# HP Network Node Manager iSPI for IP Telephony Software

For the HP-UX, Linux, and Solaris operating systems

Software Version: 9.20

## Online Help for 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.

# Contents

# Chapter 1

# Avaya IP Telephony Reports

The NNM iSPI for IP Telephony provides you with the following extension packs to view and analyze the performance data of the Avaya IP telephony environment:

- Avaya_IPT_Call_Terms_Types
- Avaya_IPT_CDR_Collection
- Avaya_IPT_CMProcOccupancy_Sum
- Avaya_IPT_MGW_Calls
- Avaya_IPT_NWReg_DSP_CODEC_Sum
- Avaya_IPT_PN_Load_Stats
- Avaya_IPT_TG_Calls
- Avaya_IPT_TG_RP_Usage
- Avaya_IPT_Trunk_Activity
- Avaya_IPT_RTP_Session Metrics

# Avaya IP Telephony Call Types and Termination Reasons Reports

The iSPI for IP Telephony provides the Avaya IPT Calls Terms Types extension pack. You can use this extension pack to generate reports based on the call types and call termination reasons. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

You can filter the reports based on specific dimensions such as Call Types, Termination Reasons, Direction, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. This extension pack helps you in long-term capacity planning.

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

- Chart Detail
- Heat Chart
- Top N
- Top N Chart

- Most Changed

- Calendar

- Peak Period

# Prerequisites to Enable Avaya Call Types and Termination Reasons Reports

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony call types and termination reasons reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Configure the iSPI for IP Telephony to enable CDR data collection from the Avaya Communications Manager. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Avaya** section for additional information.

- Enable Avaya CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya CDR Reporting** section for additional information.

- Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Avaya IPT Calls Terms Types extension pack.

# Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports

**To access the Avaya IP Telephony Call Types and Termination Reasons Reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click **Avaya IP Telephony** > **Avaya_IPT_Calls_Terms_Types** > **Termination_Reasons_ and_Types_Avaya** to see a list of reports you can launch using this extension pack.

4. You can click any report format to launch the specific report based on the default metrics (**Call Duration (secs) (avg)**) as the primary metric and the **Period Length (secs) (sum)** as the secondary metric with no Topology Filter selected.

After launching a report, you can generate a report based on your requirements by specifying the following details:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Communications Manager IP Address and call quality metrics such as Call Duration, Period Length, and so on. 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 .
     - If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that handled the call. |
| Call Type | The type of the call. |

| Attribute | Description |
|---|---|
| Termination Reason | The reason for the termination of the call. |
| SGUUID | The UUID of the security group associated with the communications manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call attribute values in the **Selection** list. The list of attribute values are displayed based on all the call metric records available in the database at a given point of time. To select the specific attribute values for a call, make sure that an hour has elapsed on the network after the completion of the call.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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 call metrics or the call 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:**

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.

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

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

| Metric | Description |
|---|---|
| Call Duration (secs) (avg) | The average call duration in seconds. |
| Sample Count | The sample count of the hourly data records stored in the Network Performance Server (NPS). |
| [1]Duration (secs ) | The duration of the calls in seconds.<br><br>**Note:** You must not select the average value for this metric while generating the report. You may select the average value for the Call Duration (secs) metric. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Top N Chart

- Most Changed

- Calendar

- Peak Period

# Chart Detail Report

This report plots the selected call 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.

For example, if you select the **Sample Count** as the primary metric, the **Call Duration (avg)** as the secondary metric, generate the report, and then select the **Display Grain** as one hour, you can analyze the trend for the Hourly Call Attempts (HCA) and the Busy Hour Call Attempts (BHCA) along with the average duration for every hour.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 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 22 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 22to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 call 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. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

For example, if you want to identify the hour of the month, week, or day when the number of call attempts were the highest, you can select the **Sample Count** as the metric and set the time control options to the default values for this report as discussed in the previous paragraph and then generate the report. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 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 22 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 22to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 24 to specify the primary metric and the secondary metric for the report.

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

**Sample Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a call metric. For example, if you select the call count (**Sample Count (sum)**) metric to generate the Heat Chart report, you can use the report to identify the following instances on your IP Telephony network:

- Spot an isolated instance (when the metric value was high) such as the Busy Hour Call Attempts (BHCA) that affected the results for one day.

- Spot day-of-the-week patterns.

- Verify that a high call volume or call duration condition returned to normal after a period of time.

# Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list .

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

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Communication Manager IP Address**

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 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 22 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 call metric values for two different (consecutive) time periods for specified grouping of call attributes and ranks these groups of call 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 call 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 call metric, specify the call attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

For example, if you want to analyze the overall call volume variation for all the communication managers in your deployment environment over a specified time frame, click the **Options** link and select the **Communications Manager IP Address** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Communications Manager IP Address call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 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 22 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.

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two call metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month. You can select the **Until Now** option from the **Time Range** drop-down list to see the call data for the past 70 days, based on the duration for which the iSPI for IP Telephony has been processing the CDR data and sharing this data with the NPS.

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 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 22 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 22 to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 24 to specify the primary metric and the secondary metric for the report.

5. 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 Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 22 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## Peak Period Report

This report by default, displays the top 10 calls based on the **Call Duration (secs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Call Types and Termination Reasons Reports" on page 21 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 22 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1.  Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2.  Click **Avaya IP Telephony**.

3.  Click **Avaya_IPT_Calls_Terms_Types**

4.  Click **Termination_Reasons_and_Types_Avaya**. This opens the Termination_Reasons_ and_Types_Avaya page.

5.  Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
    - Chart Detail

    - Heat Chart

    - Top N

    - Top N Chart

    - Most Changed

    - Calendar

6.  Click a report template. This opens the Time Controls page.

7.  Specify the following details for the time controls:
    - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

    - **Display Grain**: set the interval at which the report must represent data.

    - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony reports.

    - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

    - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8.  Click **Confirm Selection**. This opens the Topology Filter page.

9.  Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony CDR Reports

The NNM iSPI for IP Telephony provides the Avaya IP Telephony CDR extension pack. You can use this extension pack to generate reports for the call metrics: call count (Sample Count) and call duration. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

You can filter the reports based on the various attributes of the of the calls, such as the IP address of the communication manager that handled the call, the calling party number, the called party number, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

You can use this extension pack to report on the multiple dimensions (attributes) of a call. The extension pack retains the data in the Network Performance Server (NPS) for a short period of time (32 days). You can use the data for short-term operational reporting and run the reports once a month. You can use the reports for further analysis using custom tools.

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

- Chart Detail
- Heat Chart
- Top N
- Most Changed
- Calendar
- Recent Calls
- Peak Period

# Prerequisites to Enable Avaya CDR Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony CDR reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics/NPS) in your deployment environment before installing the NNM iSPI for IP Telephony. If you have installed the NNM iSPI for IP Telephony before installing the iSPI Performance for Metrics/NPS, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics/NPS in your deployment environment.

- Configure the NNM iSPI for IP Telephony to enable CDR data collection from the Avaya Communications Manager. See the *Online Help* for the iSPI for IP Telephony > **Help for**

**Administrators** > **Configure Data Access** > **Configure Data Access for Avaya** section for additional information.

- Enable Avaya CDR reporting in the NNM iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya CDR Reporting** section for additional information.

- Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Avaya IP Telephony CDR extension pack.

# Accessing the Avaya IP Telephony CDR Reports

**To access the Avaya IP Telephony CDR reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Call Details** > **AvayaIPTCDRMetrics** to view a list of the supported Avaya CDR Report formats.

4. You can click any report format to launch the specific report based on the default metrics

5. This generates the report based on the default metrics (**Call Duration (secs) (avg)**) as the primary metric and the **Period Length (secs) (sum)** as the secondary metric with no Topology Filter selected.

6. After launching a report, you can generate a report based on your requirements by specifying the following details:

   - Specify time controls

   - Specify topology filters

   - Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

The NNM iSPI for IP Telephony marks the call metric data with a universal time stamp known as *seconds since epoch*, which directly reflects the Universal timestamp (in *seconds since epoch*) on the Avaya Communications Manager server that logged the call. The Network Performance Server (NPS) converts this timestamp into the local time as defined by the location of the NPS. If the Avaya Communications Manager server that logged the call is in a different time zone when compared to the time zone of the NPS or the NNM iSPI for IP Telephony, the NPS data will not be in synchronization with the local time of the Avaya Communications Manager server.

Note that when you generate the reports, the NPS converts the time the call was handled by the Avaya Communications Manager server to the local time on the NPS. The reports display this converted time and not the time the call was handled by the Avaya Communications Manager server.

When configuring the NNM iSPI for IP Telephony to access the CDR data on the Avaya Communications Manager server, you must specify the time zone of the Avaya Communications Manager server. The NNM iSPI for IP Telephony uses this time zone information to correctly determine the universal timestamp (*seconds since epoch*) for the call origination time.

# Specifying Topology Filters

Topology filters allow you to scope or filter the call metric reports based on the various combinations of the call attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Communications Manager IP Address, Calling Party Number, Called Party Number, and so on. 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 .

     ○ If you want to search and select a value for a topology filter 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 of the calls.

| Call Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that handled the call. |
| Outbound Access Code Dialed | The access code dialed for calls outbound from the communication manager that handled the calls. |
| Outbound Trunk Group Access Code | The Trunk Group Access Code (TAC) of the |

| Call Attribute | Description |
|---|---|
| | outbound trunk group used by the communication manager that handled the outbound routing of the call. |
| Outbound Trunk Group | The outbound Trunk Group name or number used by the communication manager that handled the outbound routing of the call. If you do not see the required list of Trunk Group names or numbers in the selection list, verify that the Trunk Group Access Code (TAC) for all the trunk groups are displayed correctly by the NNM iSPI for IP Telephony in the Trunk Group Detail Form. You can specify the correct TAC by editing the value in the Trunk Group Detail Form and saving the form (using the **Save and Close** button on the form). After saving the TAC, the next time the iSPI for IP Telephony processes such a call, the values Trunk Group Names or numbers are listed for you to select. |
| Outbound Trunk Port | The outbound trunk port used by the communication manager that handled the outbound call. |
| Outbound Trunk Port Network Number | The outbound trunk port network number used by the communication manager that handled the outbound call. |
| Outbound Signaling Group | The outbound signaling group used by the communication manager that handled the outbound call. |
| Inbound Trunk Group Access Code | The Trunk Group Access Code (TAC) of the inbound trunk group used by the communication manager that handled the call at inbound. |
| Inbound Trunk Group | The inbound Trunk Group name or number used by the communication manager that handled the inbound call. If you do not see the required list of Trunk Group names or numbers in the selection list, verify that the Trunk Group Access Code (TAC) for all the trunk groups are displayed correctly by the NNM iSPI for IP Telephony in the Trunk Group Detail Form. You can specify the correct TAC by editing the value in the Trunk Group Detail Form and saving the form (using the **Save and Close** |

| Call Attribute | Description |
|---|---|
|  | button on the form). After saving the TAC, the next time the iSPI for IP Telephony processes such a call, the values Trunk Group Names or numbers are listed for you to select. |
| Inbound Trunk Port | The inbound trunk port used by the communication manager that handled the outbound call. |
| Inbound Trunk Port Network Number | The inbound trunk port network number used by the communication manager that handled the outbound call. |
| Inbound Signaling Group | The inbound signaling group used by the communication manager that handled the outbound call. |
| Calling Party Number | The number from where the call originated as registered by the communication manager that handled the call. |
| Called Party Number | The number to which the call was made as registered by the communication manager that handled the call. |
| Calling Party Location | Specifies the location of the party from where the call originated. |
| Calling Party Site Code | Specifies the site code configured for the party from where the call originated. |
| Calling Party Mail-Code | Specifies the mail code configured for the party from where the call originated. |
| Call Classification | The classification of the call. You can select any or all of the following options to filter information:<br><br>• Inbound<br><br>• Outbound<br><br>• Tandem<br><br>• Intra Switch<br><br>• Unknown |
| Termination Reason | The reason for termination of the call. |
| Failed Call | Indicates whether a call terminated due to a failure condition. The possible values include the following: |

| Call Attribute | Description |
|---|---|
| | <ul><li>No: signifies that the call did not terminate due to a failure condition.</li><li>Yes: signifies that call terminated due to a failure condition.</li></ul> |
| Failure Reason | The reason for the failure of the call. |
| Condition Code | An Avaya internal field that identifies the various aspects of a call. |
| Authorization Code | The authorization code used for outgoing calls. |
| Account Code | The account code used to associate call information to the specific account. |
| Outbound H248GW IP Address | The outbound H248GW IP Address used by the communication manager that handled the outbound call. |
| Outbound H248GW Media Module Number | The outbound H248GW Media Module Number used by the communication manager that handled the outbound call. |
| Inbound H248GW IP Address | The inbound H248GW IP Address used by the communication manager that handled the outbound call. |
| Inbound H248GW Media Module Number | The inbound H248GW H248GW Media Module Number used by the communication manager that handled the outbound call. |
| SGUUID | The UUID of the security group associated with the communications manager.<br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |
| Called Party Location | Specifies location of the party to which the call was made. |
| Called Party Site Code | Specifies site code configured for the party to which the call was made. |
| Called Party Mail-Code | Specifies mail code configured for the party to which the call was made. |

You must specify meaningful values for the Location, Site Code, and the Mail-Code attributes for the calling party and the called party if you want to filter the report based on these attributes. You can use the Topology Details Form view to make these changes. The iSPI for IP Telephony does not populate these fields during the automatic discovery.

**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 call attribute values in the **Selection** list. The list of attribute values are displayed based on all the call metric records available in the database at a given point of time. To select the specific attribute values for a call, make sure that an hour has elapsed on the network after the completion of the call.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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 call metrics or the call 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:**

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.

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

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

| Call Metric | Description |
|---|---|
| Call Duration (secs) (avg) | The average call duration in seconds. |
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |
| [1]Duration (secs ) | The duration of the calls in seconds. |
| | **Note:** Do not select the average value of this metric to generate a report. You can select the average value for the Call Duration metric. You can however select the minimum and maximum options for this metric to generate reports. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

You must specify meaningful values for the Location, Site Code, and the Mail-Code attributes for the calling party and the called party if you want to filter the report based on these attributes. You can use the Topology Details Form view to make these changes. The NNM iSPI for IP Telephony does not populate these fields during the automatic discovery.

# 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

- Recent Calls

- Peak Period

# Chart Detail Report

This report plots the selected call 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.

For example, if you select the **Sample Count** as the primary metric, the **Call Duration (avg)** as the secondary metric, generate the report, and then select the **Display Grain** as one hour, you can analyze the trend for the Hourly Call Attempts (HCA) and the Busy Hour Call Attempts (BHCA) along with the average duration for every hour.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 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 34 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 35to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 call 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. By default, the Heat Chart report displays the data for all calls from the last 31 days, for all days of the week, for all hours of the day, the **Call Duration (secs) (avg)** as the call metric, and with no topology filter selected. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

For example, if you want to identify the hour of the month, week, or day when the number of call attempts were the highest, you can select the **Sample Count** as the metric and set the time control options to the default values for this report as discussed in the previous paragraph and then generate the report. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Chart Detail Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 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 34 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 35to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 40 to specify the primary metric and the secondary metric for the report.

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

**Sample Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a call metric. For example, if you select the call count (**Sample Count (sum)**) metric to generate the Heat Chart report, you can use the report to identify the following instances on your IP Telephony network:

- Spot an isolated instance (when the metric value was high) such as the Busy Hour Call Attempts (BHCA) that affected the results for one day.

- Spot day-of-the-week patterns.

- Verify that a high call volume or call duration condition returned to normal after a period of time.

# Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list .

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

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Communication Manager IP Address**

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 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 34 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 call attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

## Recent Calls Report

his report by default, displays two of the most recent calls on the network.You can select the number of calls you want the report to display from the options provided by the report template.

**To launch the Recent Calls report, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 34 section.

3. Click **Options** from the menu.

4. Specify the number of calls to be displayed in the report,

5. Select the topology filter to be applied to filter the report.

6. 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 Avaya IP Telephony CDR Reports" on page 34 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 34 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

    **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

    - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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 call metric values for two different (consecutive) time periods for specified grouping of call attributes and ranks these groups of call 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 call 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 call metric, specify the call attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

For example, if you want to analyze the overall call volume variation for all the communication managers in your deployment environment over a specified time frame, click the **Options** link and select the **Communications Manager IP Address** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Communications Manager IP Address call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call attribute drop-down lists displayed 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 Avaya IP Telephony CDR Reports" on page 34 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 34 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.

