the reports. Three types of data source exist within the application: internal Summary tables, internal Live tables, and Archive tables. Using a Time Grain of 1 Hour or above ensures your reports will source their data from the internal Summary tables. Using a Time Grain of less than 1 Hour, combined with a Start Date/Time which is outside the range of the internal Live tables, will force the system to use the Archive tables to fulfil the query. Using an Archive table as the data source will result in slow operation. Time Selections that cause the system to use the Archive tables will display a warning message in the Time Control panel.

Control	Function
Hour of Day	<ul style="list-style-type: none"> <li>Select the appropriate hour of the day from the list.</li> <li>For multiple selections, select the appropriate hour from the list, and then hold down CTRL to select each additional hour.</li> </ul>
Day of week	<ul style="list-style-type: none"> <li>Select the appropriate day of the week from the list.</li> <li>For multiple selection, select the appropriate day from the list, and then hold down CTRL to select each additional day.</li> </ul>
Select All	Click to select the available values from the list.
Deselect All	Click to deselect the available values from the list.
Auto Refresh	<ul style="list-style-type: none"> <li>Click the drop-down menu, and then select the desired time to recreate the reports based on the set interval.</li> </ul> <p>By default, Auto refresh is OFF.</p>

When the above parameters are set, you can click **Confirm Selection**. If you are viewing the Time Control while launching the report from within BI Server Connection, you may see additional navigation buttons at the bottom of the screen. These additional buttons enable you to move forward to the Topology Filters screen.

Button	Function
Cancel	Click to cancel the report generation
Back	Click to go back to the previous page of the report generation; if you are in the first page the option will be disabled.
Next	Click to move to the next page of the report generation
Finish	Click to display the report for the selected filter.

- View the details of Topology Filters

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





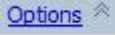

The following selection methods exist and each can be enabled or hidden for each topology attribute in the extension pack you are using:

- Hidden
- Single Value Select
- Multi Value Select
- Search and Select

On your first entry to the topology page, all selection widgets are hidden and the page shows a simple list of topology attributes with four icons beside each. Clicking on one of the icons will assign the selection method to that attribute. When you choose a selection method for a topology attribute, the choice is set in your browser using a cookie. Upon your next visit to the topology selection page for that extension pack, the same choice of selection method will be restored.

All topology attributes shown in the list are obtained from NNMI. In the case of the iSPI Performance for Traffic, topology attributes will also be based on the Traffic Collector configuration. You cannot add new attributes or delete existing attributes from this list. The iSPI Performance uses data warehousing techniques to reconcile changes made to a topology attribute in NNMI. As a result, the system will continue to seamlessly link historical data to that attribute despite any changes made from NNMI.

When you are finished making your selections, click **Confirm Selection** at the bottom of the page or **Hide Topology Filters** at the top.

Icon	Function
	Click to hide the current value selection box.
	Click to display the Single Value Select box, and then select the appropriate value in the current choice of the icon. To de-select a topology value, choose the top-most line in the drop-down list with the name of the topology attribute in it.
	Click to display the Multiple Value Select box, and then select the appropriate value in the selection list (use Ctrl-Click or Shift-Click to select multiple values). To de-select topology values, click on them or use the <b>Deselect all</b> link.
	<ul style="list-style-type: none"> <li>■ Click to display <b>'Search and Select'</b> box (this is the most effective selection method when dealing with very large numbers of possible choices)</li> <li>■ Click  to display the search option buttons</li> <li>■ Select the appropriate option button to customize the Keywords search</li> <li>■ Select <input checked="" type="checkbox"/> <b>Case insensitive</b> to make the search case insensitive</li> <li>■ Deselect <input type="checkbox"/> <b>Case insensitive</b> to make the search case sensitive</li> <li>■ Click  to close the search option display</li> </ul> <p>Once the above parameters are set:</p> <ul style="list-style-type: none"> <li>■ Type an appropriate key words in the <b>Keywords box</b> and click <b>Search</b> to display the related list of values in the <b>Results box</b></li> <li>■ Select the appropriate values from the list and click <b>Insert</b> to move the selected values into the <b>Choices box</b></li> </ul> <p>To delete the value in the <b>Choices box</b>; select the appropriate values and click <b>Remove</b> to delete the selected values from the choices box.</p> <ul style="list-style-type: none"> <li>■ Click <b>Select all</b> to select all the values from the list</li> <li>■ Click <b>Deselect all</b> to deselect all the values from the list</li> <li>■ Click <b>Confirm Selections</b> to refresh or to move to the next filter page</li> </ul>

- Click to view the details of Report Options

The Report Options prompt panel allows you to modify report specific settings. Each report has

slightly different options depending upon the layout and format presented. All report options are described below, but only a subset will be available in any of the options panels:

Option	Function
(Primary) Metric	All reports display information for at least one metric; some of them allow two metrics to be chosen. The first or primary metric is chosen using the Primary Metric drop-down list. If only one metric is allowed in the report, the drop-down list will be labeled 'Metric:'
Secondary Metric	For reports that offer two metrics to be displayed and values superimposed, the second metric is chosen using this drop-down list.
Top / Bottom 'N'	Determines how many and what ordering to use for the Top N and Most Changed reports.
Grouping by	Determines the grouping mechanism for data within the report. This enables you to display items like <i>total volume on the network</i> grouped by Node Name. Any of the topology attributes within the extension pack can be used as a grouping mechanism.
Display Time Series Chart	Enables or disables the time series chart at the bottom of the Top N report.

The complete list of available metrics is provided within the help for each extension pack.

The following metrics appear in the Drop-downs (Primary Metric, Secondary Metric) in the Report Options Pane:

- Click to view the list of available Interface Health Metrics

For more details on Interface Health metrics click [Glossary of Metrics](#)

When you complete setting filters and report options, refresh the report by clicking **Confirm Selections**. When the new report opens, the report controls are hidden. You can hide both Panes at any time, without confirming any selection, by clicking **Hide Options**.

- Click to view the list of available Component Health Metrics

For more details on Component Health metrics click [Glossary of Metrics](#).

#### **Period Length (sec)**

- Period Length (secs) (sum)

#### **SNMP Response Time**

- SNMP Response Time (msecs) (min)
- SNMP Response Time (msecs) (max)
- SNMP Response Time (msecs) (avg)

#### **Memory Utilization**

- Memory Utilization (min)
- Memory Utilization (max)
- Memory Utilization (avg)

**Buffer Utilization**

- Buffer Utilization (min)
- Buffer Utilization (max)
- Buffer Utilization (avg)

**Buffer Miss Rate**

- Buffer Miss Rate (min)
- Buffer Miss Rate (max)
- Buffer Miss Rate (avg)

**Buffer Failure Rate**

- Buffer Failure Rate (min)
- Buffer Failure Rate (max)
- Buffer Failure Rate (avg)
- Buffer NoMemory Rate (min)
- Buffer NoMemory Rate (max)
- Buffer NoMemory Rate (avg)

**CPU Utilization**

- CPU 1m Utilization
- CPU 1min Utilization (min)
- CPU 1min Utilization (max)
- CPU 1min Utilization (avg)

**CPU 5s Utilization**

- CPU 5sec Utilization (min)
- CPU 5sec Utilization (max)
- CPU 5sec Utilization (avg)

**CPU 5m Utilization**

- CPU 5min Utilization (min)
- CPU 5min Utilization (max)
- CPU 5min Utilization (avg)

**Memory Utilization**

- Memory Utilization - Exception (sum)

**Buffer Utilization**

- Buffer Utilization - Exception (sum)

**Buffer Miss Rate**

- Buffer Miss Rate - Exception (sum)

**Buffer Failure Rate**

- Buffer Failure Rate - Exception (sum)
- Buffer NoMemory Rate - Exception (sum)
- CPU 5sec Utilization - Exception (sum)
- CPU 1min Utilization - Exception (sum)
- CPU 5min Utilization - Exception (sum)

**Sample Count**

- Sample Count (sum)

When you complete setting filters and report options, refresh the report by clicking **Confirm Selections**. When the new report opens, the report controls are hidden. You can hide both Panes at any time, without confirming any selection, by clicking **Hide Options**Options provides a list of the metrics available

- Click to view the Show Bookmark feature





Click **Show Bookmark** to display the URL details of the web page.

Click **Add Bookmark** to display the Add a Favorite window, and then click **Add** to save the web page as favorite.

You can launch fully configured reports using URL-based parameters. You can use this feature to design your own launch actions for NNMI. To do this, configure the report based on you requirements, and then choose Show Bookmark. Add a bookmark of this format into NNMI. Pay attention to the configuration aspects of the URL, which can be modified dynamically. Use the pre-existing launch actions relating to the iSPI Performance Report Menu within NNMI as an example of substituting URL values for dynamic values.


- Click to view the Adjust Time Range feature

You can use the following **Adjust Time Range** features to navigate within a report and view the report in different time range.





Symbol	Function	Result
	Adjust time - zoom in	Click to zoom in. The click action selects the next smallest time range and adjusts the Start Date/Time. As a result, the effective interval is centered on the currently displayed data.
	Adjust time - Zoom out	Click to zoom out. The click action selects the next largest time range and adjusts the Start Date/Time. As a result, the effective interval is centered on the currently displayed data.
	Adjust time - Forward	Click to adjust the time forward and create a report based on that time.  <i>Example: If you are viewing a report for the time ranges between 10.00 AM to 11.00 AM, click the arrow to adjust the time range forward to create a report between 10.30 AM to 11.30 AM.</i>
	Adjust time - backward	Click to adjust the time backward by half of the selected Time Range and create a report based on that time.

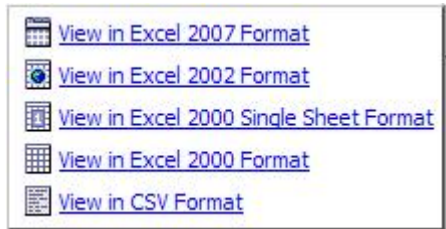


Symbol	Function	Result
		<i>Example: If you are viewing a report for the time ranges between 10.00 AM to 11.00 AM, click the arrow to adjust the time backward to create a report for 9.30 AM to 10.30 AM.</i>

Click  on right top of the report page to display the following icons, which are used to convert the created reports in the needed form.

**Alternative Output Formats**

Icon	Function
	Click to convert the report into HTML format
	Click to convert the report into PDF format
	Click to convert the report into XML format <b>Note:</b> Only select reports are suitable for this format.
	Click to display a list of Excel sheets and then select the appropriate out put to convert the report.



**Note:** Only select reports are suitable for this format.

**Report Navigation Controls**

You can use the following methods to navigate across reports:

- Launch reports from NNMi
- Click on a data point in a chart, gauge, or linked item in a table
- Open the Show Links panel within the report and select an alternative report
- Open the Show Links panel within the report and select the Network Topology link
- Open the Show Links panel within the report and select BI Server Portal, My Folders, or Query Studio
- Launch a report from a previously saved report bookmark

**To launch reports from NNMi:**

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

NNMi passes on the details of the selected items (selected in the console ) to the Report Menu page. These details are used as topology filters by the Report Menu page (where appropriate).

Above each thumbnail image in the Report Menu page, you can see a set of letters. These letters represent time periods for launching the report. Choose one to display the report for that period.

#### Links for Time Periods

Link	Function	Description
H	Last Hour	Opens a report that was generated using the data collected during the last hour
D	Last Day	Opens a report that was generated using the data collected during the last day
W	Last Week	Opens a report that was generated using the data collected during the last week
M	Last Month	Opens a report that was generated using the data collected during the last month

An additional action—Reporting - Path Health—will only be visible if the iSPI Performance for Metrics is installed and you are using the Path View feature of NNMI.

#### Drill Through from a Chart, Gauge, or Table

Where appropriate, the report presents links to navigate to another related report. This feature enables you to refine your selection based on time, topology, or metrics that are shown on the report. While selecting an item on a report and drilling through by clicking on it, you will see the Report Menu page first. From the Report Menu page, you can apply your selection on a report type of your choice. The following examples explain this behavior for different Interface Health reports:

- The Dashboard report for Interface Health shows a high availability exception count. Clicking on the needle of the gauge launches the Report Menu with Availability Exceptions as the primary metric. You can then launch the Top N report to find which set of Nodes is causing the availability exceptions.
- Looking at the Top N interfaces and their network discard figures, one interface seems more problematic than usual. Clicking on the interface name launches the Report Menu with that interface as a topology filter. You can then launch the Chart Detail report to examine discard figures over the selected time interval for just that interface and determine when the problem started.
- Using the Heat Chart report for Interface Health shows a peak in traffic on one particular day. Clicking on the cell with the high value launches the Report Menu with that day already selected. You can then launch the Interface Health Headline report and get an overview of multiple metrics for each hour during that day.

#### Show Links Panel—Select an Alternative Report

The Show Links panel is available from all reports. When you open the panel, the same tabbed panel that is shown in the Report Menu appears. From here, you can select a different report. Use this panel if you want to see the same information presented in a different format.

Moving from one report to another will always carry forward all the parameters that are relevant for the target report. If the target report is from a different extension pack, it is very likely that the metric and topology selections will not be applicable in the destination report. In this case, the metric choices will default to the last used value for that browser.

Topology Filters that do not apply to the target report (for example, an interface ID is not relevant for Component Health reports) will be discarded and a warning is displayed. However, all Topology Filters that

are shared by the target report will be carried forward and will be used to filter the data in the target report. If topology selections result in no data being displayed in reports, warning messages appear within the tab for that extension pack.

Note that the choice of times to click on is restricted to whatever was already selected within the Time Controls.

**Show Links Panel—Network Topology**

The Network Topology tab contains links to the NNMi console based upon the items you have currently selected in your topology filter. By default, the tab includes a link to the NNMi console. However, filters involving nodes, node groups, interfaces, or interface groups will dynamically place additional links to this tab.

**Links in the Network Topology Tab**

Link to	Added by
NNMi console	Default
Configuration information and topology map views	Node group filter
Configuration information	Interface group filter
Status information, layer 2 and layer 3 neighbor views	Node filter
Status information and monitoring configuration	Interface filter

**Show Links Panel—BI Server Portal link, My Folders, or Query Studio**

The Show Links panel displays the following links:

Link	Purpose
BI Server Portal	Click to navigate to the BI Server Connection page. You can accomplish the following task in BI Server Connection: <ul style="list-style-type: none"> <li>● Access reports from BI Server Connection.</li> <li>● Open My Reports and view reports with various filter preferences that you saved.</li> <li>● Set up a schedule for running summary reports.</li> <li>● Modify BI Server tuning parameters for large multi-user installations.</li> <li>● Set up email report delivery.</li> </ul>
Query Studio	Click to navigate to BI Server application. You can use the BI Server application to create new reports.
My Folders	Click to view all saved reports.

