

HP Network Node Manager iSPI for IP Telephony Software

For the Microsoft Windows® operating system

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Online Help for Microsoft Exchange Reports

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Note: Some topics do not convert properly to PDF, causing format problems. Some elements of online help are completely removed from the PDF version. Those problem topics can be successfully printed from within the online help.

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Microsoft Exchange Server Reports

The iSPI for IP Telephony provides the Exchange Server extension pack. You can use this extension pack to generate reports for the performance metrics collected using SiteScope from the Microsoft Exchange servers that are part of the Lync site monitored.

You can view the following types of reports using this extension pack:

- [Chart Detail](#)
- [Heat Chart](#)
- [Top N](#)
- [Most Changed](#)
- [Calendar](#)
- [Top N Chart](#)

Prerequisites to Enable Microsoft Exchange Server Reports

You must make sure that the following prerequisites are satisfied to enable Microsoft Exchange server reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.
- Install and configure SiteScope to collect performance metrics from the Microsoft Exchange servers that you want to monitor.
- Create a data integration point between NNMi and SiteScope according to the details specified in the *SiteScope Online Help*.
- Enable performance monitoring for Microsoft Unified Communications and Collaboration Manager using the HP SiteScope IP Telephony link present under the **Integration Module Configuration** workspace. For more details, see the *iSPI for IP Telephony > Microsoft IP Telephony Inventory > Integrating with SiteScope* section in the *iSPI for IP Telephony Online Help*.
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Exchange Server extension pack.

Accessing the Microsoft Exchange Server Reports

To access the Microsoft Exchange Server reports from the NNMi console:

1. Log on to the NNMi console.
2. Click **Actions > Reporting - Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click **UCC Applications > Microsoft Exchange > Exchange_UM**. This displays the reports you can launch for the Microsoft Exchange server.

Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated using the Time Control workspace on the NNM iSPI Performance page.:

To specify time controls, do as follows:




1. Click **Time Control** from the left panel on the NNMi Performance page. This displays the following options:
 - **Relative Start:** sets the date and time for report generation. based on the time frame specified in the **Last** drop-down list. Select **Yes** to enable this option. If you select **No**, you can specify the **Start Date, Time** (start time), the **End Date, Time**(end time), and the **Interval** to be used to generate the reports.
 - **Last:** set the time frame for which the report must be generated from this drop-down list. You can select one of the following options:
 - 1 Minute
 - 5 Minutes
 - 15 Minutes
 - 30 Minutes
 - 1 Hour
 - 2 Hours
 - 12 Hours
 - 24 Hours
 - 7 Days
 - 31 Days
 - Other: Select this option to specify the time frame of your choice.
2. **Grain:** set the interval at which the report must represent data.
3. **Time Zone:** Select the time zone based on which you want to generate the report, from this drop-down list.
4. **Auto Refresh:** set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report. This option is enabled only if you enable the **Relative Start** option.
5. Click **Submit** to apply the changes.

Specifying Topology Filters

Topology filters allow you to scope or filter the reports based on the various combinations of the Microsoft Exchange server performance values available in the accumulated metric data.

You can use the Topology Filter page to specify the topology filters that you require.

To access the Topology Filter page and specify the topology filters, do as follows:

1. From any report that is displayed, click **Topology Filters** from the menu. This displays the Topology Filter page.
 2. Select the topology filter as required from the list of topology filters using any of the following methods:
 - If you want to select only one value for a topology attribute, click the **Single value select** icon,  and then select a value of your choice.
 - If you want to select multiple values, click the **Multi value select** icon , and then select values of your choice (by using the Control **Ctrl**-key).
 - If you want to search and select a value from a list of values, click the **Search and Select** icon .
 - This displays the following options:
 - **Keywords:** selecting the **Keywords** check box helps you search for values based on the keywords that you specify in the box provided. You can specify multiple keywords separated by white spaces. Click the **Options** link to and select from the available options to specify how the specified keywords must be used to perform the search. You can select the **Case insensitive** check box if you do not want the keywords to be searched based on case sensitivity.
 - **Results:** This list displays the topology filter values that match the specifications you provided after you click the **Search** button. You can select the values that you want and click the **Insert** button to move the selected values to the **Choices** list. The report uses the topology filter values in the Choices list to generate the report.
 - **Choices:** This list displays the topology filter values that you have selected to generate the report. You can select values that you do not want to be used and then click the **Remove** button to move the values back to the Results list.
- Note:** You can use the **Select All** link to select all the listed values. You can use the **Deselect All** link to clear all the selected values.
3. Select the **Not** option to specify that the selected topology filter must not be considered when generating the report.
 4. Click **Apply** and then click **Confirm Selection** to select the topology filter and generate the report.

