# HP Network Node Manager iSPI Performance for **Traffic Software**

For the Windows® operating system

Software Version: 8.13

**Online Help** 

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# Introduction

The HP Network Node Manager iSPI Performance for Traffic software extends the capability of HP Network Node Manager(NNMi) to monitor the performance of the network with respect to the data that is flowing through it. The iSPI Performance for Traffic software aggregates and enriches the data from the IP flow records that is exported by the routers. The product also gives an insight into network traffic and helps to monitor network performance by analyzing the traffic flow.

The iSPI Performance for Traffic, with NNMi, you can perform the following tasks:

- Generate traffic data performance reports by exporting data to the Network Performance Server.
- Flow data filtering and enrichment of applications, dns names
- Historical traffic analysis and reporting fields in the flow records.
- Correlation of obtained IP flow records with NNMi toplogy for context based analysis.
- Understand the network traffic patterns.
- Network application performance management and root cause analysis

# **Accessing Reports**

You can access the HP NNMi Traffic interface Performance Reports in the following ways:

- 1. From the HP NNMi Console
- 2. From the BI Health reports

To access reports from the NNMi Console, follow these steps:

- 1. Log on to the NNMi Console.
- 2. You can also launch the reports scoped by a required topology context. You can select the topology entries before launching the report. The following entities support context based scoping:
  - a. Interfaces
  - b. Interface groups
  - c. Nodes
- 3. Select Action > Reporting. The available report category window opens.
- 4. Select the Interface Traffic tab.

You can use the following options to navigate between the reports or to change the values:

- **Cancel** : Click to perform report cancellation.
- Back: Click to go back to the previous page.
- Next: Click to move to the next page.
- Finish: Click to view the created report.

To access reports from the BI Health reports, follow these steps:

- 1. Log on to the NNMi Console.
- 2. Click the BI Server Portal link. The Cognos 8 Welcome page opens.
- 3. Click Cognos Connection. The Cognos Connection window opens.

- 4. Select Public Folders.
- 5. Click Interface Traffic

# **Metrics**

A network metric is a measure used to calculate the attributes of both the in-coming and out-going IP flow from the routers.

The Traffic iSPI uses these metrics of the IP flow to create Performance reports:

- Volume- In- Bytes
- Volume- Out- Bytes
- Number of Packets -Incoming (sum)
- Number of Packets -Outgoing(sum)
- Number of Flows Incoming (sum)
- Number of flows Outgoing(sum)
- Sample Count
- Period Length

In certain reports like Chart Detail, two metrics are shown. These are designated as:

- Primary Metric
- Secondary Metric

You can select one of the metric as primary metric and compare with secondary metric and view both graphs. The X axis measure represents the time period and the Y axis measure represents bytes.

# **Metric Definitions**

#### Period Length

Period Length is the amount of time for which an individual record represents data.

#### Volume -in- Bytes

Volume -in- Bytes metric represents the volume of incoming flow records to the specified node or interface measured in bytes. Network Node Manager (NNMi 8.10) Online Help: Information for Administrators Introduction

#### Volume -out-Bytes

Volume -out- Bytes metric represents the volume of outgoing flow records to the specified node or interface measured in bytes.

#### Number of Packets (Incoming)

Number of Packets (Incoming) represents the number of in-coming packets to the specified node or component.

#### Number of Packets (Outgoing)

Number of Packets (Outgoing) represents the number of out-going packets to the specified node or component.

#### Number of flows (Incoming)

Number of flows (Incoming) represents the number of in-coming IP flows to the specified node or component.

#### Number of flows (Outgoing)

Number of flows (Outgoing) represents the number of out-going IP flows to the specified node or component.

#### Sample Count

Sample Count is the number of flow records in the database for that time period.

#### Note:

A flow refers to a unique instance of byte transmission between a source and destination IP address that is routed through a particular interface on a router. Incoming means that the data is reported from an ingress interface on the router. Outgoing means that the data was reported from an egress interface on the router.

# **Topology filter**

An NNMi network topology consists of mapped elements such as interfaces, nodes, host systems, and destination systems.

A topology filter facilitates you to apply filter on the attributes of the element of the network.