**Launch a Report from a Previously Saved Report Bookmark**

All reports can be bookmarked; the time, topology, metrics, and options selections made can be recorded within the bookmark URL. Launching a web browser, which has not logged into NNMi, using the bookmark will redirect you through the authentication page prior to displaying the report.

Do not use the 'Add to My BookMarks' feature provided by default by the BI Server (Under 'Add this Report' link at the top right corner of the report). The default BI Server links do not access the NNMI authentication server, and therefore, will not function correctly.

## Self Diagnostics

The Self Diagnostics, monitors the health of the processes which function within the iSPI Performance. You can easily investigate how the process within iSPI is performing by looking at Self diagnostic reports.

Performance Self Diagnostics has six reports that monitor the health of the internal processes:

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

Click "[Reports](#)" for more details

### BI Server Portal

Use the BI Server Portal to accomplish these tasks:

1. Access reports through BI Server Connection.
2. Open My Reports and view reports with various filter preferences that you saved.
3. Create a schedule for running summary reports.
4. Set up email report delivery.

### BI Server Welcome Page

Clicking the **BI Server Portal** link opens the BI Server 8 Welcome page. The content of the welcome page varies according to role. An operator 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)
- 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. This window has two tabs:

- Public Folders
- My Folders

Click **Public Folders** to display the Self Diagnostics report folders:

To display a list of the reports in each folder, click a folder.

### Tools Menu

Click the Drop-down arrow next to Tools to display these options:

- Drill-through Definitions
- Schedule Management
- My Preferences

## Self Diagnostics Report Controls

The Self Diagnostics, monitors the health condition of BI Server, ETL (Extract, Transform, Load) Service, Database, which function within the iSPI Performance for Metrics.

You can easily investigate how these processes within iSPI is performing by looking at diagnostic reports.

1. Select **Actions -->Reporting-Report Menu** in NNM main page to open the **Report Menu page**.
2. Report Menu Page consist of **Report Controls** pane with different tabs, thumbnails and links to create a reports. For more details Click [Report Menu](#) .
3. Click **Self Diagnostics** tab in Report Controls to view the related reports.
4. Click the available links above the report thumbnails to create a report.

The created report displays various links on the top, each are used for a specific purpose. For more details use the below links. You can also modify the default filters to create a report based on your modification.

Following are the available filters in Self Diagnostics extension pack:

Click to view the list of available Time Controls filters

The following are the available filters in the Time Controls pane for Self Diagnostics:)

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

Click to view the list of available Topology Filters

The following are the available filters in the Topology Filter pane for Self Diagnostics:

Click to view the list of available Extension packs

- Component Health
- Interface Health
- Self Diagnostics

**Note:** Other extension packs are shown in the drop-down menu only if they are installed with the iSPI Performance for Metrics.

Click to view the list of available Task categories

- ETL (Extract, Transform, Load)
- Report Generation

Click to view the list of available Task Type

- build\_groupcache\_from\_db
- build\_topcache\_from\_db
- Calendar
- Chart Detail

- checkAggregates
- Dashboard
- Headline
- Heat Chart
- Most Changed
- process\_group\_dump\_file
- process\_metricsfiles
- process\_metricsfiles->bulkload archive table
- process\_metricsfiles->bulkload live table
- process\_metricsfiles->preprocessing
- process\_summary->Summary Child Proc
- process\_summary->Summary Parent Proc
- process\_table\_retention
- process\_tim\_dim\_retention
- Process\_topodump\_file
- Top 10 Task Duration
- Top N

A task name consists of the extension pack, task category, and task type. The task name is represented in the following format:

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

For example, Component\_Health.ETL.build\_groupcache\_from\_db.

Click to view the list of available Primary and Secondary metrics in Report Options

The following are the Primary and Secondary Metrics available in the **Report Options pane** for Self Diagnostics:

#### **Metrics**

- Process Time (secs)(min)
- Process Time (secs)(max)
- Process Time (secs)(avg)
- Number of Rows (sum)
- Sample Count (sum)

#### **Reports**

Use the following links to learn about the reports and their related function:

["Calendar Report"](#)

["Chart Detail Report"](#)

["Heat Chart Report"](#)

["Most Changed Report"](#)

["Top N Report"](#)

["Top 10 Task Duration Report"](#)

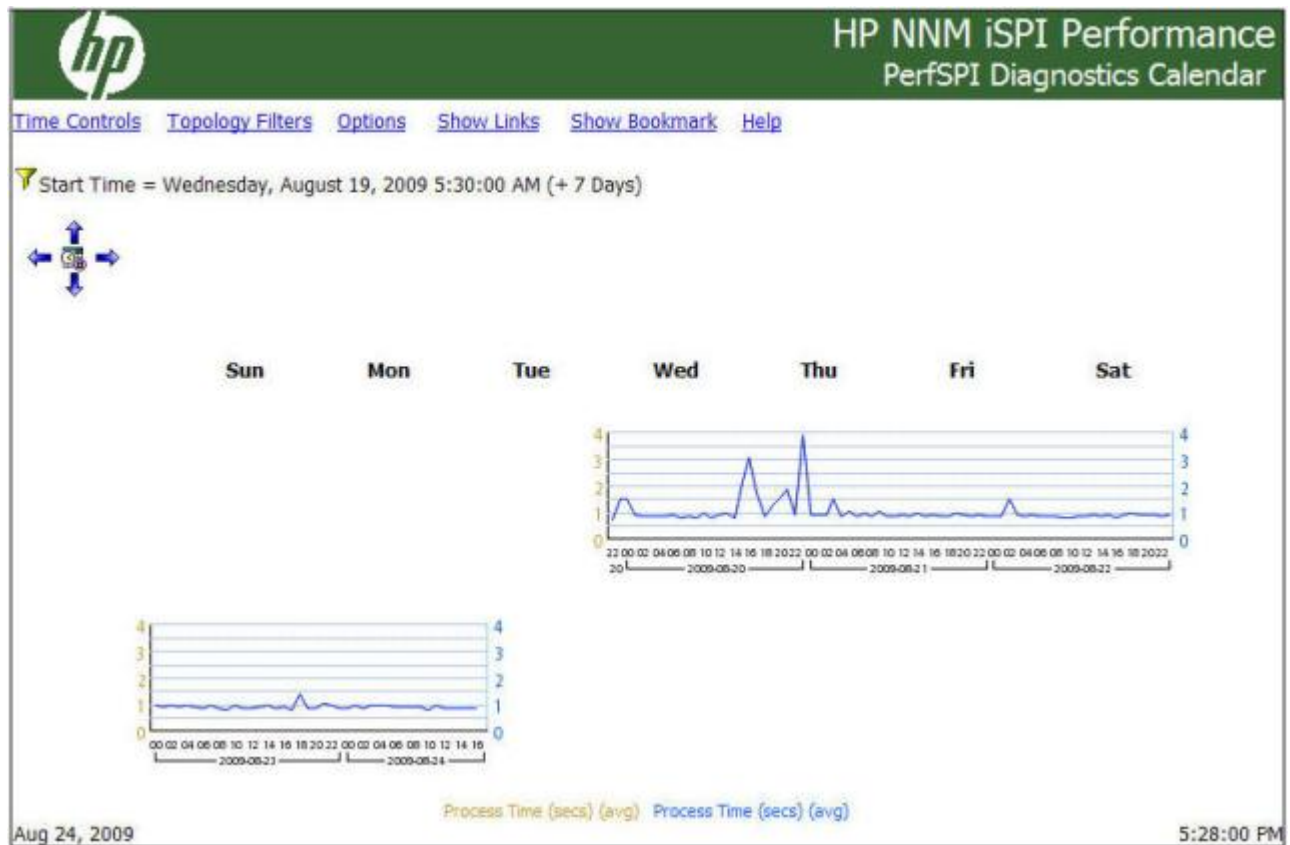
**Calendar Report**


The Calendar report uses a traditional calendar-style layout to show hourly statistics for two metrics. Two default metrics are displayed, when you create the first report. Use the Report Controls to change the metrics and the time range to create a desired report.

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

- Start Date/Time
- Time Range

The Calendar Report appears as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.



The drill-through feature of the Calendar Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges A,B, and C, you can drill through the report by selecting the time range 'C' and generate a report related to 'C'

Follow these steps to drill through the specific aspect of the created report:

1. Select a specific time range in the graph, by moving the mouse pointer on the X axis of the primary and secondary metrics, till it changes into a  displaying a pop-up window.

The pop-up window displays the Day and Hour of the selected point.

2. Click the selected point. The Report Menu page that includes thumbnail images of all related reports appears.
3. Click the appropriate link above the thumbnail to generate the report of that selected hour.

### Features and Defaults

The Calendar Report defaults to:

- Dates/Times = Last 31 days
- Hour of Day = All
- Day of Week = All
- Primary Metric (red in the graph) = Process Time (secs) (max)
- Secondary Metric (blue in the graph) = Process Time (secs) (avg)

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

### Chart Detail Report

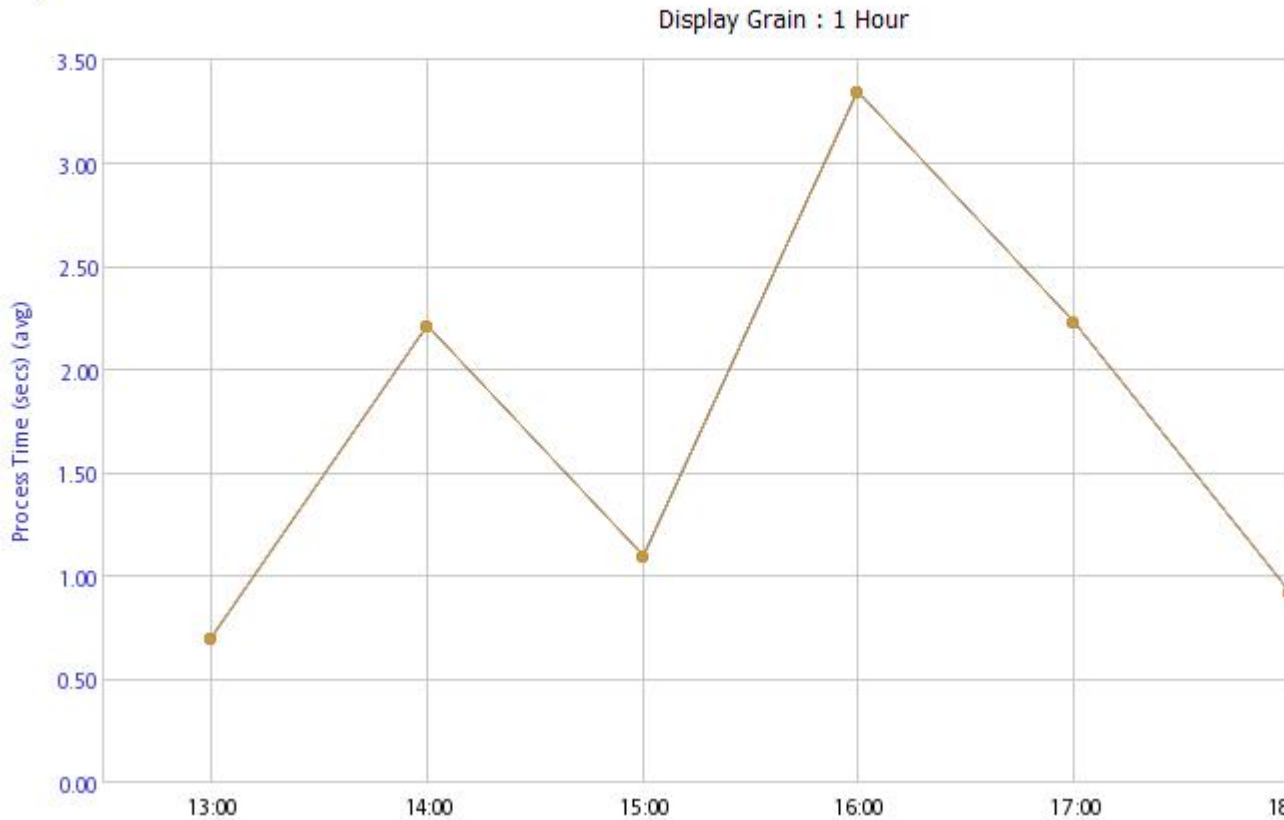
Use Chart Detail to go back in time, to a specific day, and examine sampled data for multiple metrics in detail. You can also examine averages and maximums for multiple metrics, and compare sampled data for any two metrics.

This report contains a graph that shows sampled data for two metrics.

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

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

The created Chart Detail Report displays as shown below.





The filter parameters used to create the report appears on the top of the report with the  icon.

Chart Detail helps you to drill-through the specific time range of a generated report.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill-through the specific time range of the created report:

1. Move your mouse pointer on the required time from the list of time range available below the X axis  
  
of the Graph till it changes into a 
2. Click the selected point to view the report thumbnail images in the report catalogue page.
3. Click the appropriate link above the thumbnail to generate the report of that selected point.

The Process Times (secs) (avg) metric is used as the primary as well as the secondary metric.