Note: You can click **Reset** to clear all the topology filters you selected.

You can specify the topology filters based on the following attributes or dimensions.

Topology Filter	Description
NodeGroup Name	The name of the node group.
Node UUID	The UUID of the node.
Node Name	The name of the node.
Node Contact	The contact for the node.

Topology Filter	Description
Node Location	The location of the node.
Node Family	The family that the node is a part of.
Node Vendor	The vendor for the node.
Node ID	The unique ID of the node.
Node ODBID	The ODBID of the node.
Node HostName	The host name for the node.
Tenant Name	The tenant name associated with the node.
Tenant UUID	The tenant UUID associated with the node.
SecGroup Name	The security group name associated with the node.
SecGroup UUID	The security group UUID associated with the node.
Monitor Name	The server monitor name.
Monitor Type	The server monitor type.
Site Name	The user-configured NNMi Site.
Site UUID	The site UUID
Lync Site Name	The Lync Site name
Lync Site UUID	The Lync Site UUID.
Pool FQDN	The pool FQDN.

Note: On the Topology Filters page, if you do not find a specific attribute value that you want to include in the filter selection from the **Selection** list, verify the following details:

- The Topology Filters page lists the attribute values in the **Selection** list. The list of attribute values are displayed based on all the metric records available in the database at a given point of time. To select the specific attribute values, make sure that an hour has elapsed on the network.
- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific attribute. If you are unable to find a specific value in the list, you can click the **Search and Select** icon to select the value of your choice.

Specifying Metrics for Reports


You can use the **Options** link to specify the metrics or the attribute distinct count, based on which you want to generate the report.

To access the Report Options page and specify the metrics, do as follows:

Online Help for Microsoft Exchange Reports

Microsoft Exchange Server Reports

1. From any report that is displayed, click **Options** from the menu. This displays the Report Options page.
2. Select the primary metric and the secondary metric from the respective drop-down lists as required for the report.

Note: You can add more metrics for the report by clicking the  (Add) icon and then selecting the metric of your choice from the drop-down list displayed.

3. Click **Confirm Selection** to generate the report.

Click here to see the metrics that you can select to generate reports.

Exchange Server Metrics	Description
¹ Failed Mailbox Connection% (Last Hour)	The percentage of failed mailbox connection attempts for the last hour.
Exception - Failed Mailbox Connection% (Last Hour) (sum)	Indicates the quality of the metric.
¹ Rejected Inbound Calls by UM Service% (Last Hour)	The percentage of inbound calls rejected by the Unified Messaging (UM) service in the last hour.
Exception - Rejected Inbound Calls by UM Service% (Last Hour) (sum)	Indicates the quality of the metric.
¹ Rejected Inbound Calls by UM Worker% (Last Hour)	The percentage of inbound calls rejected by the UM worker process in the last hour.
Exception - Rejected Inbound Calls by UM Worker% (Last Hour) (sum)	Indicates the quality of the metric.
¹ Voice Message Failures% (Last Hour)	The percentage of voice messages for which transcription failed in the last hour.
Exception - Voice Message Failures% (Last Hour) (sum)	Indicates the quality of the metric.
¹ Average Hub Transport Access Failures%	The percentage of average hub transport access failures.
Exception - Average Hub Transport Access Failures% (sum)	Indicates the quality of the metric.
¹ Call Answering Rules Download Failures%	The percentage of call answering rules download failures.
Exception - Call Answering Rules Download Failures% (sum)	Indicates the quality of the metric.
¹ Calls Disconnected Error/sec	The number of calls disconnected in a second after an external error occurred,
Exception - Calls Disconnected Error/sec (sum)	Indicates the quality of the metric.
¹ Directory Access Failures (sum)	The sum of the directory access failures.