The following table lists the attributes of the element, and also its content:

Attribute	What it contains
Interface Group name	the list of available Interface Group Names for the specified topology
Destination Host ID	the list of available Destination Host IDs for the specified topology
Destination Host Name	the list of available Destination Host Names for the specified topology

Attribute	What it contains
Destination Host and Application	the list of available Destination Host and Appli- cation for the specified topology
Source Host Destination Host and Application	the list of available Source Host Destination Host and Application for the specified topology
Qualified interface name	the list of available Qualified interface names for the specified topology
Node name	the list of available Node names for the specified topology
Source Host name	the list of available Source Host names for the specified topology
Flow Version	the list of available Flow versions for the specified topology
IP Protocol	the list of available IP Protocol for the specified topology
IP TOS	the list of available IP TOS for the specified topol- ogy
Source Port	the list of available Source Ports for the specified topology
Destination Port	the list of available Destination Ports for the spec- ified topology
Collector Name	the list of available Collector Names for the spec- ified topology

Scoping is a process where multiple topology filters are combined and filtered to create a single report. You can select multiple topology filters and scope them together to view the consolidated report.

The following example provides information on scoping the topology filter:

The administrator selects the following topology filters for creating a report, they are:Collector Name, Destination Host, and Qualified Interface Name.

The metric data is filtered initially by the Collector name, Destination Host and then by the Qualified Interface Name selected. The report is created by the combination of these applied filters. The following figure illustrates this: Network Node Manager (NNMi 8.10) Online Help: Information for Administrators Introduction



# **Report Types**

The iSPI Performance for Traffic provides the following types of reports for you to view the health and performance of the traffic flow in the network.

- <u>"Calendar report" (on page 8)</u>The Calendar report provides the performance report in a weekday format.
- <u>"Chart Detail" (on page 10)</u> The Chart Detail Report provides the network performance report in a plot graph format.
- "High traffic hosts" (on page 14) The High Traffic Hosts report provides the performance report of the host systems with high traffic flow in the network.
- <u>"Heat Chart" (on page 12)</u>The Heat Chart report provides the network performance report in a 24hour color coded format.
- <u>"Most changed" (on page 16)</u> The Most Changed Report provides the performance report of the elements of the network that have recorded the maximum change over a period of time with respect to a single metric.
- <u>"Top N" (on page 18)</u> The Top N report provides the performance report of the top contributors to a chosen traffic metric over the selected period of time.

### **Calendar report**

The Calendar report provides the performance report in a weekday format.

#### Calendar report usage:

You can create the Calendar report by following these steps:

Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click . The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- 3. Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format. You can also to set the required time using
- 4. Select the Time Range from the drop-down list.
- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

#### Note:

Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.

Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
🖽 Multi-Value select	You can use this function select all the available values in the topology element.
🔛 Single-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
Options	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	<ul> <li>search the values that begin with keyword.</li> </ul>
Search	The Search results are displayed in this field.
Search Field	
Insert >	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Remove option          Select all         Deselect all         Deselect all	You can select this option to select all the values. You can use this option to deselect all the values.

Options	Functions
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the **Search** drop-down list to search the particular topology element.
- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click Confirm Selection.

#### Set report options

To select filter options for Calendar and Chart Detail reports, follow these steps:

- 1. Select the Primary Metric from the drop-down list.
- 2. Select the Secondary Metric from the drop-down list.
- 3. Click Confirm Selection.

The Calendar report contains user specified time period, scoped output of the topology filter and selected metric values.

For example, if you select time period as current date, application name as the topology filter, with Volume-In-bytes and Volume-out-bytes as primary and secondary metrics. The report created displays the data with weekdays marked on top of the report. The X axis displays the user specified time period and Y axes displays the primary and secondary metrics.

# **Chart Detail**

The Chart Detail Report provides the network performance report in a plot graph format.

#### Chart Detail report usage:

The Chart Detail report contains user specified time period, scoped output of the topology filter and selected metric values.

You can create the Chart Detail report by following these steps:

Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format.
   You can also to set the required time using .
- 4. Select the Time Range from the drop-down list.

- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

#### Note:

- Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.
- The Chart Detail report provides **Display Grain** drop-down list option. You can select the time granularity interval for creating a report.

#### Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
BultiValue select	You can use this function select all the available values in the topology element.
Single-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
Options	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	• search the values that begin with keyword.
Search	The Search results are displayed in this field.
Search Field	
Insert >	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the Search drop-down list to search the particular topology element.
- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click Confirm Selection.

#### Set report options

To select filter options for Chart Detail reports, follow these steps:

- 1. Select the Primary Metric from the drop-down list.
- 2. Select the Secondary Metric from the drop-down list.
- 3. Click Confirm Selection.