To apply new filters, click "[Self Diagnostics Report Controls](#)" To see the list of other reports under Self Diagnostics report click [Show Links](#)

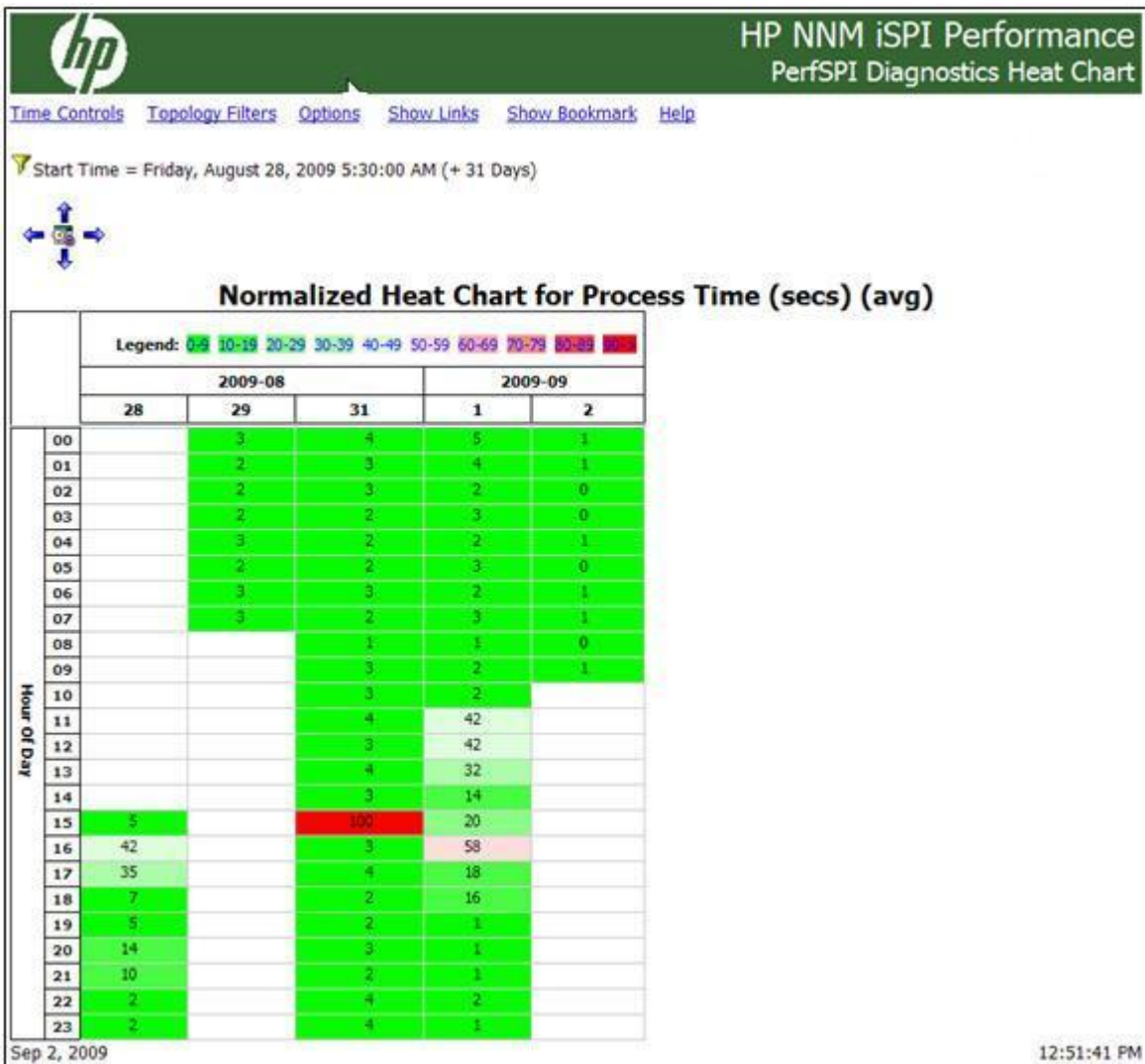
### Heat Chart Report

The Heat Chart Report tracks the hourly performance of a single metric. The default metric is Process Time (secs) (max). 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

The created Heat Chart Report displays as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.

You can drill through the specific aspects of the report by clicking a cell from the report and create a report based on the selection from Report Menu. The time range value passed to the drill-through operation is one day for the selected hour.

### 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)

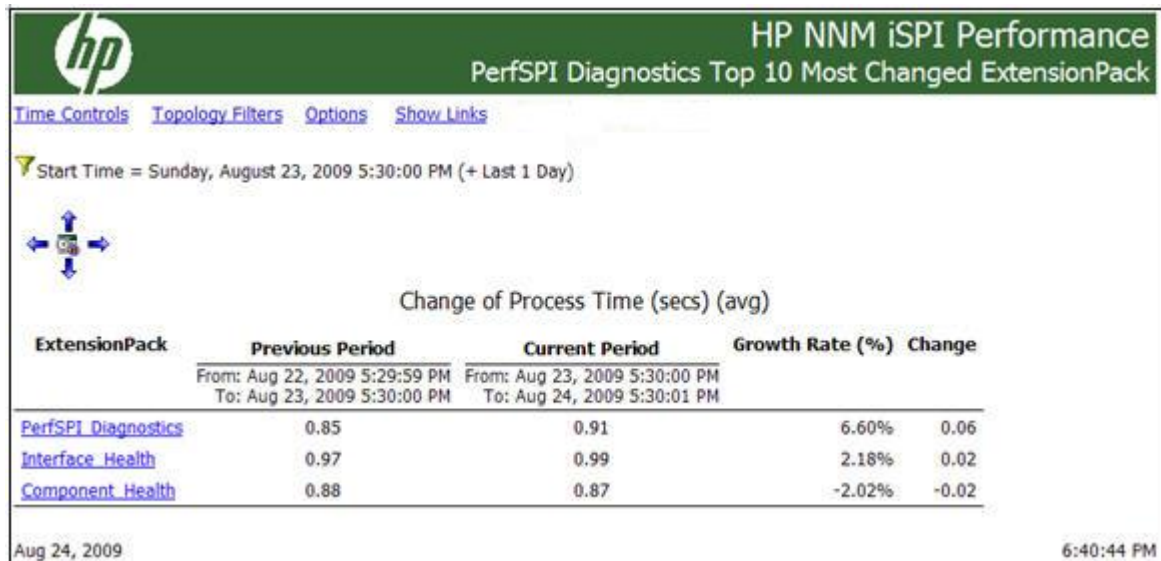
This report tracks percentages. If you open Heat Chart from a report that is using a non-supported metric (for example, Sample Count or Response Time) you will be told to open the report controls window and select an alternate metric.


### 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



The filter parameters used to create the report appears on the top of the report with the  icon.

The node or component names are shown as hyperlink. You can click on the required link and create a report based on the selection.

### 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

Most Changed defaults to:

- Dates/Times = Last Day (and the day before)
- Hour of Day = All
- Day of Week = All
- Rank Metric = Memory Utilization (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).

To apply new filters, click "[Self Diagnostics Report Controls](#)". To see the list of other reports under Self Diagnostics report click [Show Links](#)

### 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).

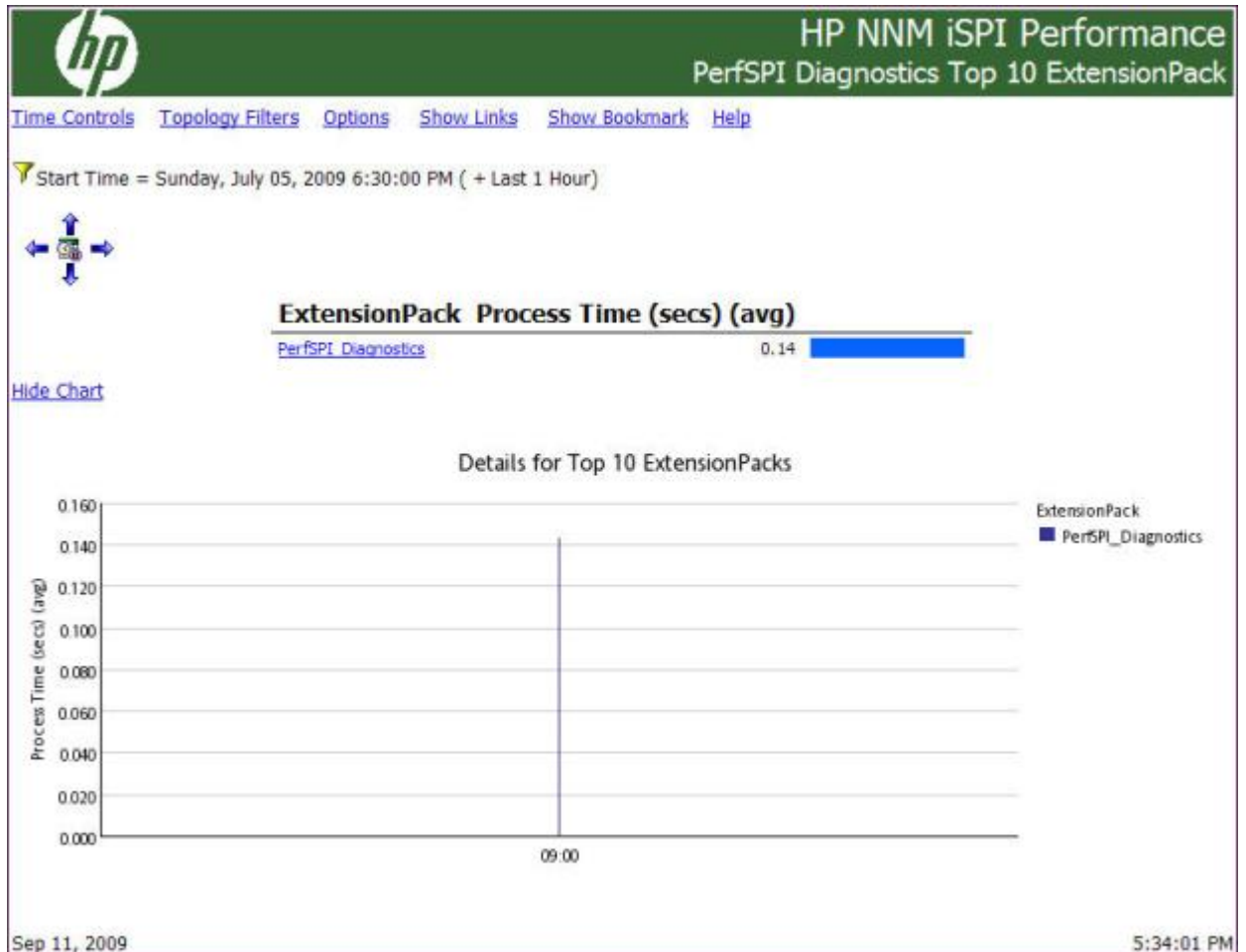
The following are the available filters in the Time Controls pane for Top N Report


- 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

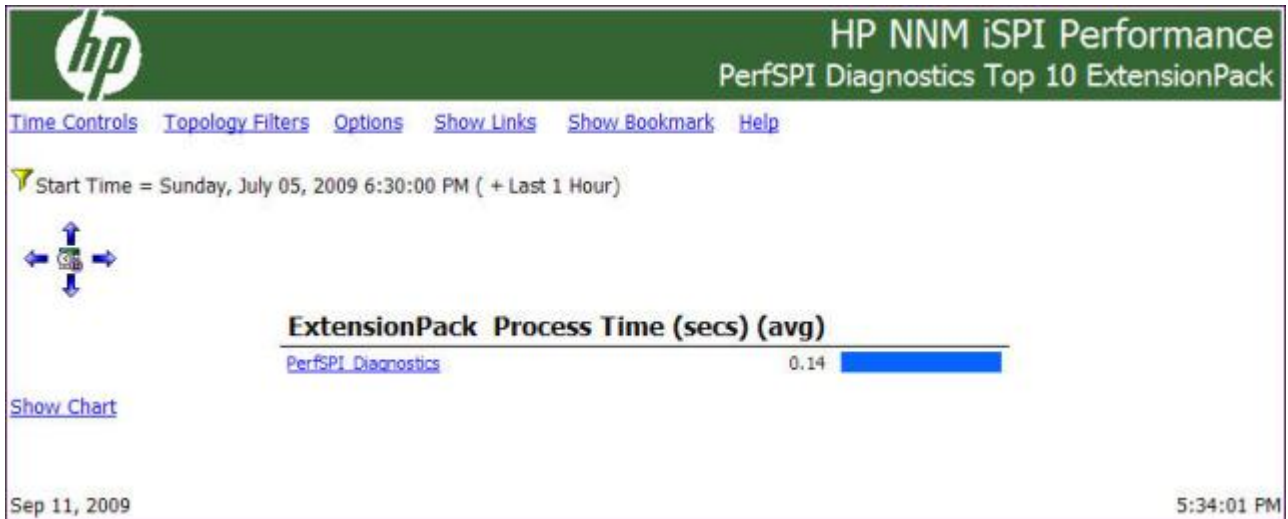
The following are the available filters in the Report Options for Top N Report. You can select the appropriate parameter from the drop-down.

- 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

The created Top N Report with Time Series Chart.



- The filter parameters used to create the report appears on the top of the report with the  icon
- The element names are shown as hyperlink. You can click on the link to drill through to Report Menu.
- The time range details of the qualified process are displayed in a graph format. You can hover the mouse pointer to display a pop-up window describing the selection point.
- The created Top N Report without Time Series Chart.



Click **Show Chart** to view the chart with the detail table.

### 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

### Use Case

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

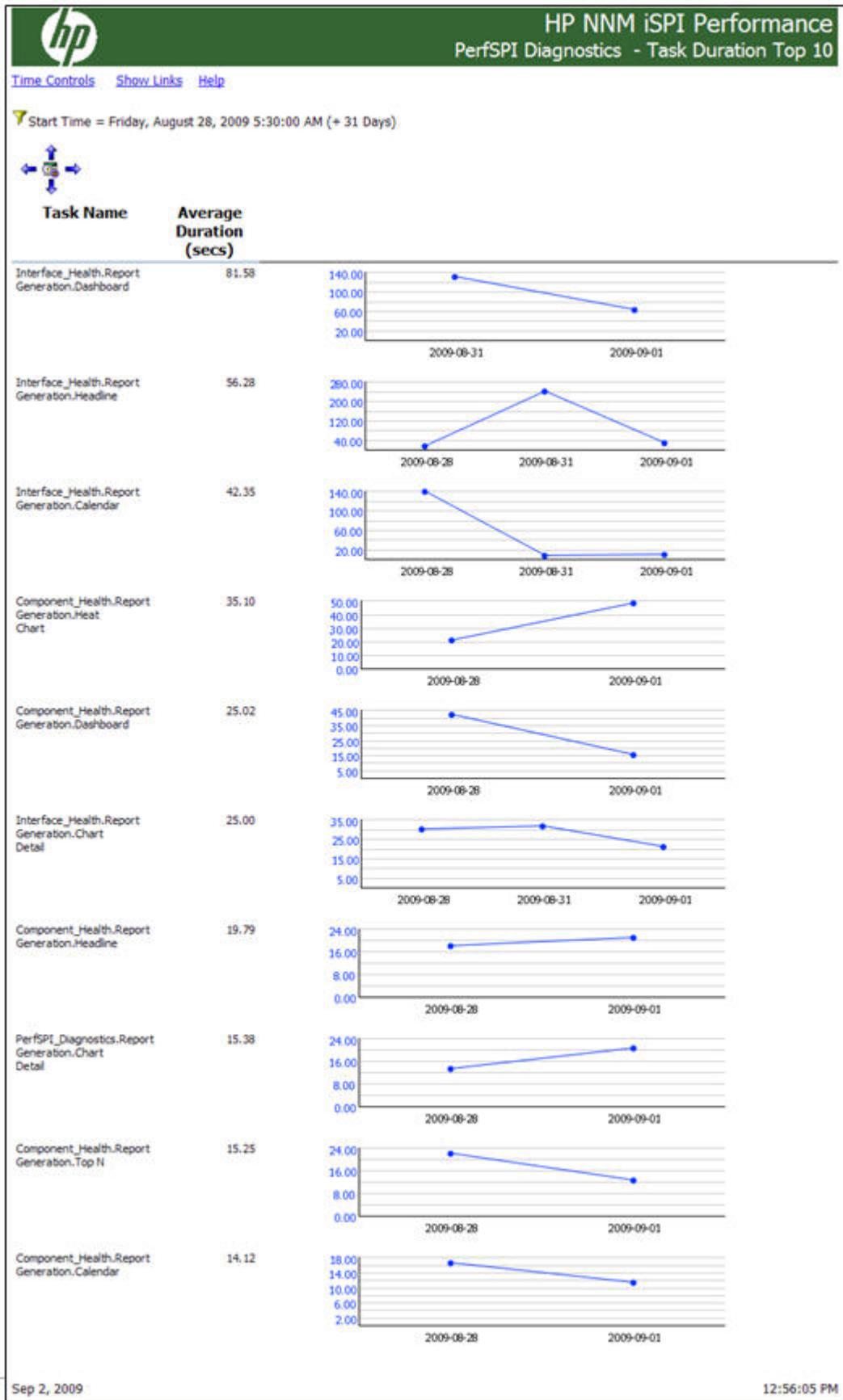
Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

### Top 10 Task Duration Report

The Self Diagnostics extension pack monitors the health of all the ETL processes and report generation within the iSPI Performance for Metrics. You can easily investigate how the ETL processes and reports within iSPI are performing by using the Top 10 Task Duration Report.