Exchange Server Metrics	Description
Exception - Directory Access Failures (sum)	Indicates the quality of the metric.
¹ Failed Mailbox Connection Attempts%	The percentage of mailbox connection attempts that failed.
Exception - Failed Mailbox Connection Attempts%	Indicates the quality of the metric.
Counters in Error (sum)	The sum of the metrics error count.
Exchange Server Distinct Count	Description
NodeGroup Name (countDistinct)	The distinct count of the name of the node group.
Node UUID (countDistinct)	The distinct count of theUUID of the node.
Node Name (countDistinct)	The distinct count of the name of the node.
Node Contact (countDistinct)	The distinct count of the node contact.
Node Location (countDistinct)	The distinct count of the location of the node.
Node Family (countDistinct)	The distinct count of the family that the node is a part of.
Node Vendor (countDistinct)	The distinct count of the vendor for the node.
Node ID (countDistinct)	The distinct count of the unique ID of the node.
Node ODBID (countDistinct)	The distinct count of the ODBID of the node.
Node HostName (countDistinct)	The distinct count of the host name for the node.
Tenant Name (countDistinct)	The distinct count of the tenant name associated with the node.
Tenant UUID (countDistinct)	The distinct count of the tenant UUID associated with the node.
SecGroup Name (countDistinct)	The distinct count of the security group name associated with the node.
SecGroup UUID (countDistinct)	The distinct count of the security group UUID associated with the node.
Monitor Name (countDistinct)	The distinct count of the Monitor Name.
Monitor Type (countDistinct)	The distinct count of the Monitor Type.
Site Name	The user-configured NNMi Site.
Site UUID (countDistinct)	The site UUID
Lync Site Name (countDistinct)	The Lync Site name
Lync Site UUID (countDistinct)	The Lync Site UUID.

Exchange Server Metrics	Description
Pool FQDN (countDistinct)	The pool FQDN.

¹You can select any of the following options for the metric:

- Average (avg)
- Minimum (min)
- Maximum (max)

Note: The distinct count of attributes represents the sum of the occurrences of unique values for the attributes. For example, if you select the Node Name (countDistinct) metric, and three distinct node names had participated during the time specified, the report lists the value for the Node Name (countDistinct) as 3.

Types of Reports

This extension pack helps you to generate the following types of reports based on the metrics that you specify:

- [Chart Detail](#)
- [Heat Chart](#)
- [Top N](#)
- [Most Changed](#)
- [Calendar](#)
- [Top N Chart](#)

Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month.

To launch a Calendar Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page 7) to launch the Calendar report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page 8) section.
Note: If you select a time range that is less than 24 hours, the report displays the following message: This report is not designed to operate with a time range of less than 24 hours. Please modify your time selections.
3. Perform the steps in the section "[Specifying Topology Filters](#)" (on page 8) to be applied on the report.
4. Perform the steps listed in the "[Specifying Metrics for Reports](#)" (on page 10) to specify the primary metric and the secondary metric for the report.
5. Click **Confirm Selection** to generate the report.

Chart Detail Report

This report plots the selected server metrics on a chart at each display grain interval within the specified time frame. This report helps you to do a detailed analysis of the trend of aggregated metric values (aggregated at selected display grain interval) over a period of time. Based on your requirements, you can select a pair of metrics for which you want to analyze the data.

To launch a Chart Detail Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page 7) to launch the Chart Detail report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page 8) section.
3. Perform the steps in the section "[Specifying Topology Filters](#)" (on page 8) to specify the topology filters to be applied on the report.
4. Perform the steps listed in the "[Specifying Metrics for Reports](#)" (on page 10) to specify the primary metric and the secondary metric for the report. You can select one of the following options from the **Chart or Table** drop-down list to specify the format in which you want the report to be displayed:
 - **Chart:** specifies the report to be displayed as a chart. The Chart Detail report uses this option by default.
 - **Table:** specifies the report to be displayed in a tabular format. The table lists the rows based on the specified display grain (time interval) and displays the corresponding values for the primary and the secondary metrics.
 - **Chart and Table:** specifies the report to be displayed both in a chart and a tabular format.
5. Click **Confirm Selection** to generate the report.