**Note:** As this report compares the variations in the call metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two call metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month. You can select the **Until Now** option from the **Time Range** drop-down list to see the call data for the past 70 days, based on the duration for which the iSPI for IP Telephony has been processing the CDR data and sharing this data with the NPS.

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 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 34 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 35to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 40 to specify the primary metric and the secondary metric for the report.

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

# Peak Period Report

This report by default, displays the top 10 calls based on the **Call Duration (secs)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony CDR Reports" on page 34 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 34 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Call Details**

4. Click **AvayaIPTCDRMetrics**. This opens the AvayaIPTCDRMetrics page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Heat Chart
   - Top N
   - Most Changed
   - Calendar
   - Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony reports.

- **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

- **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Communication Manager Processor Occupancy Reports

The iSPI for IP Telephony provides the Avaya IPT CMProcOccupancy Sum extension pack. You can use this extension pack to generate reports for the Avaya communication manager processor occupancy. You can generate the report based on the processor occupancy attributes such as the Communication Manager IP address, the SGUUID and the processor occupancy quality metrics such as the system management occupancy percentage, the Static Occupancy Percentage, and so on. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

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

- Chart Detail

- Heat Chart

- Top N

- Most Changed

- Calendar

- Top N Chart

- Peak Period

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

# Prerequisites to Enable Avaya Communication Manager Processor Occupancy Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony CDR reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Enable Avaya reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enable Processor Occupancy Summary Reports** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT CMProcOccupancy Sum extension pack.

## Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports

**To access the Avaya IP Telephony Communication Manager Processor Occupancy reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_CMProcOccupancy_Sum** > **Processor_ Occupancy_Summary** to view a list of the supported processor occupancy summary report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Idle Occupancy Percentage**) as the primary metric and the **Call Processing Occupancy Percentage** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

## Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the processor occupancy metric reports based on the various combinations of the processor occupancy attribute values available in the accumulated processor occupancy 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 .

- If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server for which the processor occupancy is reported. |
| SGUUID | The UUID of the security group that is associated with the Communications Manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call 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.

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- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for an 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:**

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.

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

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

| Metric | Description |
|---|---|
| Sample Count | The sample count of the hourly data records stored in the Network Performance Server (NPS). |
| [1]Idle Occupancy Percentage | The percentage of idle occupancy of the CM processor during the specified time frame. |
| [1]Call Processing Occupancy Percentage | The percentage of call processing occupancy of the CM processor during the specified time frame. |
| [1]System Management Occupancy Percentage | The percentage of system management occupancy of the CM processor during the specified time frame. |
| [1]Static Occupancy Percentage | The percentage of static occupancy of the CM processor during the specified time frame. |
| [1]Total Connected Calls | The total connected calls on the CM processor during the specified time frame. |
| [1]Connected Tandem Calls | The connected tandem calls on the CM processor during the specified time frame. |
| [1]Total Calls Attempted | The total calls attempted on the CM processor during the specified time frame. |
| [1]Intercom Calls Attempted | The intercom calls attempted on the CM processor during the specified time frame. |
| [1]Outgoing Calls Attempted | The outgoing calls attempted on the CM processor during the specified time frame. |

| Metric | Description |
|---|---|
| [1]Incoming Calls Attempted | The incoming calls attempted on the CM processor during the specified time frame. |
| [1]Private Network Calls Attempted | The private network calls attempted on the CM processor during the specified time frame. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

## Chart Detail Report

This report plots the selected processor occupancy 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 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 50 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 51to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 53 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 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 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 50 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 51to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 53 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 of the processor occupancy attributes and the processor occupancy metric, this report ranks the processor occupancy attribute values in the ascending or descending order of the total raw values of the processor occupancy metric. This report includes all the processor occupancy instances that had a variation for the specified processor occupancy

attribute. The report displays the rank of the processor occupancy attribute value along with the processor occupancy metric value and the percentage of the processor occupancy 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 processor occupancy attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the processor occupancy attributes that exhibit unusual occurrence levels in the calls.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list .

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

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Communication Manager IP Address**

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 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 50 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 call attributes by clicking the **Add New Grouping** icon .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the
   additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 50 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

> **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

    - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

    - **Sort All in Descending**: lists all 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.

    - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 processor occupancy metric values for two different (consecutive) time periods for specified grouping of processor occupancy attributes and ranks these groups of processor occupancy 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 processor occupancy 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 processor occupancy metric, specify the processor occupancy attribute to group by, select the topology filter to scope the report only for certain processor occupancy attribute values, and specify the time range before generating the report.

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

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 Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 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 50 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 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 50 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 51to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 53 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 processor occupancy instances based on the **Idle Occupancy Percentage** metric. You can generate this report for an hour, a day, or a week to analyze the number of in-service trunks on your network. You can select the number of trunk activities you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Communication Manager Processor Occupancy Reports" on page 50 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 50 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_CMProcOccupancy_Sum**

4. Click **Processor_Occupancy_Summary**. This opens the Processor Occupancy Summary page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:

   - Chart Detail

   - Heat Chart

- Top N

- Most Changed

- Calendar

- Top N Chart

- Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
    - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

    - **Display Grain**: set the interval at which the report must represent data.

    - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Processor Occupancy reports.

    - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

    - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Media Gateway Call Reports

The iSPI for IP Telephony provides the Avaya IPT MGW Calls extension pack. You can use this extension pack to generate reports for the calls handled by the media gateway. You can generate reports based on the gateway call attributes such as the Communication Manager IP Address, the Direction, the media gateway, the port network number and so on. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

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

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

# Prerequisites to Enable Avaya Media Gateway Call Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony Media Gateway Call reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Configure the iSPI for IP Telephony to enable CDR data collection from the Avaya Communications Manager. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Avaya** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT MGW extension pack.

# Accessing the Avaya IP Telephony Media Gateway Call Reports

**To access the Avaya IP Telephony Media Gateway Call reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_MGW_Calls** > **Media_Gateway_Calls** to view a list of the supported Avaya media gateway call report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Period Length (secs) (sum)**) as the primary metric and the **Call Duration (secs) (avg)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the call metric reports based on the various combinations of the call attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Communications Manager IP Address, Calling Party Number, Called Party Number, and so on. 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 .
     - If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that handled the call. |

| Attribute | Description |
|---|---|
| Port Network Number | The port network number used for handling the call. |
| H248 Media Gateway Media Module Number | The H248 media gateway media module number used by the media gateway to carry the call. |
| H248 Media Gateway IP Address | The H248 media gateway that carried the call.. |
| Direction | The direction of the call. This can be one of the following types:<br><br>● In<br><br>● Out |
| SGUUID | The UUID of the security group associated with the communication manager that handled the call.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call attribute values in the **Selection** list. The list of attribute values are displayed based on all the call metric records available in the database at a given point of time. To select the specific attribute values for a call, make sure that an hour has elapsed on the network after the completion of the call.

● By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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 call metrics or the call 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:**

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.

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

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

| Call Metric | Description |
|---|---|
| [1]Call Duration (secs) (avg) | The call duration in seconds. |
| Sample Count (sum) | The sum of the sample count of calls. Indicates the count of calls. |
| [1]Duration (secs) (avg) | The average duration of the calls in seconds. |
| | **Note:** Do not select the average value of this metric to generate a report. You can select the average value for the Call Duration metric. You can however select the minimum and maximum options for this metric to generate reports. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Top N Chart

- Most Changed

- Peak Period

## Chart Detail Report

This report plots the selected call 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Media Gateway Call Reports" on page 62 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 63 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 63to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 65 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 call 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. By default, the Heat Chart report displays the data for all calls from the last 31 days, for all days of the week, for all hours of the day, the **Call Duration (secs) (avg)** as the call metric, and with no topology filter selected. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

For example, if you want to identify the hour of the month, week, or day when the number of call attempts were the highest, you can select the **Sample Count** as the metric and set the time control options to the default values for this report as discussed in the previous paragraph and then generate the report. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Chart Detail Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Media Gateway Call Reports" on page 62 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 63 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 63to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 65 to specify the primary metric and the secondary metric for the report.

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

**Sample Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a call metric. For example, if you select the call count (**Sample Count (sum)**) metric to generate the Heat Chart report, you can use the report to identify the following instances on your IP Telephony network:

- Spot an isolated instance (when the metric value was high) such as the Busy Hour Call Attempts (BHCA) that affected the results for one day.

- Spot day-of-the-week patterns.

- Verify that a high call volume or call duration condition returned to normal after a period of time.

## Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

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

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Communication Manager IP Address**

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Media Gateway Call Reports" on page 62 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 63 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 call attributes by clicking the **Add New Grouping** icon [icon].
> Clicking on this icon displays another drop-down list of the call attributes. You can remove the
>
> additional call attribute drop-down lists displayed by clicking the **Remove Grouping** icon [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 highest 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.

# 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 Avaya IP Telephony Media Gateway Call Reports" on page 62 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 63 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 highest 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 call metric values for two different (consecutive) time periods for specified grouping of call attributes and ranks these groups of call 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 call 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 call metric, specify the call attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

For example, if you want to analyze the overall call volume variation for all the communication managers in your deployment environment over a specified time frame, click the **Options** link and select the **Communications Manager IP Address** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Communications Manager IP Address call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony Media Gateway Call Reports" on page 62 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 63 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Media Gateway Call Reports" on page 62 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 63 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 63to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 65 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, allows you to identify the peak period for a metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Media Gateway Call Reports" on page 62 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 63 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_MGW_Calls**

4. Click **Media_Gateway_Calls**. This opens the Media_Gateway_Calls page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony media gateway call reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony DSP and CODEC Usage Summary Reports

The iSPI for IP Telephony provides the Avaya IPT NWReg DSP CODEC Sum, extension pack. You can use this extension pack to generate reports for the DSP and CODEC usage summary fir a network region. You can generate the report based on the CODEC and DSP attributes quality metrics.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

# Prerequisites to Enable Avaya IP Telephony DSP and CODEC Usage Summary Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony DSP and CODEC Usage Summary reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Enable Avaya reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enabling IP Network Region DSP/Codec Summary Report** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT NWReg DSP CODEC Sum extension pack.

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the CODEC usage summary metric reports based on the various combinations of the CODEC usage summary attribute values available in the accumulated CODEC usage summary 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  .

      ○ If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager. |
| Network Region | The network region that references the DSP/CODEC resources. |
| SGUUID | The UUID of the security group that is associated with the Communications Manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 CODEC usage summary records available in the database at a given point of time.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific CODEC usage summary 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.

# Accessing the Avaya IP Telephony CODEC Usage and Summary Reports

**To access the Avaya IP Telephony CODEC usage and summary reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_NWReg_DSP_Codec_Sum** > **Codec_Usage_ and_Summary** to view a list of the supported processor occupancy summary report formats.

4. You can click any report format to launch the specific report based on the default metrics (**G711 Usage**) as the primary metric and the **G711 in Region Peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]G711 Usage (Erlangs) | The G711 usage in erlangs for the CODEC. |
| [1]G711 In Region peg | The G711 in region peg for the CODEC. |
| [1]G711 Out of Region peg | The G711 out of region peg for the CODEC. |
| [1]G723/9 Usage (Erlangs) | The G723/9 usage for the CODEC. |
| [1]G723/9 In Region peg | The G723/9 In Region peg for the CODEC. |
| [1]G723/9 Out of Region peg | The G723/9 out of Region peg for the CODEC |
| [1]Total Number of IP Codec Resources | The total number of IP Codec resources. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

# Chart Detail Report

This report plots the selected CODEC usage 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 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 74 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 75to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 CODEC usage 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 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 74 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 75to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 77 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 of the CODEC usage attributes and the CODEC usage metric, this report ranks the CODEC usage attribute values in the ascending or descending order of the total raw values of the CODEC usage metric. This report includes all the CODEC usage instances that had a variation for the specified CODEC usage attribute. The report displays the rank of the CODEC usage attribute value along with the CODEC usage metric value and the percentage of the CODEC usage 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 CODEC usage attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the CODEC usage attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 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 74 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 call attributes by clicking the **Add New Grouping** icon .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call attribute drop-down lists displayed 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 pf 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 pf 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 pf the list.

   ▪ **Bottom 5**: lists five of the specified attributes with the maximum 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 maximum 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 maximum metric value in the ascending order of the value with the lowest value at the top pf the list.

   ▪ **Bottom 50**: lists 50 of the specified attributes with the maximum metric value in the ascending order of the value with the highest value at the top pf the list.

   ▪ **Bottom 100**: lists 100 of the specified attributes with the maximum metric value in the ascending order of the value with the lowest value at the top pf the list.

   ▪ **Sort All in Descending**: lists all 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.

   ▪ **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 74 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 CODEC usage metric values for two different (consecutive) time periods for specified grouping of CODEC usage attributes and ranks these groups of CODEC usage 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 CODEC usage 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 CODEC usage metric, specify the CODEC usage attribute to group by, select the topology filter to scope the report only for certain CODEC usage attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 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 74 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 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 74 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 75to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 77 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 CODEC usage instances based on the **G711 Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of CODEC usage instances on your network. You can select the number of CODEC usage instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony CODEC Usage and Summary Reports" on page 76 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 74 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_NWReg_DSP_Codec_Sum**

4. Click **Codec_Usage_and_Summary**. This opens the Codec Usage Summary page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - N Chart
   - Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony CODEC Usage Summary reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

## Accessing the Avaya IP Telephony DSP Usage Summary Reports

**To access the Avaya IP Telephony DSP usage Summary reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_NWReg_DSP_Codec_Sum** > **DSP_Usage_ and_Summary** to view a list of the supported DSP usage summary report formats.

4. You can click any report format to launch the specific report based on the default metrics (**DSP Usages**) as the primary metric and the **In Region peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Metrics for Reports

You can use the **Options** link to specify the DSP usage metrics or the DSP usage 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:**

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.

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

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

| Metric | Description |
|--------|-------------|
| [1]DSP Usages | The DSP usage in erlangs. |
| [1]In Region peg | The In Region peg for the DSP. |
| [1]Denials peg | The denials peg for the DSP. |
| [1]Blocked Percentage | The percentage of blocked services by the DSP. |
| [1]Out of Services Percentage | The percentage of out of service services by the DSP. |
| [1]Total Number of DSP Resources | The total number of DSP resources. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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
- Peak Period

# Chart Detail Report

This report plots the selected DSP usage 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony DSP Usage Summary Reports" on page 84 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 74 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 75to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 DSP usage 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony DSP Usage Summary Reports" on page 84 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 74 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 75to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 85 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 of the DSP usage attributes and the DSP usage metric, this report ranks the DSP usage attribute values in the ascending or descending order of the total raw values of the DSP usage metric. This report includes all the DSP usage instances that had a variation for the specified DSP usage attribute. The report displays the rank of the DSP usage attribute value along with the DSP usage metric value and the percentage of the DSP usage 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 DSP usage attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the DSP usage attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony DSP Usage Summary Reports" on page 84 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 74 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 call attributes by clicking the **Add New Grouping** icon  .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending
     order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony DSP Usage Summary Reports" on page 84 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 74 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.
   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 DSP usage metric values for two different (consecutive) time periods for specified grouping of processor occupancy attributes and ranks these groups of DSP usage 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 DSP usage 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 DSP usage metric, specify the DSP usage attribute to group by, select the topology filter to scope the report only for certain DSP usage attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony DSP Usage Summary Reports" on page 84 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 74 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony DSP Usage Summary Reports" on page 84 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 74 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 75to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 85 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 DSP usage instances based on the **DSP Usages** metric. You can generate this report for an hour, a day, or a week to analyze the number of DSP usage instances on your network. You can select the number of DSP usage instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony DSP Usage Summary Reports" on page 84 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 74 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_NWReg_DSP_Codec_Sum**

4. Click **DSP_Usage_and_Summary**. This opens the DSP Usage and Summary page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Processor Occupancy reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Port Network Load Statistics Reports

The iSPI for IP Telephony provides the Avaya IPT PN Load Stats extension pack. You can use this extension pack to generate reports for the port network load statistics on your network region.You can generate the reports based on the following types of load statistics:

- Incoming Trunk Load

- Intercom Load

- Outgoing Trunk Load

- Tandem Trunk Load

- Total Load

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

# Prerequisites to Enable Avaya IP Telephony Port Network Load Statistics Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony Port Network Load Statistics reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Enable Avaya reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enabling Port Network Load Report** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT PN Load Stats extension pack.

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the port network load statistics metric reports based on the various combinations of the port network load statistics attribute values available in the accumulated port network load statistics 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 .

   - ○ If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that uses the port network. |
| Port Network Number | The port network number configured on the Communication Manager server. |
| SGUUID | The UUID of the security group that is associated with the Communications Manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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.

● 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.

# Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports

**To access the Avaya IP Telephony Port Network Incoming Trunk Load Reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_PN_Load_Stats** > **Incoming_Trunk_Load** to view a list of the supported summary report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Intra PN Usage**) as the primary metric and the **Intra PN Peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

## Specifying Metrics for Reports

You can use the **Options** link to specify the Incoming Trunk Load metrics or the Incoming Trunk Load 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Intra PN Usage | The Intra PN usage in centum call seconds for the port network for the incoming trunk load. |
| [1]Intra PN peg | The Intra PN peg for the port network for the incoming trunk load |
| [1]Incoming Usage | The incoming usage for the port network for the incoming trunk load |
| [1]Incoming peg | The incoming peg for the port network for the incoming trunk load |
| [1]Outgoing Usage | The outgoing usage for the port network for the incoming trunk load. |
| [1]Outgoing peg | The outgoing peg for the port network for the incoming trunk load. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# Chart Detail Report

This report plots the selected incoming trunk load 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 incoming trunk load 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 96 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 of the incoming trunk load attributes and the incoming trunk load metric, this report ranks the incoming trunk load attribute values in the ascending or descending order of the total raw values of the incoming trunk load metric. This report includes all the incoming trunk load instances that had a variation for the specified incoming trunk load attribute. The report displays the rank of the incoming trunk load attribute value along with the incoming trunk load metric value and the percentage of the incoming trunk load 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 DSP usage attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the DSP usage attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 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 93 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 call attributes by clicking the **Add New Grouping** icon .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## 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 Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

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

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 incoming trunk load metric values for two different (consecutive) time periods for specified grouping of incoming trunk load attributes and ranks these groups of incoming trunk load 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 incoming trunk load 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 an incoming trunk load metric, specify the incoming trunk load attribute to group by, select the topology filter to scope the report only for certain incoming trunk load attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 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 93 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.

# Peak Period Report

This report by default, displays the top 10 incoming trunk load instances based on the **Intra PN Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of incoming trunk load instances on your network. You can select the number of incoming trunk loads you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

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

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Port Network Incoming Trunk Load Reports" on page 95 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 93 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 94to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 96 to specify the primary metric and the secondary metric for the report.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_PN_Load_Stats**

4. Click **Incoming_Trunk_Load**. This opens the Incoming Trunk Load page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart

- Chart Detail

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Avaya Incoming Trunk Load reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Accessing the Avaya IP Telephony Intercom Load Reports

**To access the Avaya IP Telephony Intercom Load reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_PN_Load_Stats** > **Intercom_Load** to view a list of the supported intercom load report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Intra PN Usage**) as the primary metric and the **Intra PN peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Intra PN Usage | The Intra PN usage in centum call seconds for the port network for the intercom load. |
| [1]Intra PN peg | The Intra PN peg for the port network for the intercom load |
| [1]Iner PN Usage | The Intra PN usage in centum call seconds for the port network for the intercom load. |
| [1]Inter PN peg | The Intra PN peg for the port network for the intercom load |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# Chart Detail Report

This report plots the selected intercom load 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Intercom Load Reports" on previous page 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Intercom Load Reports" on page 103 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 93 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 94to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page to specify the primary metric and the secondary metric for the report.

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

## Heat Chart Report

This report displays the hourly values of the selected intercom load 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Intercom Load Reports" on page 103 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 104 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 of the intercom load attributes and the intercom load metric, this report ranks the intercom load attribute values in the ascending or descending order of the total raw values of the intercom load metric. This report includes all the intercom load instances that had a variation for the specified intercom load attribute. The report displays the rank of the intercom load attribute value along with the intercom load metric value and the percentage of the intercom load 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 intercom load attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the intercom load attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Intercom Load Reports" on page 103 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 93 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

   ■ **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   ■ **Sort All in Descending**: lists all 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.

   ■ **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## 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 Avaya IP Telephony Intercom Load Reports" on page 103 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# Peak Period Report

This report by default, displays the top 10 intercom load instances based on the **Intra PN Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of intercom load instances on your network. You can select the number of intercom load instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Intercom Load Reports" on page 103 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" section.

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

# Most Changed Report

This report compares the variation in the intercom load metric values for two different (consecutive) time periods for specified grouping of intercom load attributes and ranks these groups of intercom load 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 intercom load 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 intercom load metric, specify the intercom load attribute to group by, select the topology filter to scope the report only for certain intercom load attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the intercom load attributes. You can remove the additional intercom load 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 Avaya IP Telephony Intercom Load Reports" on page 103 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 93 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.

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_PN_Load_Stats**

4. Click **Intercom_Load**. This opens the Intercom Load page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Port Network Intercom Load reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Accessing the Avaya Outgoing Trunk Load Reports

**To access the Avaya IP Telephony Outgoing Trunk Load reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_PN_Load-Stats** > **Outgoing_Trunk_Load** to view a list of the supported DSP usage summary report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Intra PN Usage**) as the primary metric and the **Intra PN peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Intra PN Usage | The Intra PN usage in centum call seconds for the port network for the outgoing trunk load. |
| [1]Intra PN peg | The Intra PN peg for the port network for the outgoing trunk load |
| [1]Incoming Usage | The incoming usage for the port network for the outgoing trunk load |

| Metric | Description |
|---|---|
| [1]Incoming peg | The incoming peg for the port network for the outgoing trunk load |
| [1]Outgoing Usage | The outgoing usage for the port network for the outgoing trunk load. |
| [1]Outgoing peg | The outgoing peg for the port network for the outgoing trunk load. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

# Chart Detail Report

This report plots the selected outgoing trunk load 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.

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

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

1. Perform the steps in the section"Accessing the Avaya Outgoing Trunk Load Reports" on previous page 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 111 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 outgoing trunk load 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section "Accessing the Avaya Outgoing Trunk Load Reports" on page 111 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94 to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 111 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 of the outgoing trunk load attributes and the outgoing trunk load metric, this report ranks the outgoing trunk load attribute values in the ascending or descending order of the total raw values of the outgoing trunk load metric. This report includes all the outgoing trunk load

instances that had a variation for the specified outgoing trunk load attribute. The report displays the rank of the outgoing trunk load attribute value along with the outgoing trunk load metric value and the percentage of the outgoing trunk load 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 outgoing trunk load attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the outgoing trunk load attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section to launch the Top N report for a specific time frame.

2. Specify the time controls for the report as mentioned in the 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 call attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya Outgoing Trunk Load Reports" on page 111 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon ￼. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 outgoing trunk load metric values for two different (consecutive) time periods for specified grouping of outgoing trunk load attributes and ranks these groups of outgoing trunk load 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 outgoing trunk load 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 outgoing trunk load metric, specify the outgoing trunk load attribute to group by, select the topology filter to scope the report only for certain outgoing trunk load attribute values, and specify the time range before generating the report.

You can select multiple outgoing trunk load attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the outgoing trunk load attributes. You can remove the additional outgoing trunk load 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 Avaya Outgoing Trunk Load Reports" on page 111 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 93 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya Outgoing Trunk Load Reports" on page 111 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 93 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 94to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 111 to specify the primary metric and the secondary metric for the report.

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

# Peak Period Report

This report by default, displays the top 10 outgoing trunk load instances based on the **Intra PN Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of outgoing trunk load instances on your network. You can select the number of outgoing trunk load instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya Outgoing Trunk Load Reports" on page 111 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_PN_Load_Stats**

4. Click **Outgoing_Trunk_Load**. This opens the Outgoing Trunk Load page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart
   - Peak Period
   - Chart Detail

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Outgoing Trunk Load reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

- **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Accessing the Avaya IP Telephony Tandem Load Reports

**To access the Avaya IP Telephony Tandem Load reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_PN_Load_Stats** > **Tandem_Load** to view a list of the supported tandem load report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Intra PN Usage**) as the primary metric and the **Intra PN peg** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# 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:**

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.

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

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

| Metric | Description |
| --- | --- |
| [1]Intra PN Usage | The Intra PN usage in centum call seconds for the port network for the tandem load. |
| [1]Intra PN peg | The Intra PN peg for the port network for the tandem load |
| [1]Incoming Usage | The incoming usage for the port network for the tandem load |
| [1]Incoming peg | The incoming peg for the port network for the tandem load |
| [1]Outgoing Usage | The outgoing usage for the port network for the tandem load. |
| [1]Outgoing peg | The outgoing peg for the port network for the tandem load. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

## Chart Detail Report

This report plots the selected tandem load 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Tandem Load Reports" on page 119 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 119 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 tandem load 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Tandem Load Reports" on page 119 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 119 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 of the tandem load attributes and the tandem load metric, this report ranks the tandem load attribute values in the ascending or descending order of the total raw values of the tandem load metric. This report includes all the tandem load instances that had a variation for the specified tandem load attribute. The report displays the rank of the tandem load attribute value along with the tandem load metric value and the percentage of the tandem load 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 tandem load attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the tandem load attributes that exhibit unusual occurrence levels.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Tandem Load Reports" on page 119 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 93 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony Tandem Load Reports" on page 119 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 tandem load metric values for two different (consecutive) time periods for specified grouping of tandem load attributes and ranks these groups of tandem load 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 tandem load 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 tandem load metric, specify the tandem load attribute to group by, select the topology filter to scope the report only for certain tandem load attribute values, and specify the time range before generating the report.

You can select multiple tandem load attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the tandem load attributes. You can remove the additional tandem load 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 Avaya IP Telephony Tandem Load Reports" on page 119 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 93 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.

# Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Tandem Load Reports" on page 119 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 93 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 94to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 119 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 tandem load instances based on the **Intra PN Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of tandem load instances on your network. You can select the number of tandem load instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Tandem Load Reports" on page 119 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_PN_Load_Stats**

4. Click **Tandem_Load**. This opens the Tandem Load page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart
   - Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony tandem load reports.

- **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

- **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Accessing the Avaya IP Telephony Total Load Reports

**To access the Avaya IP Telephony Total Load reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_PN_Load_Stats** > **Total_Load** to view a list of the supported total load report formats.

4. You can click any report format to launch the specific report based on the default metrics (**TDM Occupancy**) as the primary metric and the **PN Occupancy** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]TDM Occupancy (%) | The Time Divisioned Multiplex (TDM) occupancy for the port network. |
| [1]PN Occupancy (%) | The Port Network Occupancy. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

## Chart Detail Report

This report plots the selected total load 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Total Load Reports" on previous page 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 127 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 total load 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. You can move the mouse pointer on a cell in the table of the report to see the raw value of the metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Total Load Reports" on page 127 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 93 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 94to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 127 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 of the total load attributes and the total load metric, this report ranks the total load attribute values in the ascending or descending order of the total raw values of the total load metric. This report includes all the total load instances that had a variation for the specified total load attribute. The report displays the rank of the total load attribute value along with the total load metric value and the percentage of the total load 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 total load attribute values that had occurrences at the extremes. You can also use this

report to investigate historical sampled data for the total load attributes that exhibit unusual occurrence levels in the calls.

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

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

1.  Perform the steps in the section"Accessing the Avaya IP Telephony Total Load Reports" on page 127 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 93 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 call attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

    - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

    - **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony Total Load Reports" on page 127 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 total load metric values for two different (consecutive) time periods for specified grouping of total load attributes and ranks these groups of total load 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 total load 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 total load metric, specify the total load attribute to group by, select the topology filter to scope the report only for certain total load attribute values, and specify the time range before generating the report.

You can select multiple total load attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the total load attributes. You can remove the

additional total load 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 Avaya IP Telephony Total Load Reports" on page 127 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 93 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Total Load Reports" on page 127 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 93 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 94 to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 127 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 total load instances based on the **TDM Occupancy (%)** metric. You can generate this report for an hour, a day, or a week to analyze the number of total load instances on your network. You can select the number of total load instances you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Total Load Reports" on page 127 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 93 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_PN_Load_Stats**

4. Click **Total_Load**. This opens the Total Load page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart
   - Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Port Network Total Load reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the total load that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Trunk Call Reports

The iSPI for IP Telephony provides the Avaya IPT TG Calls extension pack. You can use this extension pack to generate reports for the call metrics based on the attributes such as the Direction, ICT Name, and so on. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. You can use this extension pack for long term capacity planning.

## Prerequisites to Enable Avaya Trunk Calls Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya Trunk Calls reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony. If you have installed the iSPI for IP Telephony before installing the iSPI Performance for Metrics, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics in your deployment environment.

- Configure the iSPI for IP Telephony to enable CDR data collection from the Avaya Communications Manager. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Avaya** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT TG Calls extension pack.

## Accessing the Avaya IP Telephony Trunk Calls Reports

**To access the Avaya IP Telephony Trunk Calls reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_TG_Calls** > **Trunk_Calls** to view a list of the supported Avaya trunk call report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Period Length (secs) (sum)**) as the primary metric and the **Call Duration (secs) (avg)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the attribute values available in the accumulated metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Communications Manager IP Address, Calling Party Number, Called Party Number, and so on. 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 .

        ○ If you want to search and select a value for a topology filter 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.

| Attribute | Description |
| --- | --- |
| Communications Manager IP Address | The IP address of the Communication Manager server that handled the call. |
| Trunk Group | The trunk group used to carry the call. |
| Trunk Group Access Code | The Trunk Group Access Code (TAC) of the |

| Attribute | Description |
|---|---|
| | outbound trunk group used by the communication manager that handled the outbound routing of the call. |
| Signaling Group | The signaling group used for the call. |
| Direction | The direction of the call. This can be one of the following:<br><br>• Inbound<br><br>• Outbound |

**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.

- 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Call Duration (secs) (avg) | The call duration in seconds. |
| Sample Count (sum) | The sum of the sample count of calls. Indicates the count of calls. |
| [1]Duration (secs) (avg) | The average duration of the calls in seconds.<br><br>**Note:** Do not select the average value of this metric to generate a report. You can select the average value for the Call Duration metric. You can however select the minimum and maximum |

| Metric | Description |
|---|---|
|  | options for this metric to generate reports. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# Types of Reports

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

- Calendar

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Peak Period

- Most Changed

## Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Calls Reports" on page 135 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 136 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 136to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 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. The minimum time range for this report is 24 hours. To change the metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Calls Reports" on page 135 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 136 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 136to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 138 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 of the call attributes and the metric, 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 attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes that exhibit unusual occurrence levels.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list .

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Calls Reports" on page 135 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 136 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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.

## 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 Avaya IP Telephony Trunk Calls Reports" on page 135 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 136 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

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

For example, if you want to analyze the overall call volume variation for all the communication managers in your deployment environment over a specified time frame, click the **Options** link and select the **Communications Manager IP Address** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Communications Manager IP Address call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony Trunk Calls Reports" on page 135 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 136 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.

## Calendar Report

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

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Calls Reports" on page 135 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 136 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 136to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 138 to specify the primary metric and the secondary metric for the report.

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

# Peak Period Report

This report by default, displays the top 10 calls based on the **Period Length (secs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Calls Reports" on page 135 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 136 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_TG_Calls**

4. Click **Trunk_Calls**. This opens the Trunk_Calls page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Route Pattern and Trunk Group Usage Reports

The iSPI for IP Telephony provides the Avaya IPT TG RP Usage extension pack. You can use this extension pack to generate reports for the trunk group and route pattern usage based on the usage attributes and usage quality metrics.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. This helps you in long-term capacity planning.

## Prerequisites to Enable Avaya CDR Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony CDR reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Enable route pattern usage reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enabling Route Pattern Usage Reporting** section for additional information.

- Enable trunk group usage reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enabling Trunk Group Usage Reporting** section for additional information.

- Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Avaya IPT TG RP Usage extension pack.

## Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Accessing the Avaya IP Telephony Route Pattern Usage Reports

**To access the Avaya IP Telephony Route Pattern Usage reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_TG_RP_Usage** > **Route_Pattern_Usage** to view a list of the supported Avaya route pattern usage report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Calls Offered**) as the primary metric and the **Calls Blocked** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls
- Specify topology filters
- Specify metrics

# Specifying Topology Filters

Topology filters allow you to scope or filter the route pattern usage metric reports based on the various combinations of the route pattern usage attribute values available in the accumulated route pattern usage 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 .