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

The created Top 10 Task Duration Report displays as shown below.





**iSPI Performance for Metrics Online Help**  
Self Diagnostics

The filter parameters used to create the report appears on the top of the report with the  icon  
To see the list of other reports under Self Diagnostics report click [Show Links](#).

## 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.

### **Command-line utilities of the iSPI Performance do not work**

If you run iSPI Performance commands in a command window that was opened before the installation of the iSPI was complete, the commands may fail.

The command-line utilities use environment variables that are created during the installation of the iSPI. Therefore, do not run the iSPI Performance commands in a command window that was opened before the iSPI installation completed. After installing the iSPI Performance, open a new command window to use command-line utilities.

### **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 iSPI Performance 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 iSPI Performance will force your browser to display a login window under the following circumstances:

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

Simply log in again to return to the iSPI Performance.

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

#### **To access the iSPI Performance after exceeding the timeout limit:**

1. Close the timeout login window.
2. Log into the NNMi console using the standard URL:  
*http://&lt;fully-qualified-hostname&gt;:&lt;port&gt;/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 iSPI 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 NNM system and the SPI 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 NNM console.

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

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

If NNM and the iSPI Performance 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 SPI is responsible for configuring use of NNM's IP address; this step takes place automatically, when the iSPI 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.

## 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 addon configuration failed: Exit Code {EXIT_CODE}	High availability configuration failed.
WARN	BI Processes not running.	The BI server process has stopped while

Type	Message	Cause/Suggested Actions
		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 start-BI.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.
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 nnmenableperfspl.	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 nnmenableperfspl.	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_PERFSPI_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

Type	Message	Cause/Suggested Actions
		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.
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.

Type	Message	Cause/Suggested Actions
WARN	DBSPACE {DBSPACE}, FILE {FILE}: Cannot extend {PATH} because there is insufficient disk-space left on filesystem.	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.
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.



Type	Message	Cause/Suggested Actions
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..)
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..)

Type	Message	Cause/Suggested Actions
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 Extension Pack

["Opening Reports from NNMi"](#)

["Opening Pre-Filtered Reports from NNMi"](#)

### 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 NNM; otherwise, open a workspace view from NNM, move to the iSPI, and begin your investigation from the Report Menu. To move from NNM to the iSPI:

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

### **Opening Pre-Filtered Reports from NNMi**

You may launch pre-filtered reports directly from NNM for:

- A node group
- A node
- A component

To launch pre-filtered reports directly from NNM complete the following steps:

- enabled the performance polling for the group
- configured the group to function as a filter on the iSPI element selection tree
- enable performance polling for the group and add the group as a filter to the iSPI element selection tree to launch interface-specific or group-specific reports directly from NNM.
- if the above steps are complete, you need not use the Topology Filters in [Report Controls](#) to set the filters to launch pre-filtered reports

Only an NNM administrator can add group filters to the iSPI element selection tree. Adding filters is a Configuration workspace task.

## **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.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- 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.

- 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.

### **BI Server Portal**

Use the BI Server Portal to accomplish these tasks:

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

### **BI Server Welcome Page**

Clicking the **BI Server Portal** link opens the BI Server 8 Welcome page. The content of the welcome page varies according to role. An operator sees the following options on the welcome page:

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- View BI Server content (use BI Server Connection to access reports)
- Query your data (use Query Studio to create simple queries and reports)
- 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. This window has two tabs:

- Public Folders
- My Folders

Click **Public Folders** to display the Component Health report folders:

To display a list of the reports in each folder, click a folder.

### Reports

Use the following links to learn about the Component Health reports and their related function:

["Calendar Report"](#)

["Chart Detail Report"](#)

["Heat Chart Report"](#)

["Most Changed Report"](#)

["Top N Report"](#)

["Dashboard Report"](#)

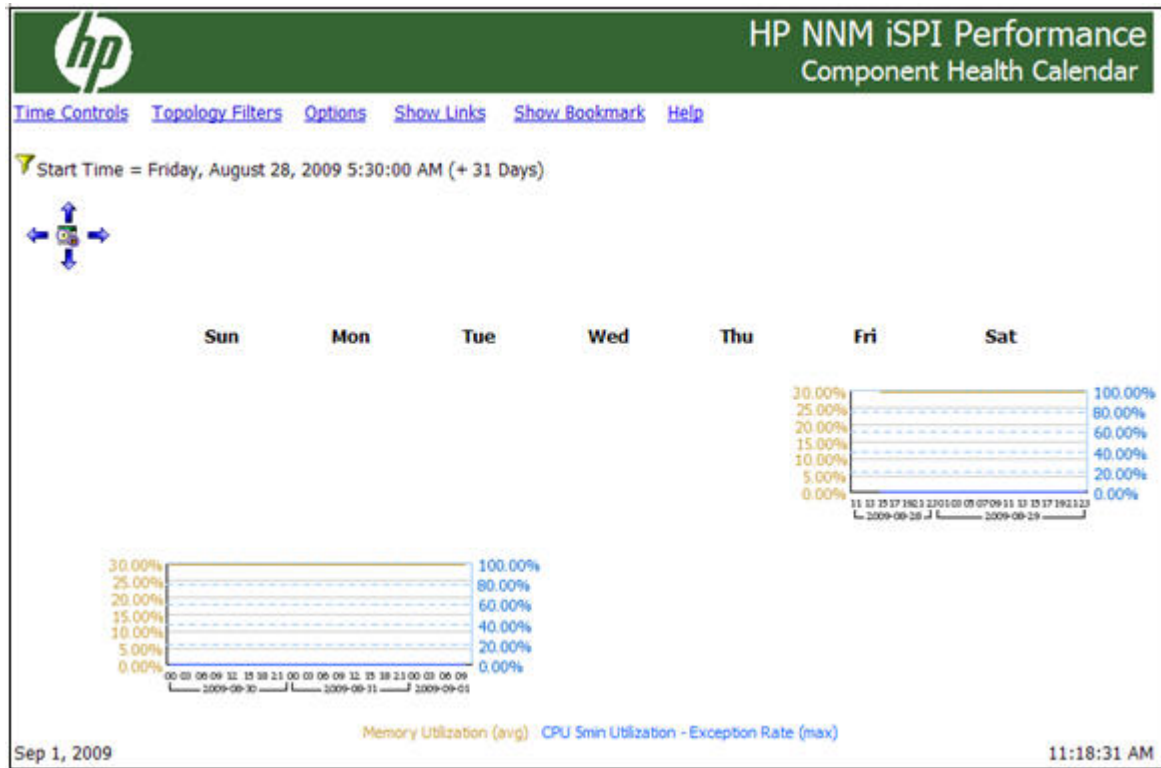
#### Calendar Report


The Calendar Report uses a traditional calendar-style layout to show hourly statistics for two metrics. Two default metrics are displayed, when you create the first report. Use the Report Controls to change the metrics and the time range to create a desired report.

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

- Start Date/Time
- Time Range

The created Calendar Report displays as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.

The drill-through feature of the Calendar Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges A,B, and C, you can drill through the report by selecting the time range 'C' and generate a report related to 'C'

Follow these steps to drill through the specific aspect of the created report:

1. Select a specific time range in the graph, by moving the mouse pointer on the X axis of the primary and secondary metrics, till it changes into a  displaying a pop-up window.

The pop-up window displays the Day and Hour of the selected point.

2. Click the selected point. The Report Menu page that includes thumbnail images of all related reports appears.
3. Click the appropriate link above the thumbnail to generate the report of that selected hour.

### Features and Defaults

The Calendar Report defaults to:

- 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)



## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

The default view shows 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.

### Use Case

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.

### Chart Detail Report

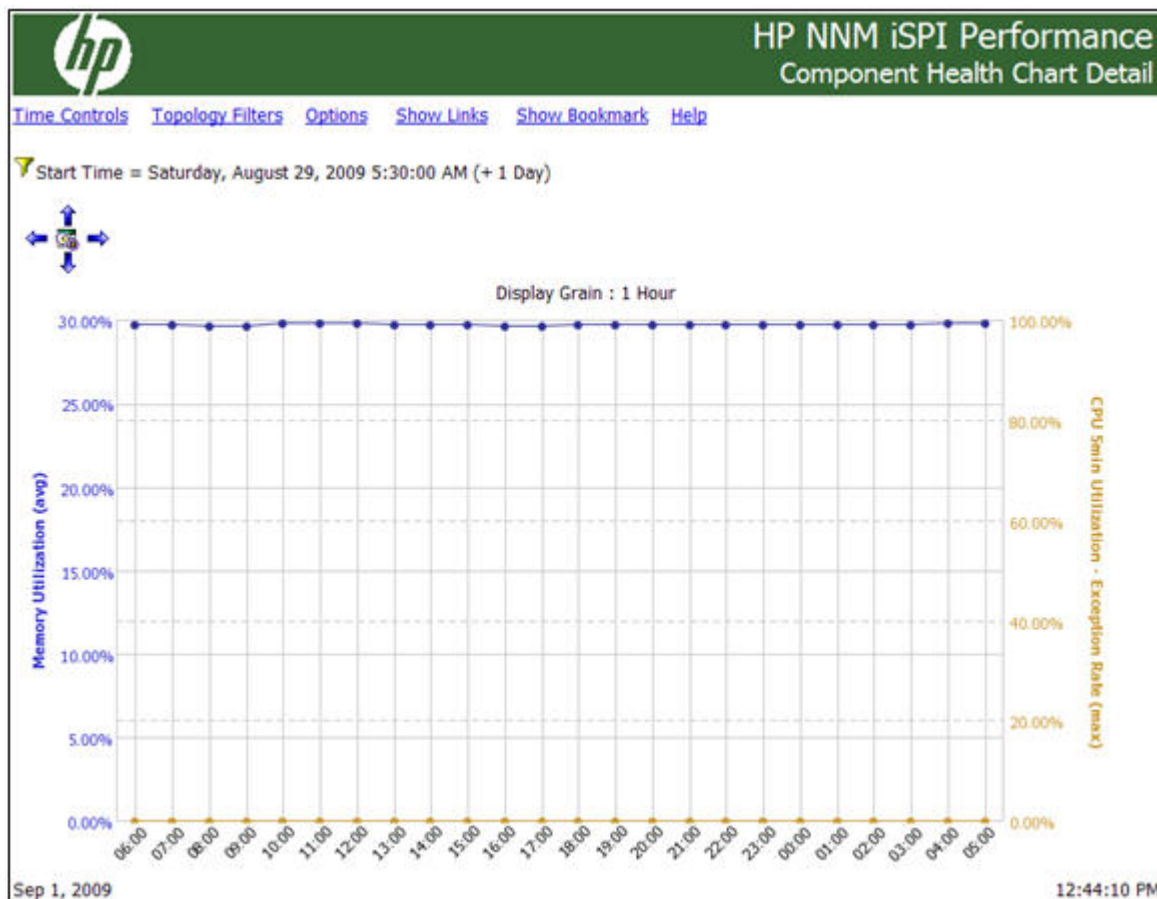
Use Chart Detail to go back in time, to a specific day, and examine sampled data for multiple metrics in detail. You can also examine averages and maximums for multiple metrics, and compare sampled data for any two metrics.

This report contains a table and a graph. If the defaults are not changed, the table contains summarized data for multiple metrics for the previous hour, while the graph shows sampled data for two metrics for the previous hour.

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

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

The created Chart Detail Report displays as shown below.




The filter parameters used to create the report appears on the top of the report with the  icon.

The drill-through feature of the Chart Detail Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges a, b, and c, you can drill through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill-through the specific time range of the created report:

1. Move your mouse pointer on the required time from the list of time range available below the X axis

of the Graph till it changes into a 

2. Click the selected point to view the report thumbnail images in the report catalogue page.
3. Click the appropriate link above the thumbnail to generate the report of that selected point.