The Chart Detail Report depicts primary metric and the secondary metric in two different colored lines. The dots and peaks in the graph represents the variation in traffic flow pattern.

The Chart Detail provides time granularity option. Using this option, you can create Chart Detail report for various time interval range. The time granularity ranges from five minutes to a month. For example, if the you select the time granularity as five minutes, then the report is created for a five-minute time interval.

# **Heat Chart**

The Heat Chart report provides the network performance report in a 24- hour color coded format.

#### Heat Chart report usage:

You can create a Heat chart report by following these steps:

Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- 3. Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format. You can also to set the required time using
- 4. Select the Time Range from the drop-down list.
- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

#### Note:

Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.

Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
I Multi-Value select	You can use this function select all the available values in the topology element.
🖼 Single-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
options	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	• search the values that begin with keyword.
Search	The Search results are displayed in this field.
Insert >	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the Search drop-down list to search the particular topology element.
- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click **Confirm Selection**.

#### Set report options

To select the report options for the Heat Chart report, follow these steps:

1. Select the Primary Metric from the drop-down list.

#### 2. Click Confirm Selection.

The Heat Chart report displays the percentile value of the user selected metric, with selected time period and scoped output of the topology filters. The Heat chart displays traffic flow by using color code for various severity level.

In the Heat Chart report, each day of the month is depicted with hourly divisions. You can determine the exact hour and day, when the traffic flow is high or low.

The Heat Chart report contains a Legend toolbar that depicts the range of the color codes, for the levels of traffic flow. The Heat Chart also displays the minimum and maximum values present in the report data.

For example, if you select time period as current date, application name as the topology filter, with Volume-In-bytes as the primary metric. The report created displays the data with colored slots depicting the severity of the traffic flow and also the minimum and maximum values present in the report data.

### **High traffic hosts**

The High Traffic Hosts report provides the performance report of the host systems producing high traffic flow in the network. It allows you to perform a top N computation and sort on a selected metric by the source host names. It displays the primary metric as well as the values of additional metrics on the final report.

#### High traffic hosts report usage:

The High traffic hosts report contains user specified time period, scoped output of the topology filter and selected metric values.

You can create the High traffic hosts report by following these steps:

#### Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click . The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- 3. Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format.

You can also to set the required time using  $\lceil imes 
ceil$ 

- 4. Select the **Time Range** from the drop-down list.
- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

#### Note:

Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.

Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
III Multi-Value select	You can use this function select all the available

Options	Functions
	values in the topology element.
Single-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
Options	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	<ul> <li>search the values that begin with keyword.</li> </ul>
Search	The Search results are displayed in this field.
Search Field	
Insert	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all De-select all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the Search drop-down list to search the particular topology element.
- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click Confirm Selection.

#### Set report options

To select report options for the High Traffic Hosts report, follow these steps:

- 1. Select the Top N range from the drop-down list. The drop-down list ranges from Top 5 to Top 25..
- 2. Use **Sorting by** drop-down list to select the required metric on which you want the top N computation to be performed from the drop-down list.
- 3. Click Confirm Selection.

Using the High Traffic Hosts report you can determine the host systems with high traffic flow and various measures that add to the data. The following measures are displayed:

- Number of incoming and outgoing bytes across a host system
- Number of incoming and outgoing packets across a host system
- Volume of incoming and outgoing packets across a host system

The High Traffic host report displays the top hosts contributing to the selected metric over the selected period of time using bar graph formats.

#### Show Chart

This option shows the variation of the metric for the different entries in the bar graph over the selected period as a stacked chart graph. In Heap chart, different colors are used to represent each host name to obtain accurate data. **Note:** The Show Chart option executes a time consuming query, therefore it is provided as an option.

### **Most changed**

The Most Changed Report provides the performance report of the elements of the network which have recorded the maximum change over a period of time with respect to a single metric.

#### Most changed report usage:

You can obtain Most changed report with user specified metric, applied on the topology filter for the selected time interval.

You can create the Most changed report by following these steps:

Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- 3. Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format. You can also to set the required time using
- 4. Select the Time Range from the drop-down list.
- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

Note:

- Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.
- The Chart Detail report provides **Display Grain** drop-down list option.

Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
Bulti-Value select	You can use this function select all the available values in the topology element.
Bingle-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
Opuons	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	• search the values that begin with keyword.
Search	The Search results are displayed in this field.
Insert >	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all De-select all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the Search drop-down list to search the particular topology element.

- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click **Confirm Selection**.

Set report options

To select report options for the Most Changed report, follow these steps:

- 1. Select the Top N range from the drop-down list. The drop-down list ranges from Top 5 to Top 25.
- 2. Select the required metric from the drop-down list.
- 3. Use **Element level** drop-down list to select the attribute of the element for which you want group.
- 4. Click Confirm Selection.

The Most Changed Report depicts the traffic flow data for the selected period and the previous period. The Most Changed reports contains the elements with highest change in traffic flow in the NNMi network. You can also determine the following from the report:

- Previous period traffic flow rate
- Current period traffic flow rate
- Growth rate of traffic flow in percentage
- Actual Change in traffic flow

Using Most Changed report, you can identify the network elements that are affected by the change in traffic flow. You can also perform root cause analysis of the network congestion.

# Тор N

The Top N Report provides the performance report of the top most metric on the applied topology filter for the selected time interval.

#### Top N report usage:

You can create the top N report by following these steps:

Specify time controls

The Traffic interface provides **Time Controls** option that helps you to enter the time period for a report creation.

To provide the time period, follow these steps:

- 1. Click The Calendar window opens.
- 2. Select the date from the Calendar window. The current date is the default date.
- 3. Select the hour, minutes and meridian separately to set the time. The time is in (hh:mm AM) format. You can also to set the required time using
- 4. Select the Time Range from the drop-down list.
- 5. Select the hour from the Hour of the day drop-down list.
- 6. Click Confirm Selection.

Note:

- Using the Auto Refresh field, you can view the refreshed data. You must turn-on the Auto Refresh option, as by default Auto Refresh is OFF.
- The Chart Detail report provides **Display Grain** drop-down list option.

Apply Topology filter

You can select the following options to obtain more granular information on topology filter:

Options	Functions
Bulti-Value select	You can use this function select all the available values in the topology element.
Bingle-Value select	You can use this function select the single avail- able value in the topology element.
	You can use this function to search and select the particular value in the topology element.
Search	You can use this function to improve the searching of the attributes of elements. Using this option you can:
Opuons	<ul> <li>search case sensitive values in the NNMi net- work</li> </ul>
	<ul> <li>search the values containing all or part of the keyword.</li> </ul>
	• search the values that begin with keyword.
Search	The Search results are displayed in this field.
Insert >	You can use these options to insert the selected value.
Remove option	You can use these options to remove the selected value.
Select all	You can select this option to select all the values.
Deselect all De-select all	You can use this option to deselect all the values.
	You can select this option to hide the content.
Hide	

To apply a topology filter, follow these steps:

- 1. Select a topology filter from the Topology filter window.
- 2. Select Single value select or Multi value select for the required topology filter.
- 3. You can also select the Search drop-down list to search the particular topology element.

- 4. Click **Option** link to refine searching process. The **Search** field displays the search result. You can use **Insert** option to insert the value, and **Remove** option to remove the selected value.
- 5. After setting the filters, click **Confirm Selection**.

#### Set report options

To select report options for the Top N report, follow these steps:

- 1. Select the Top N range from the drop-down list. The drop-down list ranges from Top 5 to Top 25.
- 2. Select the required metric from the drop-down list.
- 3. Use Grouping by option to select the attribute of the element for which you want group.
- 4. Click Confirm Selection.

The Top N report displays the high traffic hosts using bar graph by default and also heap chart formats optionally.

#### Show Chart

This option shows the variation of the metric for the different entries in the bar graph over the selected period as a stacked chart graph. In Top N report, different colors are used to represent each contributing entity to obtain accurate data.

Note: The Show Chart option executes a time consuming query, therefore it is provided as an option.

# **Report Assessment**

#### Drill-down for the particular data

You can perform drill-down assessment on each point of the report.

To perform drill-down of the report, follow these steps:

- 1. After creating the report, click on the appropriate point on the graph.
- 2. Click Show links. The Report Menu opens.
- 3. Select the required tab, and click the report type under the selected tab.

You can view the report with the particular data in the selected performance extension and report type.

#### Drill-down for the entire report

After creating a report, you can use the same report and navigate across another report, to view in different Performance SPI.

To view the report in different performance extension, follow these steps:

- 1. After creating the report, click **Show links**. The Report Menu window opens.
- 2. Select the required tab, and click the report type under the selected tab.