     ○ If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that includes the route pattern. |
| Route Pattern Number | The route pattern number used during the selected time period. |
| TG Number for Trunk Group <number> | The <number> indicates the position or priority of the trunk group within the list of trunk group choices for a route pattern. |
| Custom Info for Trunk Group <number> | The custom information configured for the trunk group. at the position indicated by the position number. For example, this can be one of the following:<br><br>• LEC<br><br>• LD<br><br>• 911<br><br>**Note:** Make sure that you edit the topology detail form view for the trunk group to include meaningful custom information. This allows you to filter the reports based on the custom information easily. |
| SGUUID | The UUID of the security group associated with the Communication Manager that includes the route pattern.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call metrics or the call 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Calls Offered | Indicates the total calls offered by the route pattern over the specified time period. |
| [1]Calls Carried | Indicates the total calls carried by the route pattern over the specified time period. |
| [1]Calls Blocked | Indicates the total calls blocked by the route pattern over the specified time period. |
| [1]Calls Queue Overflow | Indicates the calls queue overflow for the route pattern over the specified time period. |
| [1]Calls Queued | Indicates the total calls queued by the route pattern over the specified time period. |
| [1]Percentage of Total RP Calls carried By Trunk Group <number> | Indicates the percentage of total route pattern calls carried by the trunk group number at the position indicated by the position within the route pattern. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

- Peak Usage

- P.01 Grade of Service Summary

## Chart Detail Report

This report plots the selected call 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Route Pattern Usage Reports" on page 147 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 146 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 148to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 149 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 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. To change the metric to sample count, select the **Sample Count (sum)** metric from the **Metric:** drop-down list after clicking **Options**.

You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 158to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 161 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 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. The report displays the rank of the attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes that exhibit unusual occurrence levels.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Route Pattern Usage Reports" on page 147 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 146 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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.

## 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 Avaya IP Telephony Route Pattern Usage Reports" on page 147 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 146 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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 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 call attributes by clicking the **Add New Grouping** icon ⊞. Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 Avaya IP Telephony Route Pattern Usage Reports" on page 147 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 146 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.

## 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.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Route Pattern Usage Reports" on page 147 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 146 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 148to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 149 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 route pattern usage instances based on the **Calls Carried** metric. You can generate this report for an hour, a day, or a week to analyze the number of route pattern instances on your network. You can select the number of trunk activities you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Route Pattern Usage Reports" on page 147 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 146 section.

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

## Peak Usage Report

This report lets you analyze the Avaya Route Pattern usage and determine the peak periods of calls offered to the Route Patterns. The report lists the data in a tabular output for the Peak Hour or Day or Week for the Route Patterns along with the split of peak period calls carried percentage among the various positional Trunk Groups referenced by Route Pattern.

You can select the Peak Period ( Hour or Day or Week) to be identified by selecting in the drop down inside Report Options. You can also use the appropriate filters from the filters to restrict the set of Route Patterns for which the report runs.

The report uses hourly aggregated Avaya Trunk Group Usage and Route Pattern usage information stored in NPS under Avaya IP Telephony Route Patterns and Trunk Group usage reporting package.

# P.01 GoS Summary Report

This report lets you analyze the Avaya Route Pattern usage and call routing capacity planning by generating the usage summary for a selected set of Avaya Route Patterns. This report is applicable only for the Route Patterns that reference channelized interfaces such as T1/E1. In a tabular display, for each route pattern, the report, displays the detailed summary for each Trunk Group referenced by the Route Pattern as well as for the whole set of Trunk Groups referenced by the route pattern. The detailed Trunk Group by Trunk Group summary for each Route Pattern and the summary for the set of Trunk Groups referenced by the Route pattern is similar to the result of analysis done in the Trunk Group P.01 GoS Summary report. For more information on Trunk Group P.01 GoS Summary reports, see "P.01 Grade of Service Summary Report" on page 168

In the detailed Trunk group by Trunk Group summary table located in the P.01 GoS Summary column in the table of Route Patterns, the rows are sorted by the priority or selection order of the Trunk Group within the Route Pattern. However, you can select different sorting criteria to sort the rows by choosing the right sort options in the Report Options.

In each row of the Route Pattern summary in the outer table, the report also displays the percentage of total Route Pattern calls carried through the positional Trunk Group in the Route Pattern.

The report uses hourly aggregated Avaya Trunk Group Usage and Route Pattern usage information stored in NPS under the Avaya IP Telephony Route Patterns and Trunk Group usage reporting package.

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**
1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_TG_RP_Usage**

4. Click **Route_Pattern_Usage**. This opens the Route_Pattern_Usage page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports.

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony route pattern usage reports.

- **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

- **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Accessing the Avaya IP Telephony Trunk Group Usage Reports

**To access the Avaya IP Telephony Trunk Group Usage reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_TG_RP_Usage** > **Trunk_Group_Usage** to view a list of the supported Avaya trunk group usage report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Usage**) as the primary metric and the **Inbound Calls Carried** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Topology Filters

Topology filters allow you to scope or filter the trunk group usage metric reports based on the various combinations of the trunk group usage attribute values available in the accumulated trunk group usage 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 .

   ○ If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that includes the trunk group. |

| Attribute | Description |
|---|---|
| Trunk Group Number | The trunk group number for the trunk group used during the selected time period. The \<number\> indicates the position or priority of the trunk group within the list of trunk group choices for a route pattern. |
| Trunk Group Type | The type of IP Trunk implemented using a trunk group. The valid values are as follows:<br><br>• H323<br><br>• SIP<br><br>If the trunk group does not implement an IP trunk, this attribute displays the value `Not_Applicable`. |
| Trunk Group Direction | The trunk group direction for the calls. This can be one of the following:<br><br>• Inbound<br><br>• Outbound |
| Trunk Group Access Code | The Trunk Group access code used by the communication manager that handled the call. |
| Number of Trunk Group Members | The number of trunk group members in the selected trunk group. |
| Queue Size | The call queue size for the trunk group. |
| IP Trunk Type | Indicates the IP trunk type implemented using a trunk group. The valid values for the IP trunk type can be H323 or SIP. If the trunk group does not implement an IP trunk, then the value is displayed as Not_Applicable. |
| Custom Info | The custom information configured for the trunk group. at the position indicated by the position number. For example, this can be one of the following:<br><br>• LEC<br><br>• LD<br><br>• 911<br><br>**Note:** Make sure that you edit the topology detail form view for the trunk group to include meaningful custom information. This allows you to filter the reports based on the custom information easily. |

| Attribute | Description |
|-----------|-------------|
| SGUUID | The UUID of the security group associated with the communications manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call 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 for a call, 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 trunk group usage metrics or the trunk group usage 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:**

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.

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

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

| Metric | Description |
|--------|-------------|
| [1]Usage | The usage time of the trunk group in centum call seconds. |
| [1]Inbound Calls Carried | The inbound calls carried by the trunk group. |
| [1]Outbound Calls Carried | The outbound calls carried by the trunk group. |
| [1]Calls Offered | The calls offered by the trunk group. |
| [1]Outbound Calls Blocked in Percentage | The percentage of the outbound calls blocked by the trunk group. |
| [1]Times ATB in Percentage | The percentage of the All Trunks Busy time. |

| Metric | Description |
|---|---|
| [1]Group Overflow Calls | The group overflow calls for the trunk group. |
| [1]Queue Overflow Calls | The overflow calls in queue for the trunk group. |
| [1]Queue Abandoned Calls | The abandoned calls in queue for the trunk group. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

- Peak Period

- P.01 GoS Summary

# Chart Detail Report

This report plots the selected trunk group usage 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 158to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 161 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 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. To change the metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 158to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 161 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 of the call attributes and the trunk group usage metric, this report ranks the trunk group usage attribute values in the ascending or descending order of the total raw values of the trunk group usage metric. This report includes all the calls that had a variation for the specified trunk group usage attribute. The report displays the rank of the trunk group usage attribute value

along with the trunk group usage metric value and the percentage of the trunk group usage 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 trunk group usage attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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.

## 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 Avaya IP Telephony Trunk Group Usage Reports" on page 158 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 146 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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 trunk group usage metric values for two different (consecutive) time periods for specified grouping of trunk group usage attributes and ranks these groups of trunk group usage 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 trunk group usage 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 trunk group usage metric, specify the trunk group usage attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional trunk group usage 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 Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 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.

**Note:** As this report compares the variations in the call metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two trunk group usage metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month. You can select the **Until Now** option from the **Time Range** drop-down list to see the call data for the past 70 days, based on the duration for which the iSPI for IP Telephony has been processing the trunk group usage data and sharing this data with the NPS.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 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 146 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 158to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 161 to specify the primary metric and the secondary metric for the report.

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

# Peak Period Report

This report by default, displays the top 10 trunk group usage instances based on the **Usage** metric. You can generate this report for an hour, a day, or a week to analyze the number of in-service trunks on your network. You can select the number of trunk activities you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Group Usage Reports" on page 158 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 146 section.

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

# P.01 Grade of Service Summary Report

This report lets you do Avaya Trunk Set usage and call routing capacity planning by generating the usage summary for a selected set of Avaya Trunk Sets. This report is applicable only for the Trunk Sets that reference channelized interfaces such as T1/E1 PRIs. The referenced channels are also known as Trunk Set Members. This report captures a summary of usage for any such selected set of Trunk Sets along with summary of usage for each Trunk Set in the set.

The final result for the set and each Trunk Group in the set also includes an indicator for the Grade of Service for the set as well as each Trunk Group in the set. This indicator is expressed as a percentage of the P.01 Grade Of Service for the number of channels in the set of Trunk Groups for the set. The compliance indicator is reported for each Trunk Group in the selected set as well.

The P.01 Grade of Service indicates, for a given number of channels in a logical bundle, the Busy Hour Traffic (BHT) that the set representing the logical bundle can sustain with a 0.01% blockage.

The report uses hourly aggregated Avaya Trunk Group Usage information stored in NPS under Avaya IP Telephony Route Patterns and Trunk Group usage reporting package to arrive at the conclusions.

For each Trunk Group in the set, the report first determines the, Total Usage, Total Calls, busiest hour calls offered to the Trunk Group and the Average Usage per call. The Busiest Hour Traffic (BHT) is than determined by multiplying Busiest Hour Calls offered and Average Usage per Call. The BHT determined is compared against the P.01 GoS BHT for the number of channels/trunk-members in the Trunk Group and the comparison is expressed as a percentage and indicates the compliance to P.01 GoS Standards.

The report performs similar calculations for the set as a set of Trunk Groups is a larger logical bundle of set of channels/trunk-members. The Total Usage, Total Calls, busiest hour calls offered to the set and the Average Usage per call is determined for the complete set of Trunk Groups in the

set. The busiest hour calls offered to the set and the Average Usage for a call are for the set. This is not the sum of the same parameters across the Trunk Groups in the set. The Busiest Hour Traffic (BHT) is than determined by multiplying Busiest Hour Calls offered and Average Usage per Call.The BHT is compared against the P.01 GoS BHT for the total number of channels/trunk-members in the set and the comparison is expressed as a percentage and indicates the compliance to P.01 GoS Standards. The total number of channels in a set is the sum of number channels/trunk-members for all the Trunk Groups in the set.

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_TG_RP_Usage**

4. Click **Trunk_Group_Usage**. This opens the Trunk_Group_Usage page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail
   - Heat Chart
   - Top N
   - Most Changed
   - Calendar
   - Top N Chart

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony trunk Group Usage reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony Trunk Activity Reports

The iSPI for IP Telephony provides the Avaya IPT Trunk Activity extension pack. You can use this extension pack to generate reports for the trunk activity on your network. You can generate reports based on the trunk activity attributes such as the trunk group name, the trunk group number, and so on, and the trunk group quality metrics such as the number of in-service trunks, the number of active trunks, and so on. See the section Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

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

- Chart Detail
- Heat Chart
- Top N
- Top N Chart
- Most Changed
- Calendar
- Peak Period

## Prerequisites to Enable Avaya IP Telephony Trunk Activity Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya IP Telephony Trunk Activity reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Enable Avaya reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Avaya Reporting** > **Enabling Trunk Activity Reports** section for additional information.

- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Avaya IPT Trunk Activity extension pack.

# Accessing the Avaya IP Telephony Trunk Activity Reports

**To access the Avaya IP Telephony Trunk Activity reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_IPT_Trunk_Activity** > **Trunk_Activity** to view a list of the supported Avaya trunk activity report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Number of In-Service Trunks**) as the primary metric and the **Number of Active Trunks** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.**Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

4. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the trunk activity attribute values available in the accumulated trunk activity 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 .

   - If you want to search and select a value for a topology filter 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 of the trunk activity.

| Attribute | Description |
|---|---|
| Communications Manager IP Address | The IP address of the Communication Manager server that includes the trunk group. |
| Trunk Group Name | The name of the trunk group for which you want to filter the trunk activity to generate reports. |
| Trunk Group Number | The trunk group number for which you want to filter the trunk group activity. |
| Number of Trunk Members | The number of trunk group members in the selected trunk group. |
| SGUUID | The security group associated with the Communication Manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 call 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.

- 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 call metrics or the call 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:**

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.

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

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

| Metric | Description |
|---|---|
| [1]Number of In-Service Trunks | The number of In-service trunks. |
| [1]Number of Active Trunks | The number of active trunks.. |
| [1]Number of Out Service Trunks | The number of out-of-service trunks. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# Types of Reports

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

- Calendar

- Chart Detail

- Heat Chart

- Most Changed

- Top N

- Top N Chart

- Peak Period

## Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Activity Reports" on page 171 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 171 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 172to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 173 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 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Activity Reports" on page 171 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 171 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 172to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 173 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 of the trunk activity attributes and the trunk activity metric, this report ranks the trunk activity attribute values in the ascending or descending order of the total raw values

of the trunk activity metric. This report includes all the trunk activities that had a variation for the specified attribute. The report displays the rank of the attribute 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Activity Reports" on page 171 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 171 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 m 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 m metric value in the ascending order of the value with the lowest value at the top pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony Trunk Activity Reports" on page 171 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 171 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

■ **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

■ **Sort All in Descending**: lists all 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.

■ **Sort All in Ascending**: lists all the specified attributes with the maximum 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 trunk activity attributes and ranks these groups of trunk activity 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 trunk activity 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 trunk activity metric, specify the trunk activity attribute to group by, select the topology filter to scope the report only for certain trunk activity attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Avaya IP Telephony Trunk Activity Reports" on page 171 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 171 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony Trunk Activity Reports" on page 171 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 171 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 172to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 173 to specify the primary metric and the secondary metric for the report.

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

# Peak Period Report

This report by default, displays the top 10 trunk activities based on the **Number of In-Service Trunks** metric. You can generate this report for an hour, a day, or a week to analyze the number of in-service trunks on your network. You can select the number of trunk activities you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section "Accessing the Avaya IP Telephony Trunk Activity Reports" on page 171 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 171 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_IPT_Trunk_Activity**

4. Click **Trunk_Activity**. This opens the Trunk_Activity page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports.

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Avaya IP Telephony RTP Session Metrics Reports

The NNM iSPI for IP Telephony provides the Avaya RTP Session Metrics extension pack. You can use this extension pack to generate reports for the Real-time Transport Protocol (RTP) sessions on your IP telephoy network. You can generate reports based on the RTP session attributes such as CName (Canonical Name), the peer CName, and so on, and the RTP session quality metrics such as the session duration, the average MOS, and so on. See the sections *Call Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

The extension pack retains the detailed data and the summary data in the Network Performance Server (NPS) for a period of 32 days.

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

- Chart Detail

- Heat Chart

- Top N

- Most Changed

- Calendar

- Top N Chart

- Peak Period

- Recent Sessions

## Prerequisites to Enable Avaya RTP Session Metrics Reporting

You must make sure that the following prerequisites are satisfied to enable Avaya RTP session metrics reporting:

- Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

- Configure the NNM iSPI for IP Telephony to enable CDR data collection from the Avaya Communications Manager. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Avaya** > **Configuring RTCP: Reception** section for additional information.

- Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Avaya RTP Session Metrics extension pack.

# Accessing the Avaya IP Telephony RTP Session Metrics Reports

**To access the Avaya IP Telephony RTP Session Metrics reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions > HP NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click the **Avaya IP Telephony** > **Avaya_RTP_Session_Metrics** > **Participant_Reception_ Metrics** to view a list of the supported RTP session metrics report formats.

4. You can click any report format to launch the specific report based on the default metrics (**Session Duration**) as the primary metric and the **Avg. MOS** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the RTP session metric reports based on the various combinations of the RTP session attribute values available in the accumulated RTP session 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 .

     - ○ If you want to search and select a value for a topology filter 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 of the RTP sessions.

| Attribute | Description |
| --- | --- |
| Communication Manager IP Address | The IP address of the communication manager on which the RTP end point with the RTP CNAME is either configured as a station for IP phones or is the IP address of the communication manager which uses the RTP end point for H248 media gateways or MedPros with CNAME being the CNAME in the report fir establishing the call. |
| CNAME | The IP address of the Communication Manager server that handled the call. |
| Peer CNAME | The access code dialed for calls outbound from the communication manager that handled the calls. |
| SGUUID | The Trunk Group Access Code (TAC) of the outbound trunk group used by the communication manager that handled the outbound routing of the call. **Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

**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 RTP session attribute values in the **Selection** list. The list of attribute values are displayed based on all the RTP session metric records available in the database at a given point of time. To select the specific attribute values for a RTP session, make sure that an hour has elapsed on the network after the completion of the RTP session.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific RTP session 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 call metrics or the call attribute distinct count, based on which you want to generate the report.