### Features and Defaults

After you launch this report, you will be asked to select a day. If desired, after selecting the day, you can specify an hour within the day. If you specify an hour within the day, you can also specify a 15-minute period within the hour.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

This report contains a table and a graph. The table contains summarized data for the time period you select. The graph shows sampled data for the same time period. The table provides an average value and a maximum value for these metrics:

- CPU utilization (%)
- Memory utilization (%)
- Buffer utilization (%)
- Buffer Miss Rate (%)
- Buffer Failure Rate (%)

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

- Nodes/Components = All
- Primary metric = Memory Utilization (avg)
- Secondary metric = CPU 5 min Utilization - Exception Rate (max)

To apply new filters, click [Report Controls](#). To see the list of other reports under Component Health click [Show Links](#)

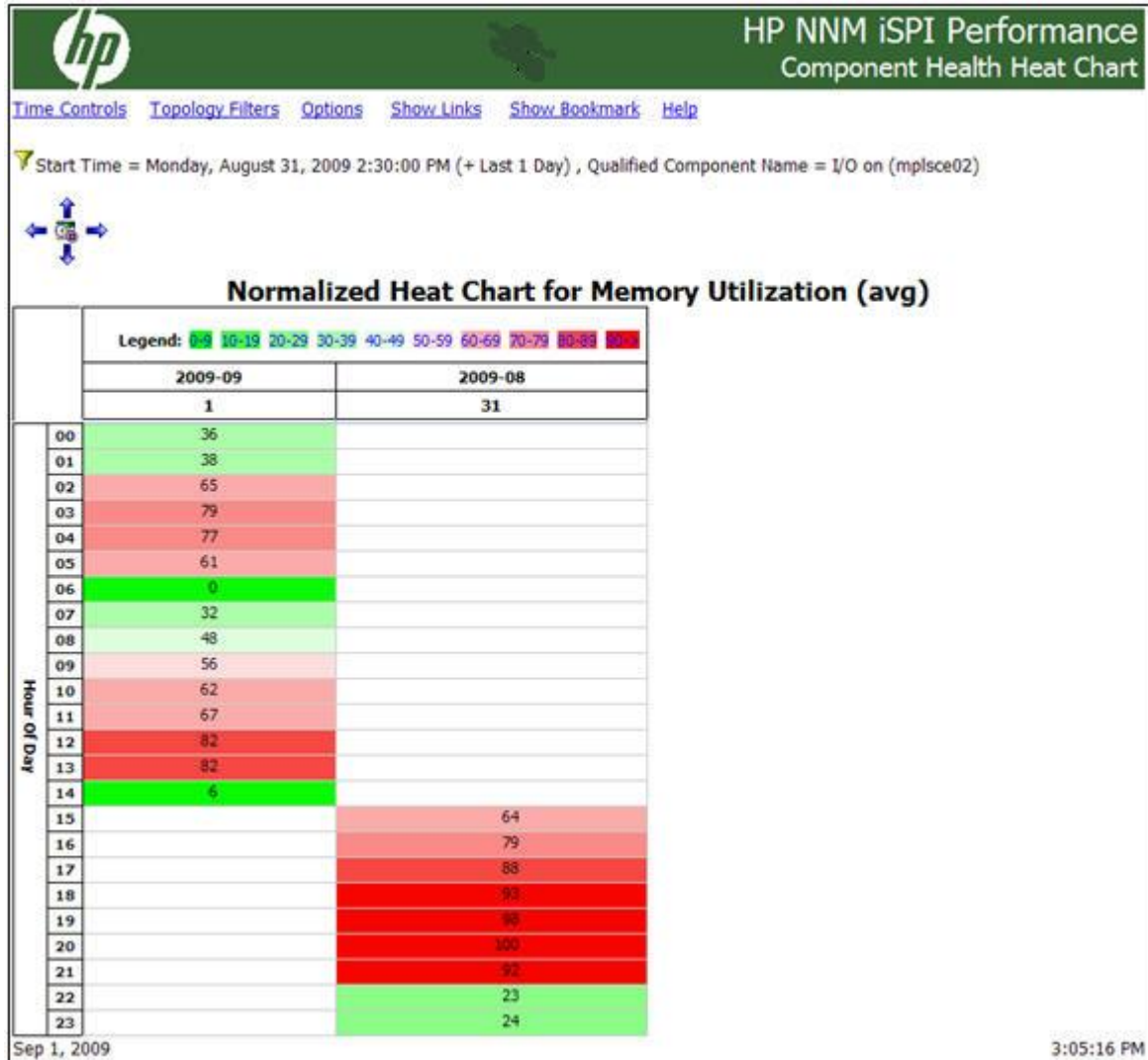
### Heat Chart Report


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.

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

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

The created Heat Chart Report displays as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.

The drill-through feature of the Heat Chart Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions. You can drill-through the specific aspect of the report by clicking a cell from the report and create a report based on the selection from Report Menu. The time range value passed to the drill-through operation is one day for the selected hour.

**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 use mouse over, by moving 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

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- Hour of Day = All
- Day of Week = All
- Metric = Memory Utilization (avg)

To know more about metric, click "[Glossary of Metrics](#)"

Your time period options are:

- 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

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.

To apply new filters, click [Report Controls](#). To see the list of other reports under Component Health click [Show Links](#) .

### 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

### 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

The created Chart Detail Report displays as shown below.

HP NNM iSPI Performance  
 Component Health Top 10 Most Changed Qualified Component Name


Time Controls Topology Filters Options Show Links Show Bookmark Help

Start Time = Saturday, August 29, 2009 5:30:00 AM (+ 1 Day)

Change of Memory Utilization (avg)

Qualified Component Name	Previous Period	Current Period	Growth Rate (%)	Change
	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%

Sep 1, 2009 2:52:13 PM

The filter parameters used to create the report appears on the top of the report with the  icon.

The node or component names are shown as hyperlink. You can click on the link to drill through to Report Menu.

### Features and Defaults

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

Following are the columns in the table:

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

Most Changed 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

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

To modify the defaults, click [Report Controls](#).

To apply new filters, click [Report Controls](#). To see the list of other reports under Component Health click [Show Links](#)

### Use Case

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

**Note:** *Since Most Changed compares performance in two close time periods, All Dates/Times is not a valid time period. Selecting All Dates/Times will display "#!Error" in the report.*

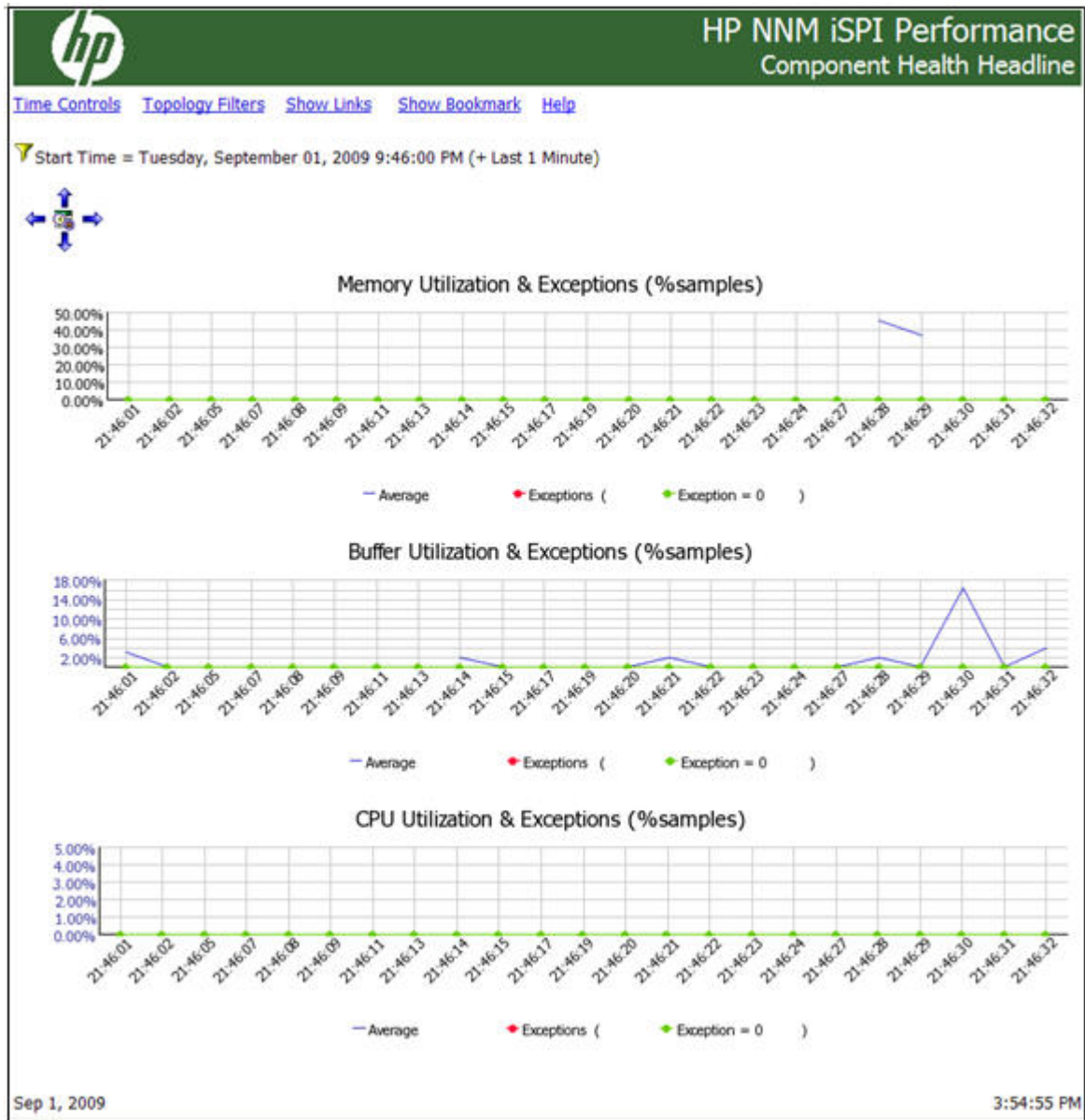
### Headline Report

The Headline Report provides a broad view of performance. This report enables you to view every aspect of performance at once. The default view looks at Last one day, which in most cases will be data for yesterday. You can use the graphs to see trends, spot isolated spikes, 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 Grain
- Display Grain
- Hours of Day
- Day of Week

The created Headline Report displays as shown below.



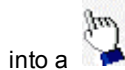
The filter parameters used to create the report appears on the top of the report with the  icon.

The drill-through feature of the Calendar Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill-through the specific aspect of the created report:

1. Select a specific time range in the graph, by hovering the mouse pointer on the X axis till it changes





## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

2. Click the selected point or time to view the report thumbnail images in the report catalogue page.
3. Click the appropriate link above the thumbnail to generate the report of that selected point.

### 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

The Headline Report defaults to:

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

### Use Case

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

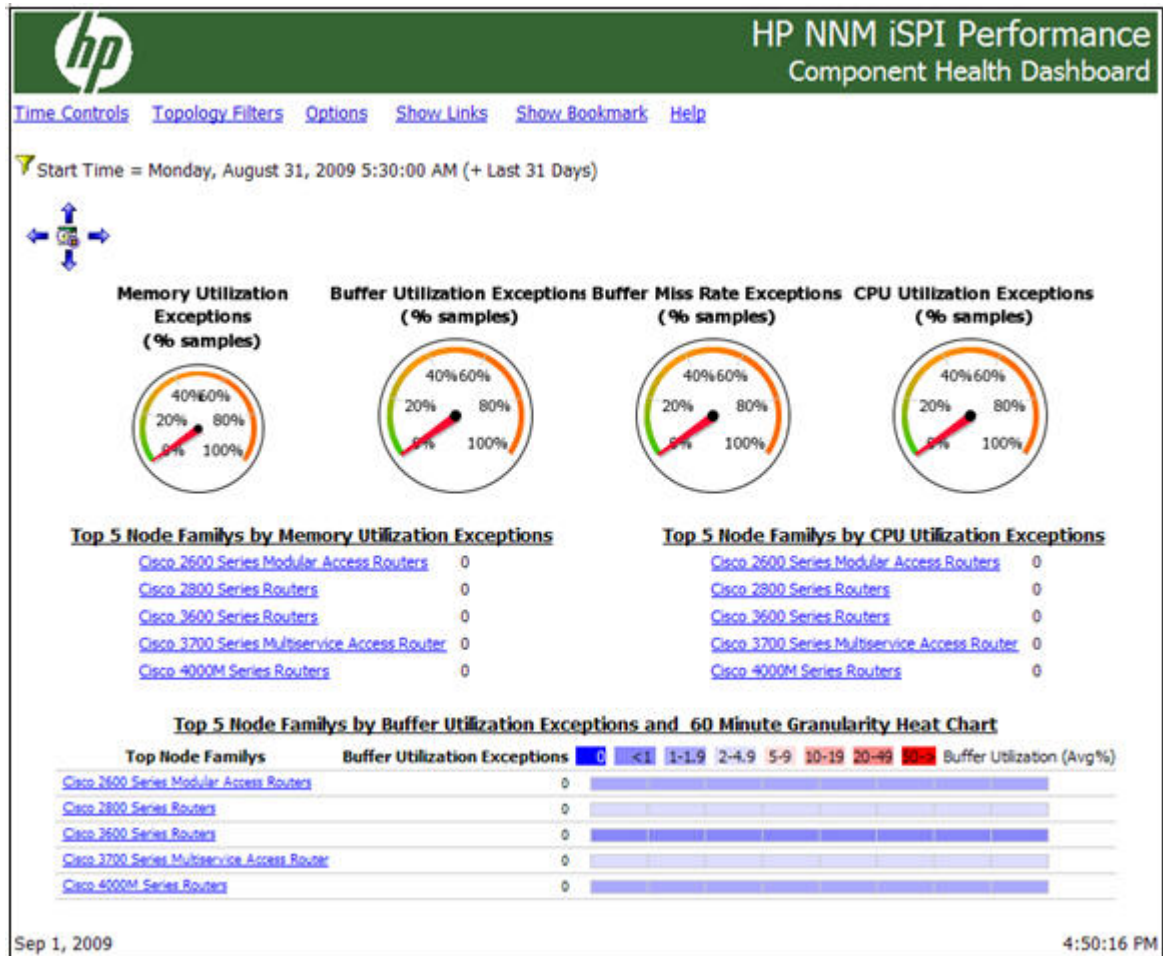
You can change this report on a subset of nodes, or a single node, by using the filters in [Report Controls](#).


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

To see the list of other reports under Component Health click [Show Links](#).

### 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.



The filter icon (  ) at the top shows the topology and time constraints that are used to produce the report.

The drill-through feature of the Dashboard Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'

Follow these steps to drill through the specific aspect of the created report:

1. Select a specific time range in the graph, by moving the mouse pointer on the X axis of the primary and secondary metrics, till it changes into  displaying a pop-up window.

The pop-up window displays the Day and Hour of the selected point.

2. Click the selected point. The Report Menu page that includes thumbnail images of all related reports appears.
3. Click the appropriate link above the thumbnail to generate the report of that selected hour.

### 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 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 nodes/interfaces may be responsible for the exceptions showing up in the gauges:

- Top 5 Nodes/Interfaces by Utilization Exceptions
- Top 5 Nodes/Interfaces by Availability Exceptions
- Top 5 Nodes/Interfaces 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
- 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

To modify the defaults, click [Report Controls](#). To see the list of other reports under Component Health click [Show Links](#).

### **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.

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 NNM, not from the iSPI. If you want to set or modify thresholds, refer to online help for NNM administrators.