Heat Chart Report

This report displays the hourly values of the selected server metric in a color-coded tabular format. The report lists the hour of the day vertically and the day of the month horizontally. The report also displays the legend for the color coding on top of the report using which you can identify the color code used to represent the specific value ranges for the metric. Based on your requirement, you can select a metric for which you want to see the value range across a specified time frame.

Note: You can launch this report for a minimum time frame of 24 hours only.



To launch a Heat Chart Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page 7) to launch the Heat Chart report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page 8) section.
3. Perform the steps in the section "[Specifying Topology Filters](#)" (on page 8) to specify the topology filters to be applied for the report.
4. Perform the steps listed in the "[Specifying Metrics for Reports](#)" (on page 10) to specify the primary metric and the secondary metric for the report.
5. Click **Confirm Selection** to generate the report.

Top N Report

Based on your selection metrics, this report ranks the attribute values in the ascending or descending order of the total raw values of the metric. The report displays the rank of the metric value along with the metric value and the percentage of the metric value with respect to all the values listed. Based on your requirement, you can select a metric using the **Options** link and specify the topology filter using the **Topology Filter** link to fine tune the analysis. You can use this report to identify the metric values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the metrics that exhibit unusual occurrence levels.



To launch a Top N Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page 7) to launch the Top N report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page 8) section.
3. Click **Options** from the menu.
4. Select the topology filter to be applied for the report from the **Grouping by:** drop-down list.
Note: You can select multiple server attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the server attributes. You can remove the additional server attribute drop-down lists displayed by clicking the **Remove Grouping** icon .
5. Select the metric for the report from the **Metric:** drop-down list.
6. Select one of the following options from the **Top N:** drop-down list to view the report for the specified number of attributes:
 - **Top 5:** lists five of the specified attributes with the maximum metric value in the descending order of the value, with the highest value at the top of the list.
 - **Top 10:** lists 10 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 25:** lists 25 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 50:** lists 50 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 100:** lists 100 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Bottom 5:** lists five of the specified attributes with the lowest metric value in the ascending order of the value, with the lowest value at the top of the list.
 - **Bottom 10:** lists 10 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Bottom 25:** lists 25 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.

- **Bottom 50:** lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Bottom 100:** lists 100 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Sort All in Descending:** lists all the specified attributes with the metric value in the descending order of the value, with the highest value at the top of the list.
 - **Sort All in Ascending:** lists all the specified attributes with the metric value in the ascending order of the value, with the lowest value at the top of the list.
7. You can select **Yes** from the **Display Time Series Chart** drop-down list if you want the report to display the data in the form of a chart. The chart uses a different color to plot each Top N attribute. Alternatively, you can click the **Show Chart** link to view the chart after you generate the report.
 8. Click **Confirm Selection** to generate the report.

Most Changed Report

This report compares the variation in the metric values for two different (consecutive) time periods for specified grouping of server attributes and ranks these groups of attributes based on the variation. The sort order lists the attributes from the attributes with the most changed values to the attributes with the least changed values. The report displays the value of the metric for the previous time frame and the current time frame along with the difference and the percentage of change in the value. Based on your requirement, you can select a metric, specify the attribute to group by, select the topology filter to scope the report only for certain attribute values, and specify the time range before generating the report.

You can select multiple server attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the server attributes. You can remove the additional server attribute drop-down lists displayed by clicking the **Remove Grouping** icon .

Note: You can generate a Most Changed Report on an Hourly (**H**), Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

To launch a Most Changed Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page [7](#)) to launch the Most Changed report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page [8](#)) section.
3. Click **Options** from the menu.
4. Select the topology filter to be applied to the report from the **Grouping by:** drop-down list.
5. Select the metric for the report from the **Metric:** drop-down list.
6. Select one of the following options from the **Top N:** drop-down list to view the report for the specified number of attributes.
 - **Top 5:** lists the top five specified attributes with the maximum metric value variation in the descending order of the value with the highest value at the top of the list.



- **Top 10:** lists the top 10 specified attributes with the maximum metric value variation in the descending order of the value with the highest value at the top of the list.
- **Top 25:** lists the top 25 specified attributes with the maximum metric value variation in the descending order of the value with the highest value at the top of the list.

7. Click **Confirm Selection** to generate the report.

Top N Chart Report

Based on your selection of the attributes and the metric, this report ranks the attribute values in the ascending or descending order of the total raw values of the metric along with a chart that plots the change of values over the specified time frame. Based on your requirement, you can select a metric using the **Options** link and specify the topology filter using the **Topology Filter** link to fine tune the analysis.