**To access the Report Options page and specify the metrics:**

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.

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

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

| Metric | Description |
|--------|-------------|
| Session Duration | The duration of the RTP session. |
| Avg. MOS | The average MOS for the RTP sessions during the time frame specified. |
| Avg. Jitter | The average jitter for the RTP sessions during the time frame specified. |
| Avg. Delay | The average delay for the RTP sessions during the time frame specified. |
| Avg. Packet Loss | The average packet loss for the RTP sessions during the time frame specified. |

Do not select the average measure of these metrics to generate a report. You can select the miimum and maximum measures of these metrics. To use the average measure, select the following metrics:

- Duration (secs) (avg)

- Average Delay (millis) (avg)

- Average Jitter (millis) (avg)

- Average MOS (avg)

- Average Packet Loss Rate (avg)

# 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

- Peak Period

- Recent Sessions

# Chart Detail Report

This report plots the selected RTP session 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.

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 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 182 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 183to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 RTP session 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. By default, the Heat Chart report displays the data for all RTP sessions from the last 31 days, for all days of the week, for all hours of the day with no topology filter selected. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric**: drop-down list after clicking **Options**.

You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

**Note:** You can generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 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 182 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 183to specify the topology filters to be applied for the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 185 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 of the RTP session attributes and the RTP session metric, this report ranks the RTP session attribute values in the ascending or descending order of the total raw values of the RTP session metric. This report includes all the RTP sessions that had a variation for the specified RTP session attribute. The report displays the rank of the RTP session attribute value along with the RTP session metric value and the percentage of the RTP sessionl 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 RTP session attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the RTP session attributes that exhibit unusual occurrence levels in the RTP sessions.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list .

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

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 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 182 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# 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 Avaya IP Telephony RTP Session Metrics Reports" on page 182 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 182 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 RTP session metric values for two different (consecutive) time periods for specified grouping of RTP session attributes and ranks these groups of RTP session 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 RTP session 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 an RTP session metric, specify the RTP session attribute to group by, select the topology filter to scope the report only for certain RTP session attribute values, and specify the time range before generating the report.

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

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 Avaya IP Telephony RTP Session Metrics Reports" on page 182 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 182 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 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 182 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 183to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 185 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 RTP sessions based on the **Session Duration (secs)** metric. You can generate this report for an hour, a day, or a week to analyze the number of

RTP sessions on your network. You can select the number of RTP sessions you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 182 section.

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

## Recent Sessions Report

This report by default, displays the recent two RTP sessions on the network. You can select the number of RTP sessions you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Avaya IP Telephony RTP Session Metrics Reports" on page 182 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 182 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Avaya IP Telephony**.

3. Click **Avaya_RTP_Session_Metrics**

4. Click **Participant_Reception_Metrics**. This opens the Participant Reception Metrics page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Top N Chart

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

- Note: The minimum value you can specify for the display grain is one hour for Avaya IP Telephony Processor Occupancy reports.

- **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

- **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Chapter 2

# Cisco IP Telephony Reports

The Network Node Manager iSPI for IP Telephony Software provides you with the following extension packs to view and analyze the performance data of the Cisco IP telephony environment:

- Cisco_IPT_Calls_By_Details
- Cisco_IPT_Calls_By_GWs
- Cisco_IPT_Calls_By_IP_Trunks
- Cisco_IPT_Calls_Terminations_Type
- Cisco_IPT_GW_BChannel_Activity
- Cisco_IPT_GW_Call_Activity
- Cisco_IPT_Media_Resources
- Cisco_IPT_IPT_TFTP
- Cisco_IPT_UCM_Call_Activity
- Cisco_IPT_UCM_System_Health
- Cisco_IPT_UCOS_Services
- Cisco_IPT_VM_Systems

# Cisco IP Telephony CDR Reports

The iSPI for IP Telephony provides the Cisco IP Telephony CDR extension pack. You can use this extension pack to generate reports for the call count (Sample Count), the call duration, and the call quality metrics (such as jitter, latency, the number of packets lost, the MOS listening quality K-factor, and so on) for the Cisco Unified Communication Manager clusters deployed on your network. See the sections *Call Metric* and *Call Quality Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

You can use this extension pack to report on the multiple dimensions (attributes) of a call. The extension pack retains the data in the Network Performance Server (NPS) for a short period of time (32 days). You can use the data for short-term operational reporting and run the reports once a month. You can use the reports for further analysis using custom tools.

You can filter the reports based on the various attributes of the of the calls, such as the ID of the cluster that handled the call, the name of the call manager that handled the call, the calling party number, the called party number, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.
You can view the following types of reports using this extension pack:

- Chart Detail

- Heat Chart

- Top N

- Most Changed

- Calendar

- Managed Inventory

- Recent Calls

- Peak Period

# Prerequisites to Enable Cisco CDR Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco IP Telephony CDR reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony. If you have installed the iSPI for IP Telephony before installing the iSPI Performance for Metrics, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics in your deployment environment.

2. Configure the iSPI for IP Telephony to enable CDR data collection from each Cisco Unified Communication Manager cluster in your network. for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

3. Configure the iSPI for IP Telephony to enable collection of Cisco AXL API exposed configuration data from each of the Cisco Unified Communication Manager clusters in your network for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

4. Enable Cisco CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Cisco CDR Reporting** section for additional information.

5. Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Cisco IP Telephony CDR extension pack.

# Accessing the Cisco IP Telephony CDR Reports

**To access the Cisco IP Telephony CDR 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 the **Cisco IP Telephony** > **Call Details** > **Duration Volume By Details** or the **Hourly Usage Volume By Details** option to view a list of the supported Cisco CDR Report formats.

4. You can click any report format to launch the specific report based on the default metrics.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

1. Click **Time Control** from the left panel on the NNM iSPI 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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

## Specifying the Hour of the Day and the Day of the Week

You can specify the hour of the day and the day of the week for which you want to generate the report from the **Hour / Day Filters** workspace on the left panel of the NNM iSPI Performance page. You can select the required hours and the required days from the appropriate boxes and click **Submit**. You can select multiple values by pressing the Shift key or the Control (Ctrl) key.

The iSPI for IP Telephony marks the call metric data with a universal time stamp known as *seconds since epoch*, which directly reflects the Universal timestamp (in *seconds since epoch*) on the Cisco Unified Communications Manager server that logged the call. The Network Performance Server (NPS) converts this timestamp into the local time as defined by the location of the NPS. If the Cisco Unified Communications Manager server that logged the call is in a different time zone when compared to the time zone of the NPS or the iSPI for IP Telephony, the NPS data will not be in synchronization with the local time of the Cisco Unified Communications Manager server.

Note that when you generate the reports, the NPS converts the time the call was handled by the Cisco Unified Communications Manager server to the local time on the NPS. The reports display this converted time and not the time the call was handled by the Cisco Unified Communications Manager server.

## Specifying Topology Filters

Topology filters allow you to scope or filter the call metric reports based on the various combinations of the call attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Call Manager Name, Calling Party Number, Called Party Number, and so on. 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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon  and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon  and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
| --- | --- |
| Cluster ID | The unique identifier or name of the cluster that handled the call. |
| Call Manager Name | The name of the call manager that handled the call. |
| Call Manager IP Address | The IP address of the call manager that handled the call. |
| Calling Party Number | The number of the party from where the call originated. |
| Called Party Number | The number of the party to which the call was made. |
| Outbound Gateway IP Address | The IP address of the gateway through which the call was routed by that cluster that handled the call. |
| Inbound Gateway IP Address | The IP address of the gateway through which the call reached the cluster that handled the call. |

| Attribute | Description |
|---|---|
| Outbound Gateway Name | The name of the Voice Gateway through which the call was routed out of the Cluster that handled the call. This can be the name of the Voice Gateway Endpoint (configured on the Call Manager) or the name of the interface in case of an MGCP or SCCP. |
| Inbound Gateway Name | The name of the Voice Gateway through which the call reached the Cluster that handled the call. This can be the name of the Voice Gateway Endpoint (configured on the Call Manager) or the name of the interface in case of an MGCP or SCCP. |
| Outbound ICT Remote Cluster ID | The ID of the remote cluster to which the call was routed by the Cluster that handled the call. |
| Inbound ICT Remote Cluster ID | The ID of the remote cluster from which the call reached the Cluster that handled the call. |
| Outbound ICT Name | The name of the Inter Cluster Trunk through which the call was routed out of the Cluster that handled the call. |
| Inbound ICT Name | The name of the Inter Cluster Trunk through which the call reached the Cluster that handled the call. |
| Terminating Party | The party that terminated the call. You can select any of the following options to filter the information:<br><br>● Destination Party<br><br>● Originating Party |

| Attribute | Description |
|---|---|
| Termination Reason | The reason for termination of the call. You can select the following option to filter the information: Normal Call Clearing |
| Call Classification | Classifies the call being reported based on the Cluster that handled the call. Possible values are as follows:<br><br>• Inbound Gateway<br><br>• Outbound Gateway<br><br>• Originating and Terminating via Gateway<br><br>• Inbound Inter Cluster IP Trunk<br><br>• Inbound Inter-Cluster IP Trunk-Outbound Gateway<br><br>• Outbound Inter-Cluster IP Trunk<br><br>• Inbound Gateway-Outbound Inter-Cluster IP Trunk<br><br>• Originating and Terminating via Inter-Cluster IP Trunk<br><br>• Intra-Cluster IP to IP Call |
| Calling Party Location | Specifies the location of the party from where the call originated. |
| Calling Party Site Code | Specifies the site code configured for the party from where the call originated. |
| Calling Party Mail-Code | Specifies the mail code configured for the party from where the call originated. |
| Called Party Location | Specifies location of the party to which the call was made. |
| Called Party Site Code | Specifies site code configured for the party to which the call was made. |
| Called Party Mail-Code | Specifies mail code configured |

| Attribute | Description |
|-----------|-------------|
|  | for the party to which the call was made. |
| SGUUID | The UUID of the security group associated with the Call Manager.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

You must specify meaningful values for the Location, Site Code, and the Mail-Code attributes for the calling party and the called party if you want to filter the report based on these attributes. You can use the Topology Details Form view to make these changes. The iSPI for IP Telephony does not populate these fields during the automatic discovery.

**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 call attribute values in the **Selection** list. The list of attribute values are displayed based on all the call metric records available in the database at a given point of time. To select the specific attribute values for a call, make sure that an hour has elapsed on the network after the completion of the call.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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.

# Types of Reports

This extension pack helps you to view reports based on the call detail records collected and processed by the iSPI for IP Telephony. You can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the Call Manager IP Address, the inbound gateway name, the inbound gateway IP address, and so on ) that were involved in the call.

You can also view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress.

The extension pack provides the reports in the following folders:

- Duration Volume By Details

- Hourly Usage Volume By Details

## Duration Volume Reports

Using the report templates under this folder, you can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony

entities (such as the Call Manager name, the Call Manager IP Address, the inbound gateway name, the inbound gateway IP address, and so on ) that were involved in the call. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail
- Heat Chart
- Top N
- Recent Calls
- Top N Chart
- Most Changed
- Calendar
- Peak Period

## Specifying Metrics for Reports

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

**To access the Report Options page and specify the metrics:**

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.

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

Click here to see the call metrics, the call quality metrics, and the distinct count of call attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Duration (secs) | The duration of the call in seconds. |
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |

| Quality Metric | Description |
|---|---|
| [1]Jitter in Originating Leg | The jitter in the originating leg.for the call in milliseconds. |
| [1]Latency in Originating Leg | The latency in the originating leg.for the call. |
| [1]Number of Packets Lost in Originating Leg | The number of packets lost in the originating leg for the call. |
| [1]Jitter in Destination Leg | The jitter in the destination leg for the call. |

| Metric | Description |
|---|---|
| [1]Latency in Destination Leg | The latency in the destination leg for the call. |
| [1]Number of Packets Lost in Destination Leg | The number of packets lost in the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Destination Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Originating Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the originating leg for the call. |
| [1]MOS Listening Quality K-Factor Min in Destination Leg | The minumum K-factor Mean Opinion Score (MOS) for listening quality at the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Min in Originating Leg | The minimum K-factor Mean Opinion Score (MOS) for listening quality at the originating leg for the call. |

[1]Do not select the average measure of these metrics to generate a report. You can select the miimum and maximum measures of these metrics. To use the average measure, select the following metrics:

- Call Duration (secs) (avg)

- Jitter in Dest Leg (millis) (avg)

- Jitter in Orig Leg (millis) (avg)

- Latency in Dest Leg (millis) (avg)

- Latency in Orig Leg (millis) (avg)

- MOS LQ K-Factor Average in Dest Leg (avg)

- MOS LQ K-Factor Average in Orig Leg (avg)

- MOS LQ K-Factor Minimum in Dest Leg (avg)

- MOS LQ K-Factor Minimum in Orig Leg (avg)

- Packets Lost in Dest Leg (avg)

- Packets Lost in Orig Leg (avg)

- Packet Loss Pct in Dest Leg (avg)

- Packet Loss Pct in Orig Leg (avg)

You must specify meaningful values for the Location, Site Code, and the Mail-Code attributes for the calling party and the called party if you want to filter the report based on these attributes. You can use the Topology Details Form view to make these changes. The NNM iSPI for IP Telephony does not populate these fields during the automatic discovery.

## Chart Detail Report

This report plots the selected call 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.

For example, if you select the **Sample Count** as the primary metric, the **Call Duration (avg)** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the trend for the Hourly Call Attempts (HCA) and the Busy Hour Call Attempts (BHCA) along with the average duration for every hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 202 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 call 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. By default, the Heat Chart report displays the data for all calls from the last 31 days, for all days of the week, for all hours of the day, the **Call Duration (secs) (avg)** as the call metric, and with no topology filter selected. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric:** drop-down list after clicking **Options**.

For example, if you want to identify the hour of the month, week, or day when the number of call attempts were the highest, you can select the **Sample Count** as the metric and set the time control

options to the default values for this report as discussed in the previous paragraph and then generate the report. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 202 to specify the metric for the report.

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

**Sample Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a call metric. For example, if you select the call count (**Sample Count (sum)**) metric to generate the Heat Chart report, you can use the report to identify the following instances on your IP Telephony network:

- Spot an isolated instance (when the metric value was high) such as the Busy Hour Call Attempts (BHCA) that affected the results for one day.

- Spot day-of-the-week patterns.

- Verify that a high call volume or call duration condition returned to normal after a period of time.

## Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list.

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Cluster ID**

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

## Recent Calls Report

This report by default, displays two of the most recent calls on the network.You can select the number of calls you want the report to display from the options provided by the report template.

**To launch the Recent Calls report, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 196 section.

3. Click **Options** from the menu.

4. Specify the number of calls to be displayed in the report,

5. Select the topology filter to be applied to filter the report.

6. 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 Cisco IP Telephony CDR Reports" on page 195 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 196 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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 call metric values for two different (consecutive) time periods for specified grouping of call attributes and ranks these groups of call 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 call 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 call metric, specify the call attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

For example, if you want to analyze the overall call volume variation for all the clusters in your deployment environment over a specified time frame, click the **Options** link and select the **Cluster**

**ID** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Cluster ID call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call attribute drop-down lists displayed 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 Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

**Note:** As this report compares the variations in the call metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two call metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month. You can select the **Until Now** option from the **Time Range** drop-down list to see the call data for the past 70 days, based on the duration for which the iSPI for IP Telephony has been processing the CDR data and sharing this data with the NPS.

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 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 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 202 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 calls based on the **Call Duration (secs)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 196 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_IPT_CDR_Collection**

3. Click **CiscoIPTCDRMetrics**. This opens the CiscoIPTCDRMetrics page.

4.  Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:

    ■ Chart Detail

    ■ Heat Chart

    ■ Top N

    ■ Most Changed

    ■ Calendar

    ■ Peak Period

5.  Click a report template. This opens the Time Controls page.

6.  Specify the following details for the time controls:

    ■ **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

    ■ **Display Grain**: set the interval at which the report must represent data.

    ■ Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

    ■ **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

    ■ **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7.  Click **Confirm Selection**. This opens the Topology Filter page.