### **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 default metric is memory utilization.

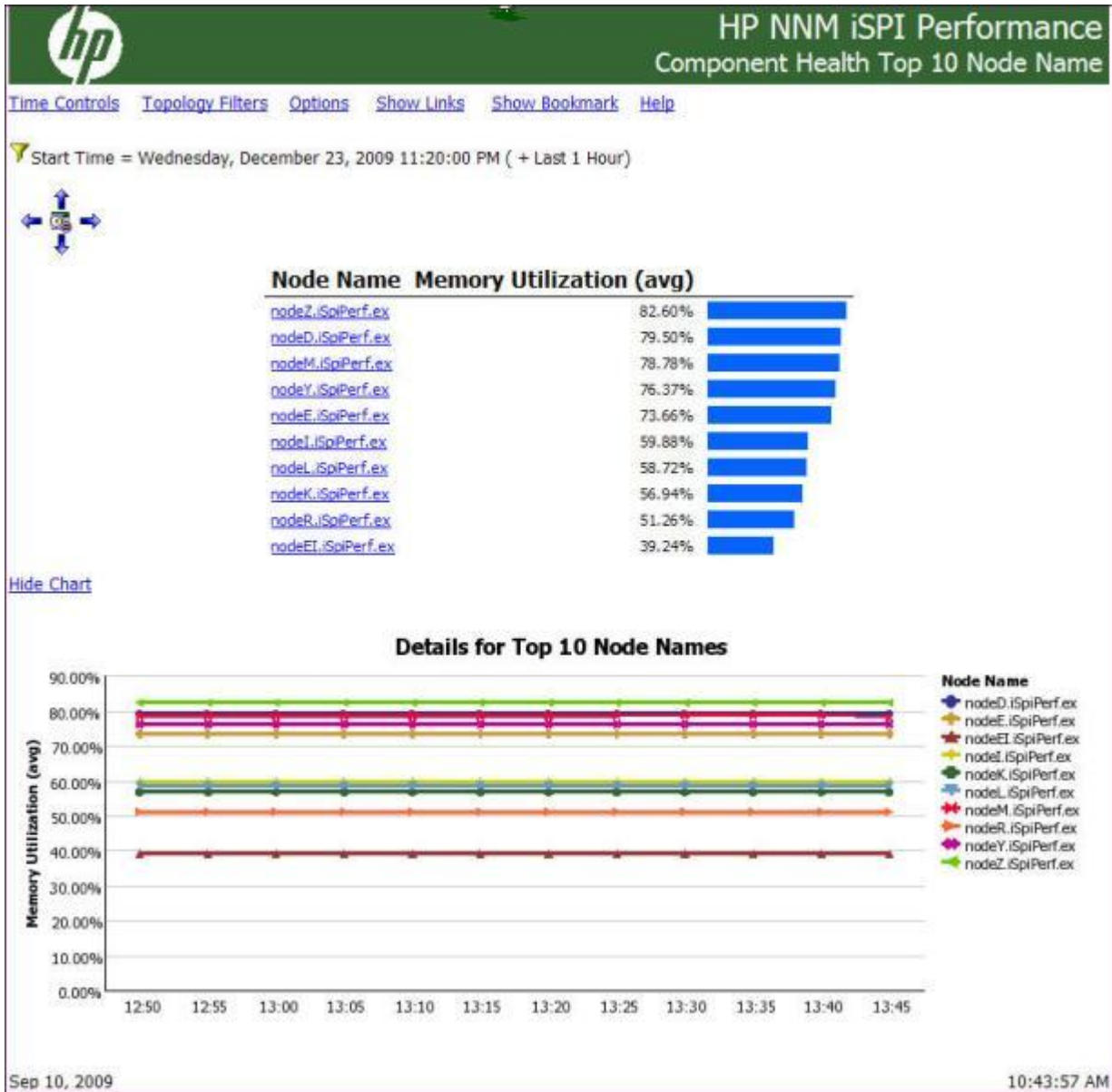
The following are the available filters in the Time Controls pane for Top N Report:

- 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 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 "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.

The created Top N Report with Time Series Chart.



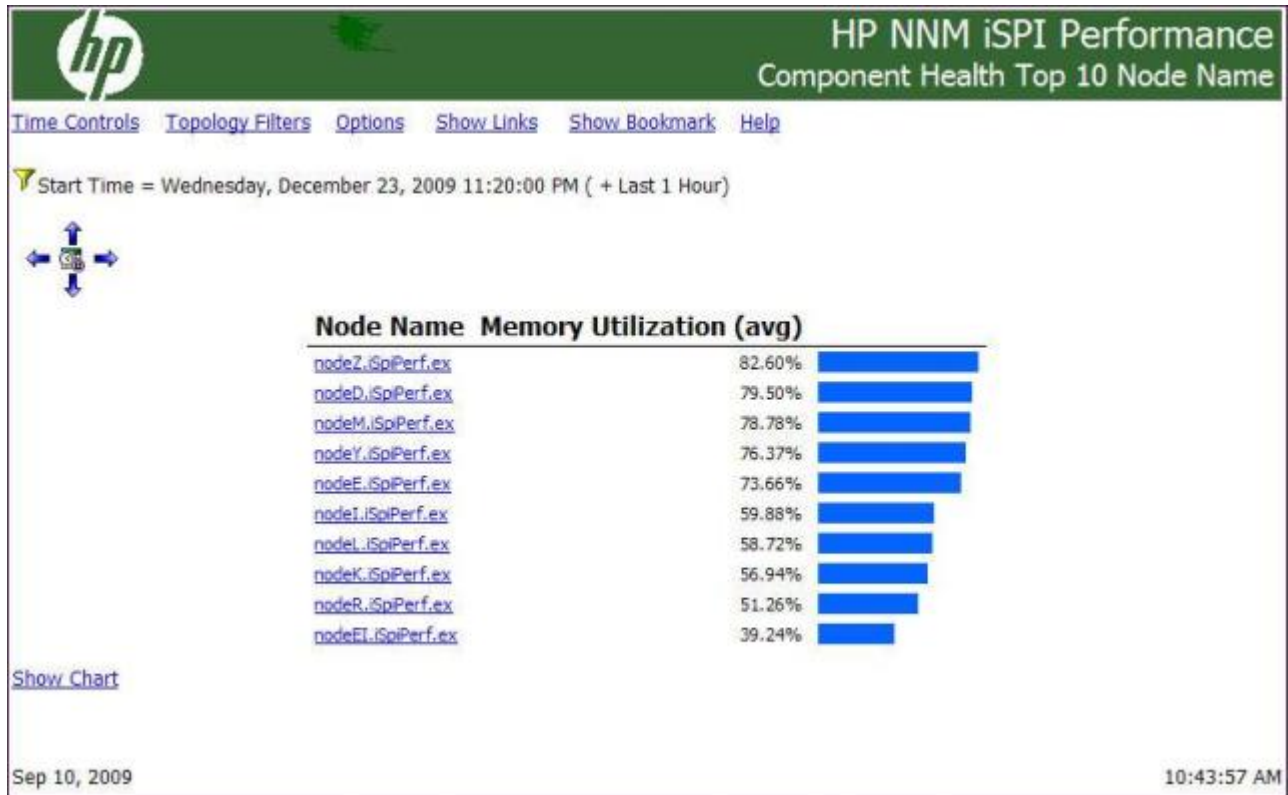
The filter parameters used to create the report appears on the top of the report with the  icon

The element names are shown as hyperlinks. You can click on the link to drill through to Report Menu.

Click **Hide Chart** to hide the detail chart, displaying only the table.

The time range details of the qualified elements are displayed in a graph format. You can hover the mouse pointer to display a pop-up window describing the selection point.

The created Top N Report without Time Series Chart.



Click **Show Chart** to view the chart with the detail table.

### Features and Defaults

Top N Summary defaults to:

- Nodes/Components = All
- Time Period = Last Day
- Hour of Day = All
- Day of Week = 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 below options:

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

### 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.

## Interface Health Extension Pack

["Opening Reports from NNMi"](#)

["Opening Pre-Filtered Reports from NNMi"](#)

### 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 NNM; 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 in to the NNM Console.
2. Select a workspace.
3. Open a view of nodes, interfaces, or incidents.
4. Select **Actions > Reporting - Report Menu**

### Opening Pre-Filtered Reports from NNMi

You may launch pre-filtered reports directly from NNM for:

- A node group
- A node
- An interface

To launch pre-filtered reports directly from NNMi, follow these steps:

1. Enable the performance polling for the node group, node, or interface.
2. Configure the node group, node, or interface to function as a filter on the iSPI element selection tree.
3. If the above steps are complete, you need not use the Topology Filters in [Report Controls](#) to set the filters to launch reports.

Only an NNMi administrator can add group filters to the iSPI element selection tree. Adding filters is a Configuration workspace task.

### BI Server Portal

Use the BI Server Portal to accomplish these tasks:

1. Access reports through BI Server Connection.
2. Open **My Reports** and view reports with various filter preferences that you saved.
3. Setup a schedule for running summary reports in advance (the summary reports under Public Folders).
4. Set up email report delivery.

### BI Server Welcome Page

Clicking the **BI Server Portal** link opens the BI Server 8 Welcome page. The content of the welcome page varies according to role. An operator 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)
- 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. This window has two tabs:

- Public Folders
- My Folders

Click **Public Folders** to display the Interface Health report folders:

To display a list of the reports in each folder, click a folder.

### **Tools Menu**

Click the Drop-down arrow next to **Tools** to display these options:

- Drill-through Definitions
- Schedule Management
- My Preferences

### **Glossary of Metrics**

- [Availability](#)
- [Discards](#)
- [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 NNM using multiple values including but not limited to ifOperStatus, ifLastChange, ifAdminStatus.

#### **Discards**

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

- Discards (Total)
- Discards In
- Discards Out

Total number of packets with discards as a percentage of total packets; followed by the number of discarded packets incoming, as a percentage of total incoming packets, and the number of discard packets outbound, as a percentage of total outbound packets.



## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

- Discards (Avg%)
- Discard Rate In (Avg%)
- Discard Rate Out (Avg%)

### Errors

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

- Errors (Total)
- Errors In
- Errors Out

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.

- Errors (Avg%)
- Error Rate In (Avg%)
- Error Rate Out (Avg%)

### Exceptions

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

- 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): total packet count in; total packet count out.

- Packets In
- Packets Out

Volume (Bytes): total byte count in; total byte count out

- Bytes In
- Bytes Out

### **Reports**

Use the following links to learn about the reports and their related function:

["Calendar Report"](#)

["Dashboard Report"](#)

["Headline Report"](#)

["Heat Chart Report"](#)

["Most Changed Report"](#)

["Top N Report"](#)

## Calendar Report


The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics. Two default metrics are displayed, when you create the first report. Use Report Controls to change the metrics and the time range to create a desired report.

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

- Start Date/Time
- Time Range

The created Calendar Report displays as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.

The drill-through feature of the Calendar Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill through the specific aspect of the created report:

1. Select a specific time range in the graph, by moving the mouse pointer on the X axis of the primary and secondary metrics, till it changes into  displaying a pop-up window.

The pop-up window displays the Day and Hour of the selected point.

2. Click the selected point. The Report Menu page that includes thumbnail images of all related reports appears.
3. Click the appropriate link above the thumbnail to generate the report of that selected hour.

## Features and Defaults

The Calendar Report defaults to:

- Nodes/Components = 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 last 31 days. Depending on how long the iSPI has been collecting data from NNM, 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 to less than 24 hours, the application prompts you with the following message: This report is not design 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
- to spot 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.

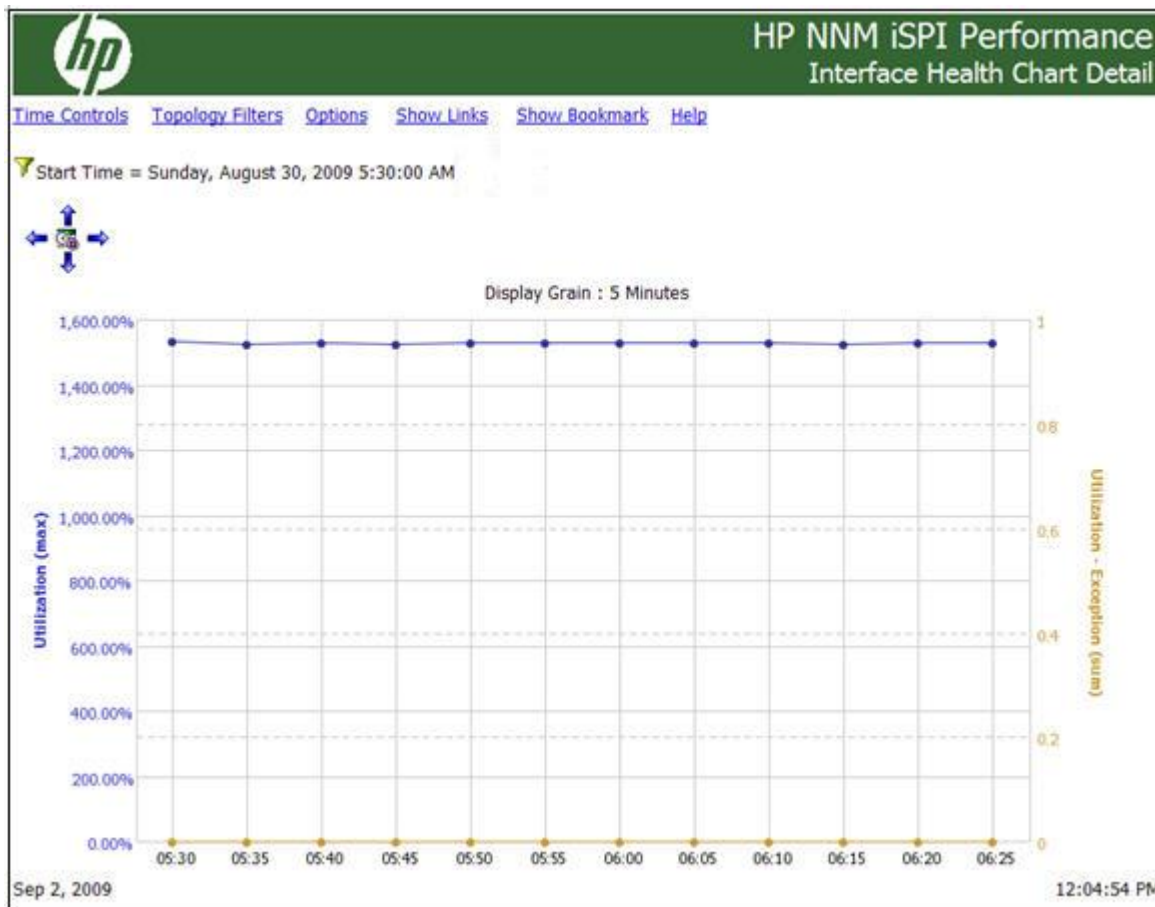
### **Chart Detail Report**

This report contains a graph that shows sampled data for 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

The created Chart Detail Report displays as shown below.