To launch a Top N Chart Report based on your requirements, do as follows:

1. Perform the steps in the section "[Accessing the Microsoft Exchange Server Reports](#)" (on page [7](#)) to launch the Top N report for a specific time frame.
2. Specify the time controls for the report as mentioned in the "[Specifying Time Controls](#)" (on page [8](#)) section.
3. Click **Options** from the menu.
4. Select the topology filter to be applied for the report from the **Grouping by:** drop-down list.
Note: You can select multiple server attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the server attributes. You can remove the additional server attribute drop-down lists displayed by clicking the **Remove Grouping** icon .
5. Select the metric for the report from the **Metric:** drop-down list.
6. Select one of the following options from the **Top N:** drop-down list to view the report for the specified number of attributes:
 - **Top 5:** lists five of the specified attributes with the maximum metric value in the descending order of the value, with the highest value at the top of the list.
 - **Top 10:** lists 10 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 25:** lists 25 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 50:** lists 50 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Top 100:** lists 100 of the specified attributes with the maximum metric value in the descending order of the value with the highest value at the top of the list.
 - **Bottom 5:** lists five of the specified attributes with the lowest metric value in the ascending order of the value, with the lowest value at the top of the list.
 - **Bottom 10:** lists 10 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.

- **Bottom 25:** lists 25 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Bottom 50:** lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Bottom 100:** lists 100 of the specified attributes with the lowest metric value in the ascending order of the value with the lowest value at the top of the list.
 - **Sort All in Descending:** lists all the specified attributes with the metric value in the descending order of the value, with the highest value at the top of the list.
 - **Sort All in Ascending:** lists all the specified attributes with the metric value in the ascending order of the value, with the lowest value at the top of the list.
7. You can select **Yes** from the **Display Time Series Chart** drop-down list if you want the report to display the data in the form of a chart. The chart uses a different color to plot each Top N attribute. Alternatively, you can click the **Show Chart** link to view the chart after you generate the report.
 8. Click **Confirm Selection** to generate the report.

Types of Reportlets


This extension pack helps you to generate the following types of reportlets based on the metrics that you specify:

- [Top N Chart](#)
- [Top N Line Chart](#)
- [Top N Stacked Chart](#)
- [Top N Table](#)
- [Top N Table With Bars](#)

To access the reportlets, click the **Reportlets** workspace from the NNM iSPI Performance Report Menu page.


Top N Chart Reportlet

This reportlet displays the top 10 instances of the **Failed Mailbox Connection** metric in the descending order of the raw value on a chart.

You can click the  (Toggle Options) icon to select the metrics of your choice and click **Confirm Selection** to regenerate the reportlet.


Top N Line Chart Reportlet

This reportlet displays the top 10 instances of the **Failed Mailbox Connection** metric in the descending order of the raw value on a chart. This reportlet displays the data by plotting the metric using a line on the chart over the time period.

You can click the  (Toggle Options) icon to select the metrics of your choice and click **Confirm Selection** to regenerate the reportlet.


Top N Stacked Chart Reportlet

This reportlet displays the top 10 instances of the **Failed Mailbox Connection** metric in the descending order of the raw value on a chart. This reportlet displays the data by combining the metric value for all the top 10 instances on the chart over the time period.

You can click the  (Toggle Options) icon to select the metrics of your choice and click **Confirm Selection** to regenerate the reportlet.


Top N Table Reportlet

This reportlet displays the top 10 instances of the **Failed Mailbox Connection** metric in the descending order of the raw value on a chart. This reportlet displays the data in a table listing the top 10 instances for the metric.

You can click the  (Toggle Options) icon to select the metrics of your choice and click **Confirm Selection** to regenerate the reportlet.

Top N Table with Bars Reportlet

This reportlet displays the top 10 instances of the **Failed Mailbox Connection** metric in the descending order of the raw value on a chart. This reportlet displays the data in a table listing the top 10 instances for the metric along with a bar adjacent to the instance that depicts the value for that instance of the metric.

You can click the  (Toggle Options) icon to select the metrics of your choice and click **Confirm Selection** to regenerate the reportlet.



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