8.  Select the required topology attributes for the call that you want to filter while generating the report.

9.  Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Hourly Usage Reports

Using the report templates under this folder, you can view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress. The iSPI for IP Telephony provides the following report templates under this folder:

●  Chart Detail

●  Heat Chart

●  Top N

●  Top N Chart

- Most Changed

- Calendar

- Peak Period

## Specifying Metrics for Reports

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

**To access the Report Options page and specify the metrics:**

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.

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

Click here to see the call metrics, the call quality metrics, and the distinct count of call attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Hourly Usage (Erlangs) | The hourly usage of the IP telephony entities measured in Erlangs during the duration of the call. |
| Sample Count (sum) | The sum of the calls in progress. |

[1]Do not select the average measure of this metric to generate a report. You can select the miimum and maximum measures of this metric. To use the average measure, select the following metric:

Usage (Erlangs)

You must specify meaningful values for the Location, Site Code, and the Mail-Code attributes for the calling party and the called party if you want to filter the report based on these attributes. You can use the Topology Details Form view to make these changes. The iSPI for IP Telephony does not populate these fields during the automatic discovery.

## Chart Detail Report

This report plots the selected 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.

For example, if you select the **Sample Count** as the primary metric, the **Hourly Usage** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the number of calls in progress for the specific hour and the usage of the associated IP telephony entities during the hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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 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. By default, the Heat Chart report displays the data for all calls from the last 31 days, for all days of the week and for all hours of the day.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page to specify the metric for the report.

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

## Top N 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. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the attribute 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.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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 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 call attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call attribute drop-down lists displayed 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 Cisco IP Telephony CDR Reports" on page 195 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 196 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

**Note:** As this report compares the variations in the metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two call metrics in a single, extended graph spanning over multiple days. By default, this report displays the data for the current month. You can select the **Until Now** option from the **Time Range** drop-down list to see the data for the past 70 days, based on the duration for which the iSPI for IP Telephony has been processing the CDR data and sharing this data with the NPS.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 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 196 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 197 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 212 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 hours based on the **Usage (Erlangs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony CDR Reports" on page 195 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 196 section.

3. 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 Cisco IP Telephony CDR Reports" on page 195 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 196 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

# Cisco IP Telephony Gateway Calls Reports

The iSPI for IP Telephony provides the Gateway Calls extension pack. You can use this extension pack to generate reports for the cluster ID, direction, gateway name, and so on for the Cisco Gateways deployed on your network. See the sections *Call Metric* and *Call Quality Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. You can use this extension pack for capacity planning.

You can filter the reports based on the various attributes of the of the calls, such as the ID of the cluster that handled the call, the name of the call manager that handled the call, the calling party number, the called party number, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

# Prerequisites to Enable Cisco Gateway Calls Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco Gateway call reporting:

1. Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics/NPS) in your deployment environment before installing the iSPI for IP Telephony. If you have installed the iSPI for IP Telephony before installing the iSPI Performance for Metrics/NPS, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics/NPS in your deployment environment.

2. Configure the iSPI for IP Telephony to enable CDR data collection from each Cisco Unified Communication Manager cluster in your network. for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

3. Configure the iSPI for IP Telephony to enable collection of Cisco AXL API exposed configuration data from each of the Cisco Unified Communication Manager clusters in your network for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

4. Enable Cisco CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Cisco CDR Reporting** section for additional information.

5. Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Cisco Gateway Calls extension pack.

# Accessing the Cisco IP Telephony Gateway Calls Reports

**To access the Cisco IP Telephony Gateway Calls 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 **Cisco IP Telephony** > **Gateway Calls** > **Gateway_Calls** to see a list of reports you can launch for the Cisco gateway calls.

4. You can click any report format to launch the specific report based on the default metrics (**Period Length (secs) (sum)**) as the primary metric and the **Call Duration (secs) (avg)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the attribute values available in the accumulated metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Call Manager Name, Calling Party Number, Called Party Number, and so on. 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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

      and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon

      and then select values of your choice (by pressing the Control **Ctrl** key).

- If you want to search and select a value for a topology filter from a list of values, click the

  **Search and Select** icon [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.

| Gateway Attribute | Description |
| --- | --- |
| Cluster ID | The unique identifier or name of the cluster that handled the call. |
| Call Manager Name | The name of the call manager that handled the call. |
| Gateway Name | The name of the Voice Gateway through which the call was routed out of the Cluster that handled the call. This can be the name of the Voice Gateway Endpoint (configured on the Call Manager) or the name of the interface in case of an MGCP or SCCP. |
| Custom Info | The custom information configured for the gateway. This can be as follows: |

| Gateway Attribute | Description |
| --- | --- |
| | • LD<br>• LEC<br>• 911 |
| Number of B-Channels | The number of B-channels included in the gateway. |
| Direction | The direction of the call. This signifies if the call is inbound or outbound. |

**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 after the completion of the call.

- 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.

# Types of Reports

This extension pack helps you to view reports based on the call detail records collected and processed by the iSPI for IP Telephony. You can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the gateway name, the number of B-Channels, and so on ) that were involved in the call.

You can also view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress.

The extension pack provides the reports in the following folders:

- Duration Volume By Details
- Hourly Usage Volume By Details

## Duration Volume Reports

Using the report templates under this folder, you can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the Call Manager IP Address, the gateway name, the number of B-Channels, and so on ) that were involved in the call. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

- Blocked Calls Percentage

- P.01 GoS Summary

## Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the call metrics, the call quality metrics, and the distinct count of call attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Call Duration | The call duration in seconds. |
| Sample Count | The sample count of the hourly data records stored in the Network Performance Server (NPS). |
| [1]Jitter in Originating Leg | The jitter in the originating leg.for the call in milliseconds. |
| [1]Latency in Originating Leg | The latency in the originating leg.for the call. |
| [1]Number of Packets Lost in Originating Leg | The number of packets lost in the originating leg for the call. |
| [1]Jitter in Destination Leg | The jitter in the destination leg for the call. |
| [1]Latency in Destination Leg | The latency in the destination leg for the call. |

| Metric | Description |
|---|---|
| [1]Number of Packets Lost in Destination Leg | The number of packets lost in the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Destination Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Originating Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the originating leg for the call. |
| Duration (secs) | The duration of the call in seconds. **Note:** Do not select the average value of this metric to generate a report. You can select the average value for the Call Duration metric. You can however select the minimum and maximum options for this metric to generate reports. |

| Attribute Distinct Count | Description |
|---|---|
| Cluster ID (countDistinct) | The distinct count of the cluster ID that handled the call. |
| Call Manager Name (countDistinct) | The distinct count of the Call Manager Name that handled the call. |
| Gateway Name (countDistinct) | The distinct count of the Gateway Name that handled the call. |
| Custom Info (countDistinct) | The distinct count of the Custom Info configured for the gateway. |
| Number of B-Channels (countDistinct) | The distinct count of the number of B-channels included in the gateway. |
| Direction (countDistinct) | The distinct count of the direction of the call. |
| SGUUID (countDistinct) | The distinct count of the UUID of the security group associated with the gateway. |

[1]You 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 Calling Party Number (countDistinct) metric, and three

distinct calling parties had made during the time specified, the report lists the value for the Calling Party Number (countDistinct) as 3.

## Chart Detail Report

This report plots the selected call 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.

For example, if you select the **Sample Count** as the primary metric, the **Call Duration (avg)** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the trend for the Hourly Call Attempts (HCA) and the Busy Hour Call Attempts (BHCA) along with the average duration for every hour.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 223 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 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 generate a Chart Detail Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 223 to specify the metric for the report.

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

## Top N 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. This report includes all the that had a variation for the specified attribute. The report displays the rank of the attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes that exhibit unusual occurrence levels.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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 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.

For example, if you want to analyze the overall volume variation for all the clusters in your deployment environment over a specified time frame, click the **Options** link and select the **Cluster ID** attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the volume variation must be analyzed.

By default, this report groups data by the Cluster ID attribute. You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of

the attributes. You can remove the additional attribute drop-down lists displayed 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 Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

**Note:** As this report compares the variations in the metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## 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 Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 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 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 223 to specify the primary metric and the secondary metric for the report.

5. 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 Cisco IP Telephony Gateway Calls Reports" on page 219 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 219 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

## Blocked Calls Percentage Report

This report lets you do gateway usage and call routing capacity planning by generating the estimates for the Blocked Calls Percentages for each gateway during the Busiest Hour or Busiest Day. This report is applicable only for the Gateway devices that are channelized such as T1/E1 PRIs.

The report uses hourly aggregated Cisco CDR reported call information stored in NPS under Cisco IP Telephony Gateway Calls reporting packages.

For each gateway device in the set, the report first determines the Busiest Hour Calls carried, the busiest hour and the estimated number of Calls offered during the Busiest Hour. The report determines the estimated calls offered during the busiest hour by calculating a fraction of total Calls Carried in the day of the busiest hour. The report uses the fractional multiplier 14% by default. You can configure this value before generating the report. After estimating the busiest hour calls offered, the report estimates the percentage of offered calls that was blocked in the busiest hour. This is calculated by determining the difference between the estimated calls offered and calls carried during the busiest hour.

You can do a similar analysis for estimating the blocked calls percentage during the busiest day by selecting the Day as the option in the report options. While estimating the busiest day blocked calls percentage, the report first determines the Busiest day Calls carried, the busiest day, and the estimated number of Calls offered during the Busiest day. The report calculates the estimated calls offered during the busiest day by calculating a fraction of total Calls Carried in the week of the busiest day. The report uses the fractional multiplier 14% by default. You can configure this value before generating the report. After estimating the busiest day calls offered, the report estimates the

percentage of offered calls blocked in the busiest day. This is calculated by determining the difference between the estimated calls offered and calls carried during the busiest day.

## P.01 GoS Summary Report

This report helps you do gateway usage and call routing capacity planning by generating the usage summary for a selected group of Cisco Voice gateway devices. This report is applicable only for the Gateway devices that are channelized, such as T1/E1 PRIs. This report displays a summary of the usage for any selected group as a logical bundle of channels along with the summary of the usage for each gateway device referenced by the group.

The report displays the final result for the group and each gateway in the group and also includes an indicator of the Grade of Service for the set as well as for each Gateway device in the set. This indicator indicates a percent of P.01 Grade Of Service for the number of channels in the set of Gateways for the group. the report displays the compliance indicator for each Gateway device in the selected group.

The P.01 Grade of Service indicates, for a given number of channels in a logical bundle, the Busy Hour Traffic (BHT) that the set representing the logical bundle can sustain with 0.01% blockage.

The report uses hourly aggregated Cisco CDR reported call information stored in NPS under the Cisco IP Telephony Gateway Calls reporting package to arrive at the conclusions.

For each gateway device in the set, the report first determines the Total calls, the Average Duration for a call and the Busiest Day Calls carried by the gateway during the selected time period. The report then estimates the Busiest Hour Calls offered to the gateway by calculating a fraction of the Busiest Day Calls carried by the gateway. The report uses 14% as the fractional multiplier by default. You can configure this before generating the report. After estimating the Busiest Hour Calls offered, the report calculates the Busiest Hour Traffic (BHT) as the result of Busiest Hour Calls offered multiplied by the Average Duration for a Call. The report then compares the BHT against the P.01 GoS BHT for the number of channels in the gateway device. The report displays the comparison as a percentage and indicates the compliance of this percentage with P.01 GoS standards.

This report performs similar calculations for the gateway group and treats the set of channels as a logical bundle of channels. This time the report determines the Total Calls, the Average Duration for a call, and the Busiest Day Calls carried for the complete set of gateways in the group. The report calculates the Average Duration for a call and the Busiest Day Calls carried for the set of channels. This calculation is not a sum of the same parameters for all the gateways. The report then estimates the Busiest Hour Calls offered to the group by calculating a fraction of the Busiest Day Calls carried. The report uses 14% as the fractional multiplier by default. You can configure this before generating the report. After estimating the Busiest Hour Calls offered, the report calculates the Busiest Hour Traffic (BHT) as the result of Busiest Hour Calls offered multiplied by the Average Duration for a Call. The report then compares the BHT against the P.01 GoS BHT for the total number of channels in the group. The report displays the comparison as a percentage and indicates the compliance of this percentage with P.01 GoS standards. The total number of channels in a group is the sum of number channels for all the gateways in the group.

**Note:** You can select the option to generate the report based on the inbound calls carried, the outbound calls carried, or both from the options provided for the report.

## Peak Period Report

This report by default, displays the top 10 calls based on the **Period Length (secs) (sum)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 219 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Gateway Calls**

3. Click **Gateway_Calls**. This opens the Gateway_Calls page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports.

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

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10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Hourly Usage Reports

Using the report templates under this folder, you can view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

## Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the call metrics, the call quality metrics, and the distinct count of call attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Hourly Usage (Erlangs) | The hourly usage of the IP telephony entities measured in Erlangs during the duration of the call. |
| Sample Count (sum) | The sum of the calls in progress. |
| Usage (Erlangs) | The total usage of the IP telephony entities measured in Erlangs during the time frame specified. |

| Metric | Description |
| --- | --- |
| **Attribute Distinct Count** | **Description** |
| Cluster ID (countDistinct) | The distinct count of the cluster ID that handled the call. |
| Call Manager Name (countDistinct) | The distinct count of the Call Manager Name that handled the call. |
| Gateway Name (countDistinct) | The distinct count of the Gateway Name that handled the call. |
| Custom Info (countDistinct) | The distinct count of the Custom Info configured for the gateway. |
| Number of B-Channels (countDistinct) | The distinct count of the number of B-channels included in the gateway. |
| Direction (countDistinct) | The distinct count of the direction of the call. |
| SGUUID (countDistinct) | The distinct count of the UUID of the security group associated with the gateway. |

[1]You 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 Calling Party Number (countDistinct) metric, and three distinct calling parties had made during the time specified, the report lists the value for the Calling Party Number (countDistinct) as 3.

## Chart Detail Report

This report plots the selected 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.

For example, if you select the **Sample Count** as the primary metric, the **Hourly Usage** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the number of calls in progress for the specific hour and the usage of the associated IP telephony entities during the hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 233 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.

## 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 Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 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 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 233 to specify the primary metric and the secondary metric for the report.

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

## Heat Chart Report

This report displays the hourly values of the selected 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.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 220 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 233 to specify the metric for the report.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

**Note:** As this report compares the variations in the metric values for two consecutive time frames, you must not select the **Until Now** option from the **Time Range** drop-down list accessible from the **Time Controls** link for this report. Selecting the **Until Now** option results in an error and displays the following message:

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

## Peak Period Report

This report by default, displays the top 10 hours based on the **Usage (Erlangs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway Calls Reports" on page 219 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 219 section.

3. 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 Cisco IP Telephony Gateway Calls Reports" on page 219 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 219 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

> **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   ▪ **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

## Top N 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. This report includes all the calls that had a variation for the specified attribute. The report displays the rank of the attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes 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 Cisco IP Telephony Gateway Calls Reports" on page 219 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 219 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf 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.

# Cisco IP Telephony IP Trunk Calls Reports

The iSPI for IP Telephony provides the Cisco IPT IP Trunk Calls extension pack. You can use this extension pack to generate reports for the IP Trunk calls based on IP trunk call attributes such as the cluster ID , Direction, the ICT name, and so on. See the sections *Call Metric* and *Call Quality Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. You can use this extension pack for long term capacity planning.

You can filter the reports based on the various attributes of the of the calls, such as the ID of the cluster that handled the call, the name of the call manager that handled the call, the calling party number, the called party number, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

# Prerequisites to Enable Cisco IP Trunk Call Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco IP Trunk call reporting:

1. Install the NNM iSPI Performance for Metrics/Network Performance Server (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony. If you have installed the iSPI for IP Telephony before installing the iSPI Performance for Metrics, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics in your deployment environment.

2. Configure the iSPI for IP Telephony to enable CDR data collection from each Cisco Unified Communication Manager cluster in your network. for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

3. Configure the iSPI for IP Telephony to enable collection of Cisco AXL API exposed configuration data from each of the Cisco Unified Communication Manager clusters in your network for which you want to view the reports on call metrics. See the *Online Help* for the

iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

4. Enable Cisco CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Cisco CDR Reporting** section for additional information.

5. Verify that the iSPI Performance for Metrics/NPS is running before opening the reports provided by the Cisco IPT IP Trunk Calls extension pack.

# Accessing the Cisco IP Trunk Calls Reports

**To access the Cisco IP Trunk Calls 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 **Cisco IP Telephony** > **Cisco_IPT_IP_Trunk_Calls** > **IP_Trunk_Calls** to see a list of reports you can launch for the Cisco IP trunk calls.