The filter parameters used to create the report appears on the top of the report with the  icon.

Chart Detail helps you to drill-through the specific time range of a generated report.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill-through the specific time range of the created report:

1. Move your mouse pointer on the required time from the list of time range available below the X axis

of the Graph till it changes into a 

2. Click the selected point to view the report thumbnail images in the report catalogue page.
3. Click the appropriate link above the thumbnail to generate the report of that selected point.

### 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.

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

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

### **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:

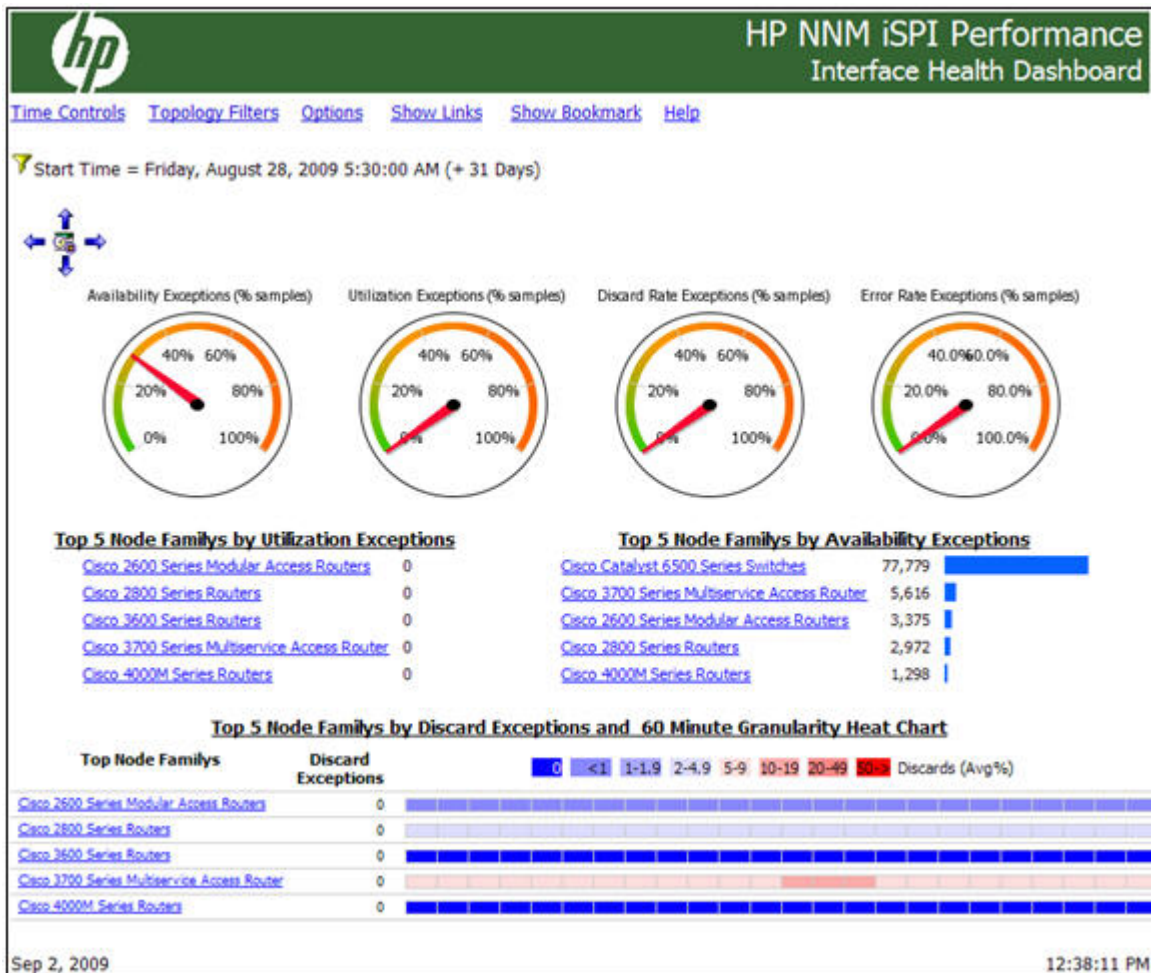
- 1 Minute
- 5 Minutes
- 15 Minutes
- 30 Minutes
- 1 Hour
- 1 Day


The defaults filter setting are:

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

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

The created Dashboard Report displays as shown below.




The filter icon (  ) at the top shows the topology and time constraints that are used to produce the report.

The drill-through feature of the Dashboard Report helps you navigate to related reports quickly and easily, which enables you to make faster and better decisions.

**Example:** If the generated report contains time ranges a, b, and c, you can drill through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill through the specific aspect of the created report:

1. Select a specific time range in the graph, by moving the mouse pointer on the X axis of the primary

and secondary metrics, till it changes into  displaying a pop-up window.

The pop-up window displays the Day and Hour of the selected point.

2. Click the selected point. The Report Menu page that includes thumbnail images of all related reports appears.
3. Click the appropriate link above the thumbnail to generate the report of that selected hour.

To apply new filters, click [Report Controls](#). To see the list of other reports under Interface Health click [Show Links](#).

### **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 NNM, not from the iSPI. If you want to set or modify thresholds, refer to online help for NNM administrators.

### **Headline Report**

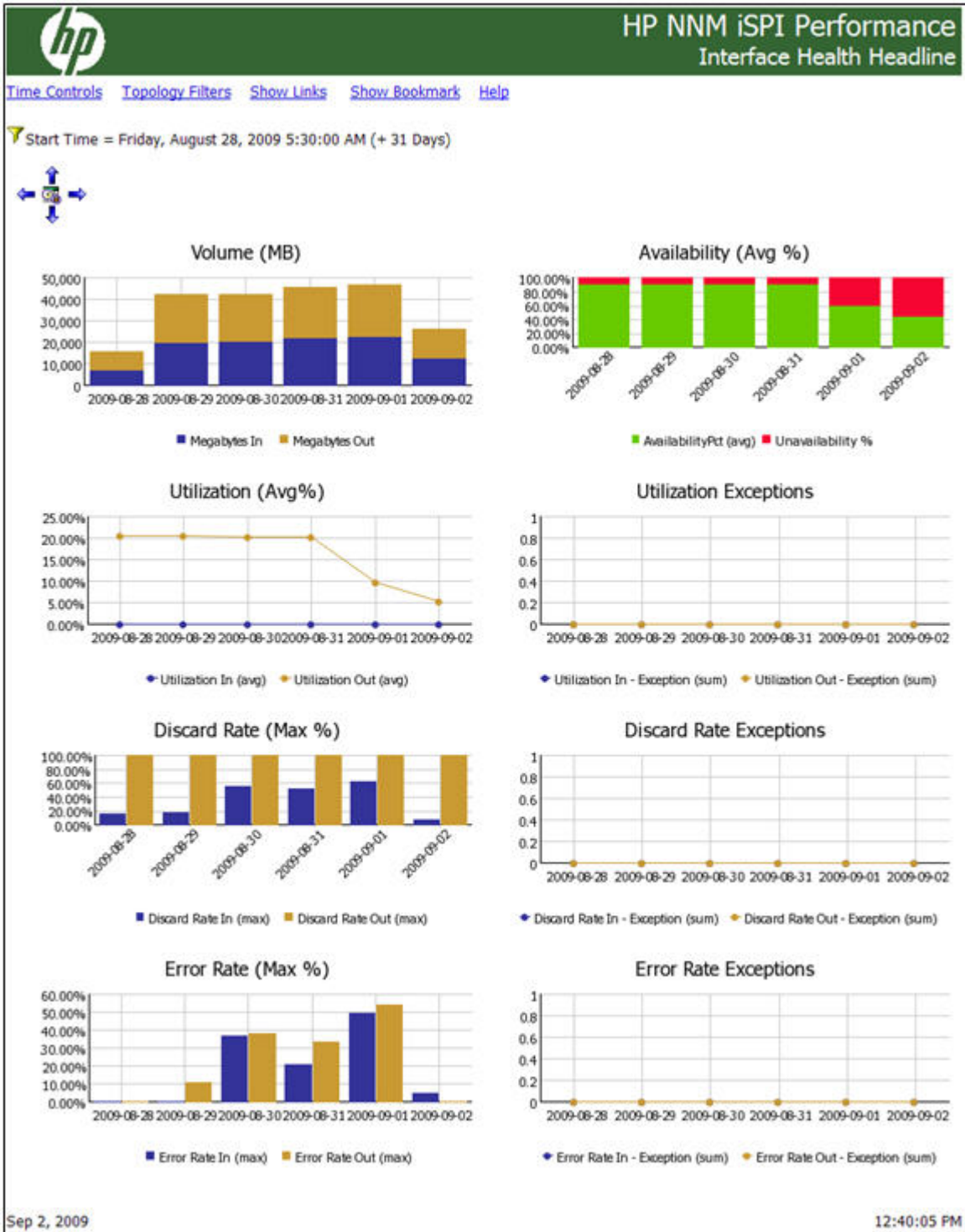
The Headline Report provides a broad view of performance. Presents 8 different graphs on a single page. This report enables you to view every aspect of performance at once. The default view is the yesterday's performance. Use the graphs to view trends, spot isolated spikes, exceptions, and verify that 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

The created Headline Report displays as shown below.





The filter parameters used to create the report appears on the top of the report with the  icon  
 Headline Report helps you to drill-through the specific data of a generated report.

**Example:** If the generated report contains time ranges a, b, and c, you can drill-through the report further by selecting the time range 'c' and generate a report related to 'c'.

Follow these steps to drill-through the specific aspect of the created report:

1. Select a specific time range in the graph, by hovering the mouse pointer on the X axis till it changes



2. Click the selected point or time to view the report thumbnail images in the report catalogue page.
3. Click the appropriate link above the thumbnail to generate the report of that selected point.

To apply new filters, click [Report Controls](#). To see the list of other reports under Interface Health click [Show Links](#).

### Use Case

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

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 particular day, the metrics are aggregated to the hourly level. All other time periods, show data aggregated to the daily level.

### Heat Chart Report

The Heat Chart tracks the hourly performance of a single metric. The default metric is Discards – Packets (sum). The default time period is the last 31 days. Performance is color-coded, making it easy to see whether performance has been satisfactory or unsatisfactory.

### Features and Defaults

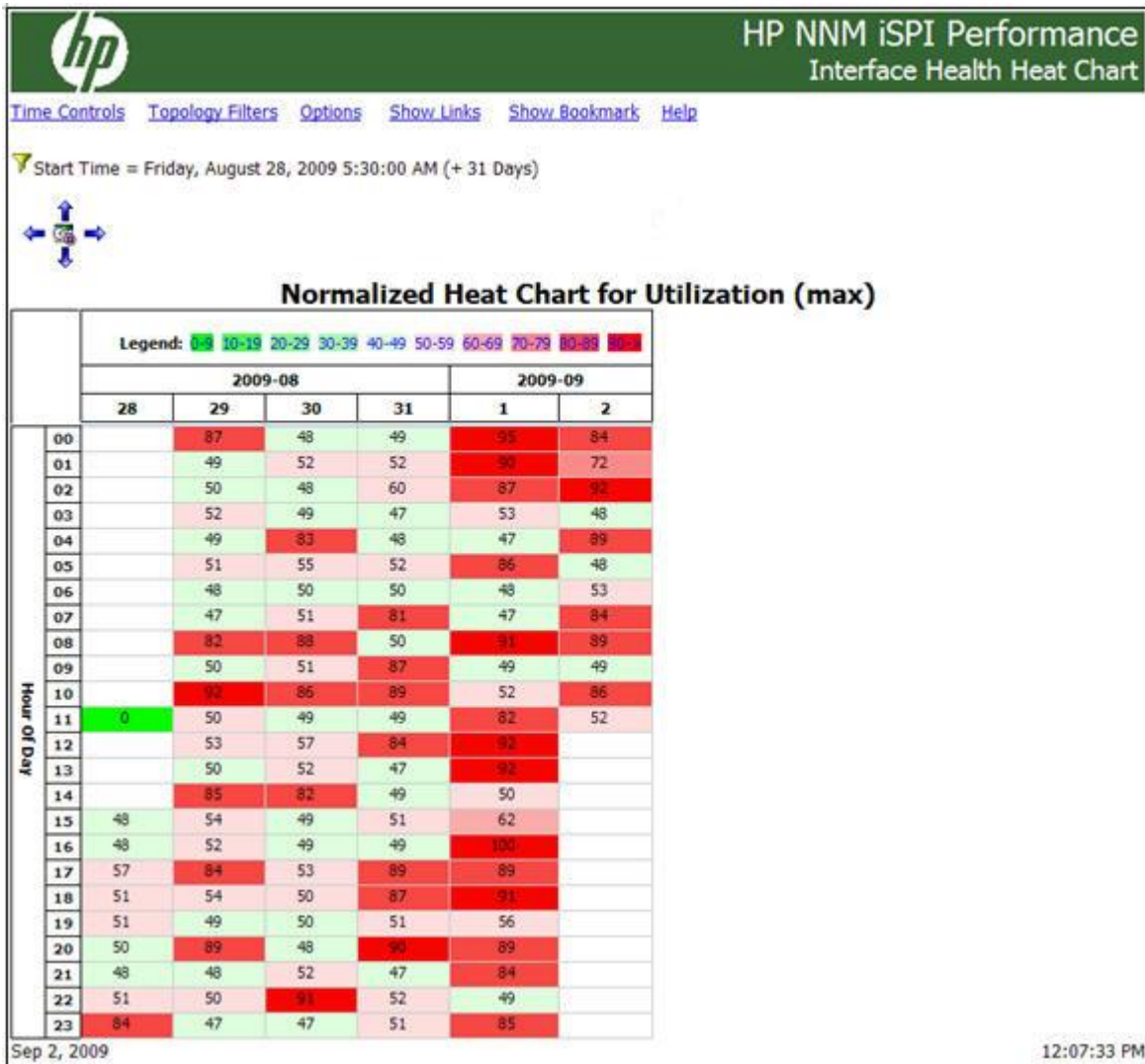
The legend at the top of the report ties a range of normalized performance values to a particular color. Any value within that range will get that color. Beneath the legend, each day of the month is listed left to right, day 1 through 31. Down the side of the report you have each hour of the day. Each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

The Heat Chart defaults to:

- Nodes/Interfaces = All
- Time Period = Last 31 days
- Hour of Day = All
- Day of Week = All
- Metric = Discards – Packets (sum)

Time range options are any period that is not less than 24 hours.