4. You can click any report format to launch the specific report based on the default metrics (**Call Duration (secs) (avg)**) as the primary metric and the **Period Length (secs) (sum)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

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

**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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon
    and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon
    and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
| --- | --- |
| Cluster ID | The unique identifier or name of the cluster that handled the call. |
| Cluster Call Manager Name | The name of the call manager that handled the call. |
| Remote Cluster ID | The unique ID of the remote cluster. |
| Remote Cluster Call Manager Name | The name of the call manager at the remote cluster. |
| ICT Name | The name of the Inter Cluster Trunk (ICT) that carried the call. |
| Direction | The direction of the call. This can be one of the following:<br><br>● In<br><br>● Out |

**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.

● 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.

# Types of Reports

This extension pack helps you to view reports based on the call detail records collected and processed by the iSPI for IP Telephony. You can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the Call Manager IP Address, the ICT name, and so on ) that were involved in the call.

You can also view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress.

The extension pack provides the reports in the following folders:

- Duration Volume By Details
- Hourly Usage Volume By Details

## Duration Volume Reports

Using the report templates under this folder, you can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the Call Manager IP Address, the ICT name, and so on ) that were involved in the call. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail
- Heat Chart
- Top N
- Top N Chart
- Most Changed
- Calendar
- Peak Period

### Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Call Duration | The call duration in seconds. |
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |
| Duration (secs) | The duration of the call in seconds.<br><br>**Note:** Do not select the average value of this metric to generate a report. You can select the average value for the Call Duration metric. You can however select the minimum and maximum options for this metric to generate reports. |
| [1]Jitter in Originating Leg | The jitter in the originating leg.for the call in milliseconds. |
| [1]Latency in Originating Leg | The latency in the originating leg.for the call. |
| [1]Number of Packets Lost in Originating Leg | The number of packets lost in the originating leg for the call. |
| [1]Jitter in Destination Leg | The jitter in the destination leg for the call. |
| [1]Latency in Destination Leg | The latency in the destination leg for the call. |
| [1]Number of Packets Lost in Destination Leg | The number of packets lost in the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Destination Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Originating Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the originating leg for the call. |
| **Attribute Distinct Count** | **Description** |
| Cluster ID | The distinct count of the Cluster ID, where Cluster ID represents the name of the call attribute. |
| Cluster Call Manager Name | The distinct count of the Cluster Call Manager Name, where Cluster Call Manager Name represents the name of the call attribute. |
| Call Manager IP Address | The distinct count of the Call Manager IP Address, where Call Manager IP Address represents the name of the call attribute. |
| ICT Name | The distinct count of the ICT Name, where ICT Name represents the name of the call attribute. |

| Metric | Description |
|--------|-------------|
| Direction | The distinct count of the Direction, where Direction represents the name of the call attribute. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

## Chart Detail Report

This report plots the selected call 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.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 244 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 244 to specify the metric for the report.

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

## Top N 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. The report displays the rank of the attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 highest 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 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.

For example, if you want to analyze the overall call volume variation for all the clusters in your deployment environment over a specified time frame, click the **Options** link and select the **Cluster ID** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Cluster ID call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

## Calendar Report

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

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 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 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 244 to specify the primary metric and the secondary metric for the report.

5. 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 Cisco IP Trunk Calls Reports" on page 241 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 241 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 highest 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.

## Peak Period Report

This report by default, displays the top 10 calls based on the **Call Duration (secs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 241 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco IP Telephony**

3.  Click **Cisco_IPT_IP_Trunk_Calls**

4.  Click **IP_Trunk_Calls**. This opens the IP_Trunk_Calls page.

5.  Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
    - Chart Detail
    - Chart Detail CSV
    - Heat Chart
    - Top N
    - Top N Chart
    - Most Changed
    - Calendar

6.  Click a report template. This opens the Time Controls page.

7.  Specify the following details for the time controls:
    - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
    - **Display Grain**: set the interval at which the report must represent data.
    - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.
    - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
    - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8.  Click **Confirm Selection**. This opens the Topology Filter page.

9.  Select the required topology attributes for the call that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

## Hourly Usage Reports

Using the report templates under this folder, you can view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

## Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Hourly Usage (Erlangs) | The hourly usage of the IP telephony entities measured in Erlangs during the duration of the call. |
| Sample Count (sum) | The sum of the calls in progress. |
| Usage (Erlangs) | The total usage of the IP telephony entities measured in Erlangs during the time frame specified. |

| Attribute Distinct Count | Description |
|---|---|
| Cluster ID | The distinct count of the Cluster ID, where Cluster ID represents the name of the call attribute. |
| Cluster Call Manager Name | The distinct count of the Cluster Call Manager Name, where Cluster Call Manager Name represents the name of the call attribute. |
| Call Manager IP Address | The distinct count of the Call Manager IP Address, where Call Manager IP Address represents the name of the call attribute. |
| ICT Name | The distinct count of the ICT Name, where ICT Name represents the name of the call attribute. |

| Metric | Description |
|---|---|
| Direction | The distinct count of the Direction, where Direction represents the name of the call attribute. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

## Chart Detail Report

This report plots the selected 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.

For example, if you select the **Sample Count** as the primary metric, the **Hourly Usage** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the number of calls in progress for the specific hour and the usage of the associated IP telephony entities during the hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on previous page 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.

## Calendar Report

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

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 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 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 253 to specify the primary metric and the secondary metric for the report.

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

## Heat Chart Report

This report displays the hourly values of the selected 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.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 242 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 253 to specify the metric for the report.

5. 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 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 call attributes by clicking the **Add New Grouping** icon 🔳. Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call

attribute drop-down lists displayed by clicking the **Remove Grouping** icon ❌.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

## Peak Period Report

This report by default, displays the top 10 hours based on the **Usage (Erlangs) (avg)** metric.. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 241 section.

3. 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 Cisco IP Trunk Calls Reports" on page 241 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 241 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon. Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 highest 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.

## Top N 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. The report displays the rank of the attribute 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 attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

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

1. Perform the steps in the section"Accessing the Cisco IP Trunk Calls Reports" on page 241 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 241 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 highest 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.

# Cisco IP Telephony Call Types and Termination Reasons Reports

The iSPI for IP Telephony provides the Cisco IPT Calls Termination Types extension pack. You can use this extension pack to generate reports based on the call types and call termination reasons. You can select the Cluster ID, Call Types, and Termination Reasons for the Cisco Unified Communication Manager clusters deployed on your network. See the sections *Call Metric* and *Call Quality Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 400 days. You can use this extension pack for capacity planning.

You can filter the reports based on the various attributes of the of the calls, such as the ID of the cluster that handled the call, the name of the call manager that handled the call, the calling party number, the called party number, and so on. See the section Specifying Topology Filters for more information about the attributes you can specify to filter the reports. You can use the different report formats to view specific metric details across a range of time frames and perform a trend analysis to assist you better in taking decisions for your IP Telephony infrastructure.

# Prerequisites to Enable Cisco Call Types and Termination Reasons Reports

You must make sure that the following prerequisites are satisfied to enable Call Types and Termination Reasons reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony. If you have installed the iSPI for IP Telephony before installing the iSPI Performance for Metrics/NPS, make sure that you enable CDR reporting in the iSPI for IP Telephony only after installing the iSPI Performance for Metrics in your deployment environment.

2. Configure the iSPI for IP Telephony to enable CDR data collection from each Cisco Unified Communication Manager cluster in your network. for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

3. Configure the iSPI for IP Telephony to enable collection of Cisco AXL API exposed configuration data from each of the Cisco Unified Communication Manager clusters in your network for which you want to view the reports on call metrics. See the *Online Help* for the iSPI for IP Telephony > **Help for Administrators** > **Configure Data Access** > **Configure Data Access for Cisco** section for additional information.

4. Enable Cisco CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Configure Cisco CDR Reporting** section for additional information.

5. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IPT Calls Termination Types extension pack.

# Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports

**To access the Cisco IP Telephony Gateway Calls 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 **Cisco IP Telephony** > **Call Types and Termination Reasons** > **Termination_Reasons_and_Types** to see a list of reports you can launch using this extension pack.

4. You can click any report format to launch the specific report based on the default metrics (**Call Duration (secs) (avg)**) as the primary metric and the **Period Length (secs) (sum)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the call metric reports based on the various combinations of the call attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Call Manager Name, Calling Party Number, Called Party Number, and so on. 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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

      and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon

      and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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 of the calls.

| Attribute | Description |
|---|---|
| Cluster ID | The unique identifier or name of the cluster that handled the call. |
| Cluster Call Manager Name | The name of the call manager that handled the call.. |
| Duration (secs) | The duration of the call in seconds.<br><br>**Note:** Do not select the average value of this metric to generate a report. You can select the average value for |

| Attribute | Description |
|---|---|
| | the Call Duration metric. You can however select the minimum and maximum options for this metric to generate reports. |
| Call Type | The type of the call. You can select one of the following options:<br><br>• Inbound<br><br>• Outbound |
| Terminating Party | The party that terminated the call. You can select any of the following options to filter the information:<br><br>• Destination Party<br><br>• Originating Party |
| Terminating Reason | The reason for termination of the call. You can select the following option to filter the information: Normal Call Clearing. |

**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 call attribute values in the **Selection** list. The list of attribute values are displayed based on all the call metric records available in the database at a given point of time. To select the specific attribute values for a call, make sure that an hour has elapsed on the network after the completion of the call.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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.

# Types of Reports

This extension pack helps you to view reports based on the call detail records collected and processed by the iSPI for IP Telephony. You can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the terminating party, the terminating reason, and so on ) that were involved in the call.

You can also view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress.

The extension pack provides the reports in the following folders:

- Duration Volume By Details

- Hourly Usage Volume By Details

# Duration Volume Reports

Using the report templates under this folder, you can view the call duration reports based on the call quality metrics (such as jitter, latency, MOS, and so on) and the attributes of the IP telephony entities (such as the Call Manager name, the Call Manager name, the terminating party, the terminating reason, and so on ) that were involved in the call. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

## Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Call Duration | The call duration in seconds. |
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |
| [1]Jitter in Originating Leg | The jitter in the originating leg.for the call in milliseconds. |
| [1]Latency in Originating Leg | The latency in the originating leg.for the call. |
| [1]Number of Packets Lost in Originating Leg | The number of packets lost in the originating leg for the call. |

| Metric | Description |
|---|---|
| [1]Jitter in Destination Leg | The jitter in the destination leg for the call. |
| [1]Latency in Destination Leg | The latency in the destination leg for the call. |
| [1]Number of Packets Lost in Destination Leg | The number of packets lost in the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Destination Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the destination leg for the call. |
| [1]MOS Listening Quality K-Factor Average in Originating Leg | The average K-factor Mean Opinion Score (MOS) for listening quality at the originating leg for the call. |

| Attribute Distinct Count | Description |
|---|---|
| Cluster ID (countDistinct) | The distinct count of the Cluster ID, where Cluster ID represents the name of the call attribute. |
| Cluster Call Manager Name (countDistinct) | The distinct count of the name of the call manager that handled the call. |
| Call Type (countDistinct) | The distinct count of the type of the call. |
| Terminating Party (countDistinct) | The distinct count of the party that terminated the call. |
| Terminating Reason (countDistinct) | The distinct count of the reason for termination of the call. |

[1]You can select any of the following options for the call duration metric:

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

**Note:** The distinct count of call attributes represents the sum of the occurrences of unique values for the call attributes. For example, if you select the Calling Party Number (countDistinct) metric, and three distinct calling parties had made calls during the time specified, the report lists the value for the Calling Party Number (countDistinct) as 3.

## Chart Detail Report

This report plots the selected call 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.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 264 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 call 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. The minimum time range for this report is 24 hours. To change the call metric to sample count, select the **Sample Count (sum)** metric from the **Metric:** drop-down list after clicking **Options**.

For example, if you want to identify the hour of the month, week, or day when the number of call attempts were the highest, you can select the **Sample Count** as the metric and set the time control options to the default values for this report as discussed in the previous paragraph and then generate the report. You can move the mouse pointer on a cell in the table of the report to see the raw value of the call metric for the specific hour..

**Note:** You can generate a Chart Detail Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 264 to specify the metric for the report.

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

## Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

For example, if you want to identify the Top N termination reasons for the call, you can specify the **Sample Count (sum)** as the call metric and select the call attribute **Termination Reason** in the **Grouping By** drop-down list.

This report defaults to the following parameters:

- All calls

- Metric for ranking: **Sample Count (sum)**

- Top/Bottom N: **Top 10**

- Grouping By call attribute: **Cluster ID**

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

> **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon .
> Clicking on this icon displays another drop-down list of the call attributes. You can remove the
>
> additional call 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 highest 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 call metric values for two different (consecutive) time periods for specified grouping of call attributes and ranks these groups of call 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 call 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 call metric, specify the call attribute to group by, select the topology filter to scope the report only for certain call attribute values, and specify the time range before generating the report.

For example, if you want to analyze the overall call volume variation for all the clusters in your deployment environment over a specified time frame, click the **Options** link and select the **Cluster ID** call attribute from the **Grouping By** drop-down list and select the **Sample Count (sum)** call metric from the **Metric:** drop-down list. You can select an appropriate time frame over which the call volume variation must be analyzed.

By default, this report groups data by the Cluster ID call attribute. You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

## Calendar Report

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

For example, if you want to analyze the call duration and call volume based on the type of calls, you can select **Call Duration (secs) (avg)** and **Sample Count (sum)** as the primary and secondary

metrics and select the required values for the **Call Classification** call attribute from the Topology Filters page.

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 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 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 264 to specify the primary metric and the secondary metric for the report.

5. 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 Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 261 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.
   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 highest 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.

## Peak Period Report

This report by default, displays the top 10 calls based on the **Call Duration (secs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 261 section.

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

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Call Types and Termination Reasons**

3. Click **Termination_Reasons_and_Types**. This opens the Termination_Reasons_and_Types page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail
   - Chart Detail CSV
   - Heat Chart
   - Top N
   - Top N Chart
   - Most Changed
   - Calendar

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Hourly Usage Reports

Using the report templates under this folder, you can view reports for the hourly usage of IP telephony entities throughout the duration of a call that might span across hours. You can also view reports for the volume of calls in progress and the hourly usage of IP telephony entities involved in the calls in progress. The iSPI for IP Telephony provides the following report templates under this folder:

- Chart Detail

- Heat Chart

- Top N

- Top N Chart

- Most Changed

- Calendar

- Peak Period

## Specifying Metrics for Reports

You can use the **Options** link to specify the call metrics or the call 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Hourly Usage (Erlangs) | The hourly usage of the IP telephony entities measured in Erlangs during the duration of the call. |
| Sample Count (sum) | The sum of the calls in progress. |
| Usage (Erlangs) | The total usage of the IP telephony entities measured in Erlangs during the time frame specified. |
| **Attribute Distinct Count** | **Description** |

| Metric | Description |
|---|---|
| Cluster ID (countDistinct) | The distinct count of the Cluster ID, where Cluster ID represents the name of the call attribute. |
| Cluster Call Manager Name (countDistinct) | The distinct count of the name of the call manager that handled the call. |
| Call Type (countDistinct) | The distinct count of the type of the call. |
| Terminating Party (countDistinct) | The distinct count of the party that terminated the call. |
| Terminating Reason (countDistinct) | The distinct count of the reason for termination of the call. |

[1]You can select any of the following options for the call duration metric:

- Average (avg)

- Minimum (min)

- Maximum (max)

**Note:** The distinct count of call attributes represents the sum of the occurrences of unique values for the call attributes. For example, if you select the Calling Party Number (countDistinct) metric, and three distinct calling parties had made calls during the time specified, the report lists the value for the Calling Party Number (countDistinct) as 3.

## Chart Detail Report

This report plots the selected 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.

For example, if you select the **Sample Count** as the primary metric, the **Hourly Usage** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the number of calls in progress for the specific hour and the usage of the associated IP telephony entities during the hour.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 273 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.

## Calendar Report

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 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 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 273 to specify the primary metric and the secondary metric for the report.

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

## Heat Chart Report

This report displays the hourly values of the selected 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.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 261 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 273 to specify the metric for the report.

5. 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 call attributes and ranks these groups of call 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 call 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 call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call

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 Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

## Peak Period Report

This report by default, displays the top 10 hours based on the **Usage (Erlangs) (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the calls on your network. You can select the number of calls you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 261 section.

3. 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 Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 261 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional

   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 highest 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.