The created Heat Chart Report displays as shown below.



The filter parameters used to create the report appears on the top of the report with the  icon.

You can drill through the specific aspects of the report by clicking a cell from the report and create a report based on the selection from Report Menu. The time range value passed to the drill-through operation is one day for the selected hour.

**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 patterns, and to verify that an abnormal condition returned to normal after a problem was corrected.

**Most Changed Report**

This report compares performance for two continuous time periods yesterday to performance for the day before yesterday, and then ranks elements, interfaces, or nodes by the amount of change. The sort order is most-changed to least-changed.

**Features and Defaults**

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

The table columns are:

**Node/Interface**

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

**Most Changed 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

To modify the rank metric or the Top-N option, click [Report Controls](#).

The created Most Changed Report displays as shown below.

HP NNM iSPI Performance  
 Interface Health Top 10 Most Changed Interface Type

Time Controls Topology Filters Options Show Links Show Bookmark Help

Start Time = Wednesday, September 02, 2009 11:44:00 AM (+ Last 30 Minutes) , Node Vendor = Cisco

Change of Throughput (bps) (avg)

Interface Type	Previous Period	Current Period	Growth Rate (%)	Change
	From: Sep 2, 2009 11:13:59 AM To: Sep 2, 2009 11:44:00 AM	From: Sep 2, 2009 11:44:00 AM To: Sep 2, 2009 12:14:01 PM		
<a href="#">ciscoISLvlan</a>	21,676.71	23,257.33	7.29%	1,580.61
<a href="#">tunnel</a>	9,833.19	9,488.65	-3.50%	-344.55
<a href="#">propVirtual</a>	9,777.01	9,995.35	2.23%	218.34
<a href="#">ethernetCsmacd</a>	10,480.11	10,583.15	0.98%	103.04
<a href="#">mpls</a>	790.46	769.59	-2.64%	-20.87
<a href="#">other</a>	261.30	264.82	1.35%	3.52
<a href="#">softwareLoopback</a>	384.19	386.07	0.49%	1.88
<a href="#">frameRelay</a>	135.30	136.05	0.55%	0.75

Sep 2, 2009 12:09:44 PM

The filter parameters used to create the report appears on the top of the report with the  icon

The node or component names are shown as hyperlink. You can click on the required link and create a report based on the selection.

To see the list of other reports under Interface Health click [Show Links](#).

**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” All Dates/Times will display a warning message “#!Error” in the 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.

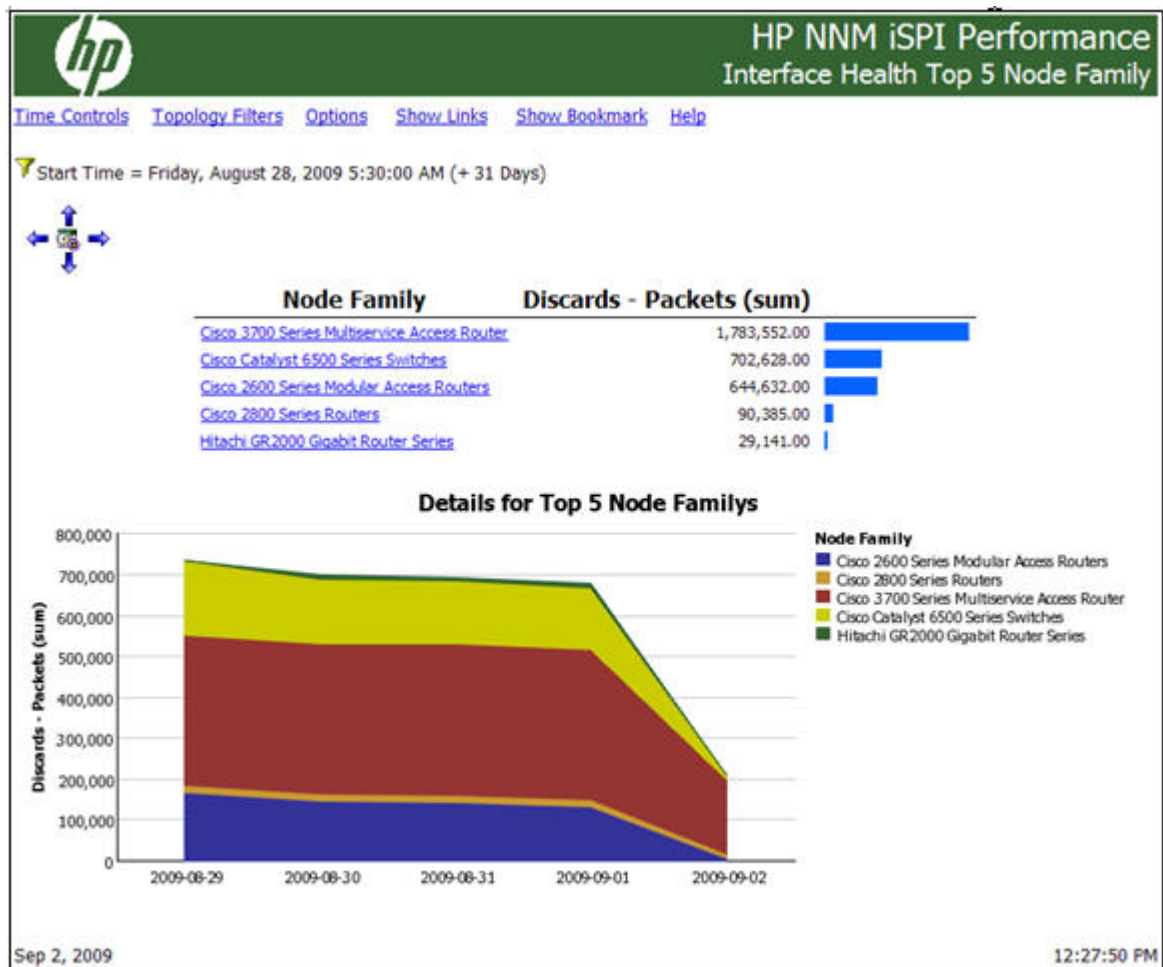
The following are the available filters in the Time Controls pane for Top N Report:

- 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

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 "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.

The created Top N Report with Time Series Chart.



The filter parameters used to create the report appears on the top of the report with the  icon

The element names are shown as hyperlinks. You can click on the link to drill through to Report Menu.

Click **Hide Chart** to hide the detail chart, displaying only the detail table.

Click **Show Chart** to view the chart with the detail table.

## iSPI Performance for Metrics Online Help

Welcome to the iSPI Performance for Metrics

The time range details of the qualified elements are displayed in a graph format. You can hover the mouse pointer to display a pop-up window describing the selection point.

The time range details of the qualified elements are displayed in a graph format. You can hover the mouse pointer to display a pop-up window describing the selection point.

### 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.

## 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.

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. Select **Action-->Path View** from NNM console to view the Path View page.

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

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.

To see a list of other reports under Path Health click [Report Menu](#) . Any report you open from the Report Menu panel will be limited in scope to element you just selected.

To know more about the filters available in the created report click [Report Controls](#)

### **Path Health Report**

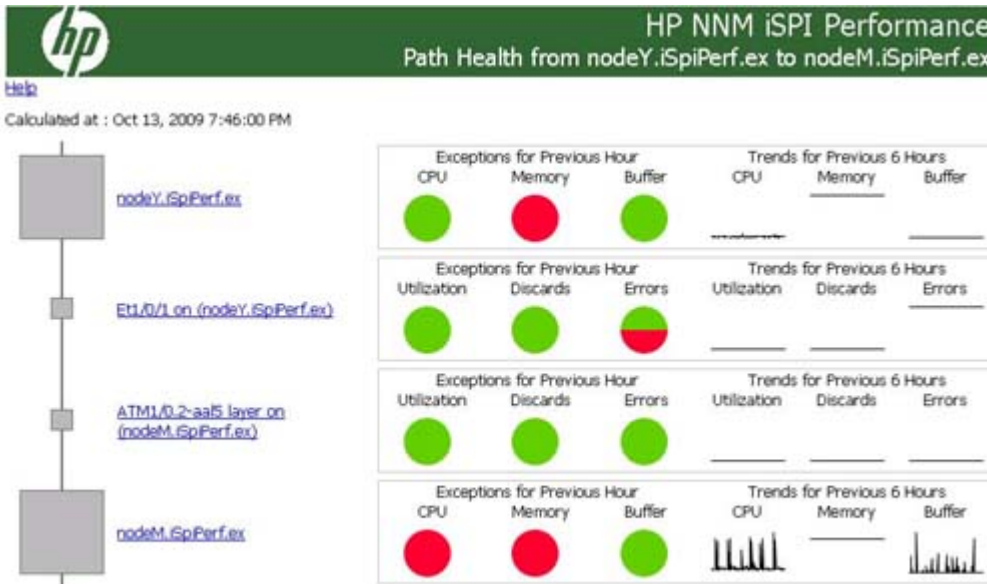
Path Health displays icons representing the nodes and interfaces in a path. A vertical chain of nodes and interfaces represents the path from one managed element to another. Each step along the path (node or interface) shows a series of small pie charts and trend lines depicting activity and performance 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 NNM 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 two Node Groups:

- Network Infrastructure Devices
- 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 Microsoft Windows Systems 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 NNM is polling.

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

The following tasks are monitoring tasks:

- Creating a new node group in NNM
- Making a node group function as a filter in various NNM 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 NNM online help for Administrators if you need help creating new node groups or setting the filter status options.

### **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:

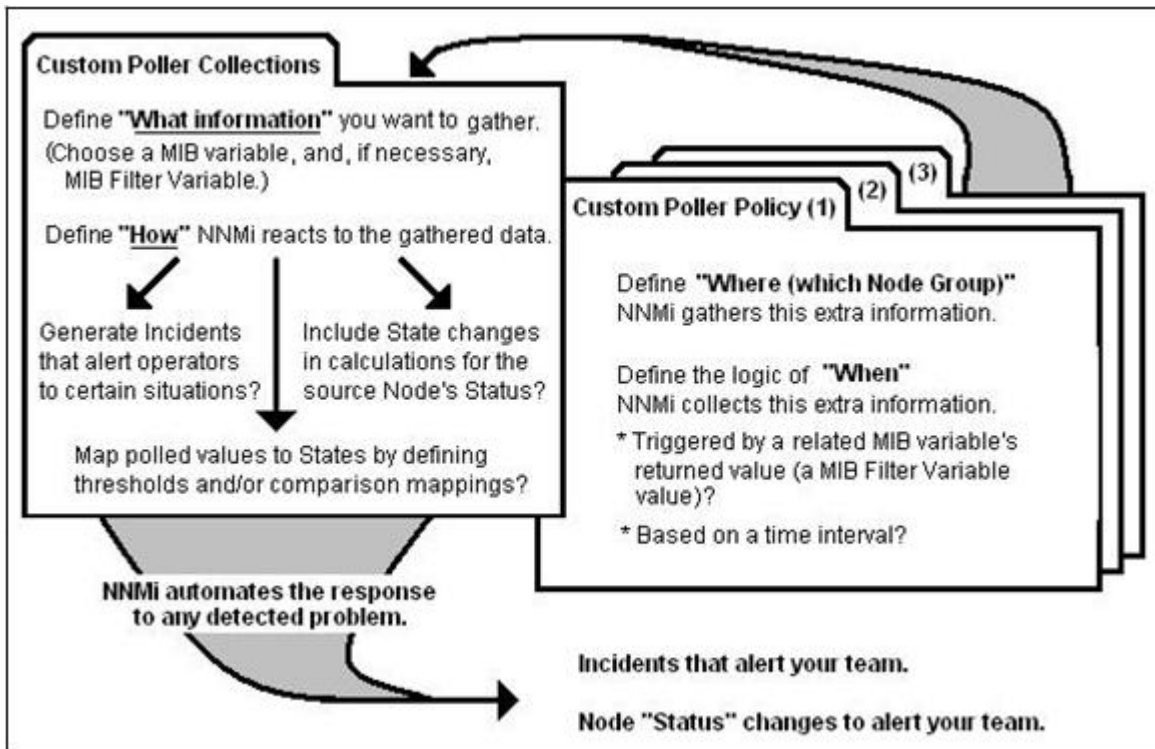
- Send incidents when certain MIB values are detected
- Map returned MIB values to States and include these States as part of node Status calculations.

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 Generate Report Configuration

action menu, which is available with the Custom Poller Configuration form, enables you to generate reports from the metrics obtained from Custom Poller collections.

The Generate Report Configuration action menu is created when you perform one of the following tasks:

- Install the iSPI Performance for Metrics on the NNMi management server.
- Run the `nnmenableperfspi.ovpl` script on the NNMi management server and specify that the iSPI Performance for Metrics will be installed on a dedicated server.

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 invoke the Generate Report Configuration action, 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 invoke the Generate Report Configuration action menu from the NNMi console.

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

**To 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, click **Actions > Generate Report Configuration**. The Custom Poller Report Configuration Generator page opens. The page displays the details specified in the following table.

#### **Custom Poller Report Configuration File Information**

<b>Items</b>	<b>Description</b>
Configuration file name	The name of the configuration file created by NNMi (for use with the iSPI Performance for Metrics).
Grouped by OID	Displays the grouped OIDs, MIB poll variables.
Metrics Collected	The list of the metrics collected by the Custom Poller collection.

#### **Guidelines to Create Additional Extension Pack**

- 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*, and *PerfSPI\_Diagnostics*.

## 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
	Click the drop-down calendar box and select the appropriate date.  By default, the date is automatically set to the current date when you select the Time Range.
	To set the time manually, select the Hour/Minutes/Meridian options separately, and then select the value by clicking the arrow.  By default, the time is automatically set to the current time when you select the Time Range.
Time Range	Click the drop-down menu to display the list of time ranges, and then select the appropriate time.  If you select a time range that is beyond the <b>Start Date and Time</b> , the following message appears:  <code>Your start date/time is out of range. It will be adjusted.</code>

Filter	Usage
	Click <b>OK</b> to adjust accordingly.
Auto Refresh	Click the drop-down menu, and then select the desired time to recreate the reports based on the set interval.  By default, the Auto refresh is OFF.  The Auto Refresh option appears on the Time Controls page only after the first report is generated.

### 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.
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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