## Top N 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. This report includes all the calls that had a variation for the specified attribute. The report displays the rank of the attribute 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 call attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the attributes that exhibit unusual occurrence levels in the calls.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Call Types and Termination Reasons Reports" on page 260 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 261 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

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

# Cisco IP Telephony Gateway B Channel Activity Reports

The iSPI for IP Telephony provides the Cisco IP Telephony Cisco IPT BChannel Activity extension pack. You can use this extension pack to generate reports based on gateway B channel attributes such as the gateway name, the gateway interface name, and so on and the gateway B-channel quality metrics such as the number of B channels, the number of in-service B channels and so on. This report helps you analyze the gateway B-channel activity over a specified time period.. See the sections *Call Metric* and *Call Quality Metric* under Specifying Metrics for Reports for more information about the metrics you can specify to generate reports.

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

**Note:** You must tune the polling periodicity of Cisco Voice Gateway Channel Usage state using the iSPI for IP Telephony > Help for Administrators > Monitoring Configuration > to see the meaningful reports of the number of idle channels. See the iSPI for IP Telephony Deployment Guide for more information on tuning and configuration of this monitoring task to generate meaningful reports.

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

- Chart Detail
- Heat Chart
- Top N
- Most Changed
- Calendar
- Top N Chart
- Peak Period

## Prerequisites to Enable Cisco Gateway B Channel Activity Reports

You must make sure that the following prerequisites are satisfied to enable Cisco B-Channel activity reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

2. Enable Cisco CDR reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Enabling Cisco B Channel Activity Reports** section for additional information.

3. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IP Telephony Cisco IPT BChannel Activity extension pack.

# Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports

**To access the Cisco IP Telephony gateway b-channel activity 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 **Cisco IP Telephony** > **Cisco_IPT_BChannel_Activity** > **BChannelActivity** to see a list of reports you can launch for the Cisco B-Channel activity reports.

4. You can click any report format to launch the specific report based on the default metrics (**Number of B Channels (avg)**) as the primary metric and the **Number of In-Service Channels (avg)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the attribute values available in the accumulated call metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Gateway Name, gateway IP Address, and so on. 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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon
      and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon
      and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Cluster ID | The unique identifier of the cluster that includes the gateway B channel. |
| Gateway Name | The name of the gateway that includes the B channel. |
| Gateway IP Address | The IP address of the gateway that includes the B channel. |
| Gateway Interface Name | The interface name of the gateway that includes the B channel. |
| Gateway Interface Name Configured in CUCM Cluster | The gateway interface name configured in the .Cisco Unified Communications Manager (CUCM) cluster. |
| SGUUID | The ID of the security group associated with the gateway that includes the B Channel. |
| H323 gateway Device Name Configured in CUCM Cluster | The H323 gateway device name configured in the .Cisco Unified Communications Manager (CUCM) cluster. |
| Gateway Protocol | The protocol configured for the gateway that includes the B Channel. |

**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 call 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.

- By default, the Topology Filters page lists only 5000 distinct values in the **Selection** list for a specific call 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:**

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.

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

Click here to see the B channel metrics, the B Channel quality metrics, and the distinct count of the B Channel attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Number of B Channels | The number of B Channels during the time frame specified. |
| [1]Number of In-Service Channels | The number of In-service Channels during the time frame specified. If the containing gateway interface is operationally in service, all the underlying channels are assumed to be operationally in service. If the containing gateway interface is operationally down, all the underlying channels are assumed to be operationally out of service |
| [1]Number of Idle Channels | The number of idle channels during the time frame specified.<br><br>**Note:** You must tune the polling periodicity of Cisco Voice Gateway Channel Usage state using the iSPI for IP Telephony > Help for Administrators > Monitoring Configuration > to see the meaningful reports of the number of idle channels. |

| Attribute Distinct Count | Description |
|---|---|
| Cluster ID (countDistinct) | The distinct count of the Cluster ID, where Cluster ID represents the name of the B Channel attribute. |

| Metric | Description |
|--------|-------------|
| Gateway Name (countDistinct) | The distinct count of the Gateway Name, where Gateway Name represents the name of the B Channel attribute. |
| Gateway IP Address (countDistinct) | The distinct count of the Gateway IP Address, where Gateway IP Address represents the name of the B Channel attribute. |
| Gateway Interface Name (countDistinct) | The distinct count of the Gateway Interface Name, where Gateway Interface Name represents the name of the B Channel attribute. |
| Gateway Interface Name Configured in CUCM Cluster (countDistinct) | The distinct count of the Gateway Interface Name Configured in CUCM Cluster, where Gateway Interface Name Configured in CUCM Cluster represents the name of the B Channel attribute. |
| SGUUID (countDistinct) | The distinct count of the SGUUID, where SGUUID represents the name of the B Channel attribute. |
| H323 gateway Device Name Configured in CUCM Cluster (countDistinct) | The distinct count of theH323 gateway Device Name Configured in CUCM Cluster, where H323 gateway Device Name Configured in CUCM Cluster represents the name of the B Channel attribute. |
| Gateway Protocol (countDistinct) | The distinct count of the Gateway Protocol, where Gateway Protocol represents the name of the call attribute. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

**Note:** The distinct count of B Channel attributes represents the sum of the occurrences of unique values for the B Channel attributes. For example, if you select the Gateway Interface Name (countDistinct) metric, and three distinct gateway interfaces were selected while generating the report, the report lists the value for the Gateway Interface 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

- Peak Period

# Chart Detail Report

This report plots the selected call 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.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 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 281 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 282 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 284 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 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 281 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 282 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 284 to specify the metric for the report.

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

**Sample Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a call metric.:

- Spot an isolated instance (when the metric value was high).

- Spot day-of-the-week patterns.

# Top N 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 call metric . The report displays the rank of the B Channel attribute value along with the B Channel metric value and the percentage of the B Channel 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 B Channel attribute values that had occurrences at the extremes. You can also use this report to investigate historical sampled data for the call attributes that exhibit unusual occurrence levels in the calls.

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

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

1. Perform the steps in the section "Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 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 281 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 call metric values for two different (consecutive) time periods for specified grouping of B Channel attributes and ranks these groups of B Channel 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 B Channel 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 B Channel metric, specify the call attribute to group by, select the topology filter to scope the report only for certain B Channel attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 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 281 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 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 281 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 282 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 284 to specify the primary metric and the secondary metric for the report.

5. 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 Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 281 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.
   **Note:** You can select multiple B Channel attributes by clicking the **Add New Grouping** icon
   . Clicking on this icon displays another drop-down list of the B Channel attributes. You can remove the additional B Channel 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# Peak Period Report

This report by default, displays the top 10 hours based on the **Number of B Channels (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the call duration for all the B Channels on your network. You can select the number of B Channels you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Gateway B-Channel Activity Reports" on page 281 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 281 section.

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

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco IP Telephony**

3. Click **Cisco_IPT_BChannel_Activity**

4. Click **BChannelActivity**. This opens the BChannelActivity page.

5. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:

- Chart Detail

- Heat Chart

- Top N

- Most Changed

- Calendar

- Top N Chart

- Peak Period

6. Click a report template. This opens the Time Controls page.

7. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

8. Click **Confirm Selection**. This opens the Topology Filter page.

9. Select the required topology attributes for the B channel that you want to filter while generating the report.

10. Click **Confirm Selection**. This opens the Report Options page.

11. Select the primary and the secondary metrics for the report

12. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Cisco IP Telephony Gateway Call Activity Reports

The iSPI for IP Telephony provides the Cisco IPT Gateway Call Activity extension pack. You can use this extension pack to generate reports for the active calls on the H.323 gateway boxes and the MGCP gateway interfaces based on the attributes for the active calls such as the cluster ID, the H.323 gateway name, the MGCP gateway interface name, and so on. You can use these reports to identify the trends for the active calls on the H.323 gateway box or the MGCP gateway interface during a specific time frame.

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 Cisco IP Telephony Gateway Call Activity Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco UCM call activity reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

2. Configure gateway call activity monitoring settings.

3. Configure gateway call activity configuration settings

4. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IPT UCM Call Activity extension pack.

> **Note:** See the *HP NNM iSPI for IP Telephony Online Help* for more information regarding step 2 and step 3.

# Accessing the Cisco IP Telephony Gateway Call Activity Reports

**To access the Cisco IP Telephony Gateway Call Activity reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions** > **NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click **Cisco IP Telephony** > **Cisco_IPT_Gateway_Call_Activity** > **Gateway_Call_Activity** to see a list of reports you can launch using this extension pack.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

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

**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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

      and then select a value of your choice.

- If you want to select multiple values for a topology filter, click the **Multi value select** icon
   and then select values of your choice (by pressing the Control **Ctrl** key).

- If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Cluster ID | Indicates the ID of the cluster that includes the gateway box or the gateway interface. |
| Gateway Name | Indicates the name of the H.323 gatewaybox. |
| MGCP Gateway Interface Name | Indicates the name of the MGCP gateway interface. |
| SGUUID | Indicates the ID of the security group associated with the cluster. |
| Active Calls | Indicates the number of active calls on the gateway box or the gateway interface. |

| Attribute | Description |
|---|---|
| timekey | Indicates the time stamp to be specified. |

# 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Active Calls | Indicates the number of voice or video calls currently active on the H.323 gateway or the MGCP gateway interface. |

| Attribute Distinct Count | Description |
|---|---|
| Cluster ID (countDistinct) | The distinct count of the Cluster ID where Cluster ID represents the gateway call activity attribute. |
| Gateway Name (countDistinct) | The distinct count of the Gateway Name where Gateway Name represents the gateway call activity attribute. |
| MGCP Gateway Interface Name (countDistinct) | The distinct count of the MGCP Gateway Interface Name where MGCP Gateway Interface Name represents the gateway call activity attribute. |
| SGUUID | Indicates the UUID of the security group associated with the cluster. |
| Active Calls (countDistinct) | The distinct count of the Active Calls where Active Calls represents the gateway call activity attribute |
| timekey | Indicates the time stamp to be specified. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

## Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony Gateway Call Activity Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony Gateway Call Activity Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the metric for the report.

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

# Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony Gateway Call Activity Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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 metrics and ranks these metrics based on the variation. The sort order lists the metrics from the metrics with the most changed values to the metrics 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.

You can select multiple metrics by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony Gateway Call Activity Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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 metrics.
   - **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.

## Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony Gateway Call Activity Reports 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 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 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the primary metric and the secondary metric for the report.

5. 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 metric 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 Cisco IP Telephony Gateway Call Activity Reports to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the Specifying Time Controls section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon .
   Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   ■ **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   ■ **Sort All in Descending**: lists all 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.

   ■ **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_IPT_Gateway_Call_Activity**

3. Click **Gateway_Call_Activity**. This opens the GatewayCallActivity page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail
   - Heat Chart
   - Top N
   - Most Changed
   - Calendar
   - Top N Chart

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Cisco IP Telephony Media Resource Activity Reports

The Cisco IP Telephony Media Resource Activity reports show performance and health of media resources of Cisco Unified Communications Manager monitored by NNMi.Graphs and charts on these reports help you identify the following:

- Availability of resources
- Total count of resources
- Total count of resources within a Cisco Unified Communications Manager cluster
- Types of resources within a Cisco Unified Communications Manager cluster

# Glossary of Metrics

| Metric Name | Description |
| --- | --- |
| Available Resources (max) | The maximum number of available media resources for the monitored Cisco Unified Communications Manager cluster. |
| Available Resources (min) | The minimum number of available media resources for the monitored Cisco Unified Communications Manager cluster. |
| Available Resources (avg) | The average number of available media resources for the monitored Cisco Unified Communications Manager cluster. |
| Active Resources (max) | The maximum number of active media resources for the monitored Cisco Unified Communications Manager cluster. |
| Active Resources (min) | The minimum number of active media resources for the monitored Cisco Unified Communications Manager cluster. |
| Active Resources (avg) | The average number of active media resources for the monitored Cisco Unified Communications Manager cluster. |
| Unavailable Resources (max) | The maximum number of unavailable media resources for the monitored Cisco Unified Communications Manager cluster. |
| Unavailable Resources (min) | The minimum number of unavailable media resources for the monitored Cisco Unified Communications Manager cluster. |
| Unavailable Resources (avg) | The average number of unavailable media resources for the monitored Cisco Unified Communications Manager cluster. |

# Media Resource Activity Chart Detail Report

This report plots the selected pair of metrics (which indicate the availability of media resources) 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.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered media resource types

  - All discovered media resources

  - All SGUUIDs

- Metrics:
  - Y1 axis: Active resources (avg)

  - Y2 axis: Active resources (max)

The default report shows both graph and table.

**Use Case**

- Analyze the trend of health and performance for media resources

- Detect persistent problems in media resources

- Compare health and performance of multiple media resources

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Heat Chart Report

This report displays the hourly values of the selected 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.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered media resource types

  - All discovered media resources

  - All SGUUIDs
- Metrics: Active resources (avg)

**Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a specific metric. The heat chart report enables you to:

- Spot an isolated instance (when the metric value was high)

- Spot day-of-the-week patterns.

- See when high metric values returned to normal after a period of time.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics (which indicate the availability of Cisco Unified Communications Manager media resources) in a single, extended graph spanning over a day or multiple days.

**Defaults**

- Interval: one day

  **Note:** For this report, you cannot select an interval smaller than one day.

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered UCM clusters

  - All discovered media device types

  - All discovered media types

  - All SGUUIDs

- Metrics:
  - Primary: Active resources (avg)

  - Secondary: Active resources (max)

**Use Case**

Use this report to observe:

- gradual trends over time

- isolated spikes

- to verify that an abnormal condition has returned to normal

- to make comparisons

This report also reveals:

- Day of week patterns

- Hour of day patterns

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Most Changed Report

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

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters
  - All discovered media resource types
  - All discovered media resources
  - All SGUUIDs
- Metrics: Active resources (avg)
- Grouping by: Cluster ID

**Use Case**

Use this report to spot objects at selected grouping level 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.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Peak Period Report

The Peak Period Report ranks the utilization and performance of media resources during the busiest time of the selected time range.

**Defaults**

- Interval: one day
- Display grain: one hour
- Auto refresh: No
- Time zone: Server time
- Relative start: Yes; last rolling interval
- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters
  - All discovered media resource types
  - All discovered media resources
  - All SGUUIDs
- Metrics: Active resources (avg), Active resources (max)
- Grouping by time period: Hour

**Use Case**

Using this report, you can:

- Identify the performance and utilization of the selected metrics during the peak period

- Identify the interfaces that have the highest or lowest performances or utilization levels during the peak period

- Compare the performance for multiple media devices during the peak period using this report

- Identify UCM clusters having a common network performance problem

- Identify the UCM that is suffering from a persistent performance problem

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Top N Report

This report ranks media devices by the metric that you select. Use this report to spot the media device that performed at the extremes. You can use this report to analyze the historical data for elements that are exhibiting unusual utilization levels.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered media resource types

  - All discovered media resources

  - All SGUUIDs

- Metrics: Active resources (avg)

- Grouping by: Cluster ID

**Use Case**

- Detect the media resource experiencing a health or performance problem

- Analyze the utilization of the NNMi-managed media resources against on a specific time range

- Detect the over-utilized and under-utilized media resources

- Compare the performance of multiple media resources for a single call Cisco Unified Communications Manager or a cluster

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Media Resource Activity Top N Chart

Based on your selection of the attributes and the metric, this report ranks each media device with a chart; the chart indicates the change in metric values over the specified time range.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered media resource types

  - All discovered media resources

  - All SGUUIDs

- Metrics: Active resources (avg)

- Grouping by: Cluster ID

**Use Case**

- Spot the media resources that performed at the extremes.

- Analyze the historical data for media resources that are exhibiting unusual utilization levels

- Detect the media resources that are experiencing a health or performance problem

- Analyze the utilization of the NNMi-managed media resources

- Detect the over-utilized and under-utilized media resources

- Detect the underlying reason of a persistent problem with a media resource. You can compare the performance for multiple media resources using this report.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Cisco IP Telephony UCM Health Reports

The NNM iSPI for IP Telephony enables you to monitor a set of parameters that indicate the health and performance of Cisco Unified Communications Managers. When you configure the NNM iSPI for IP Telephony to poll the system health data from Cisco Unified Communications Managers, you can use Cisco IP Telephony UCM Health reports to analyze the polled data.

The Cisco IP Telephony UCM Health reports help you detect:

- Availability of Cisco Unified Communications Managers

- Total count of Cisco Unified Communications Managers

- Total memory and CPU utilization of a Cisco Unified Communications Manager

# Glossary of Metrics

| Metric Name | Description |
|---|---|
| Active Partition Used (%) (max) | The maximum amount of space in use by the active partition of the Cisco Unified Communications Manager during the selected time range. |
| Active Partition Used (%) (min) | The minimum amount of space in use by the active partition of the Cisco Unified Communications Manager during the selected time range. |
| Active Partition Used (%) (avg) | The average space in use by the active partition of the Cisco Unified Communications Manager during the selected time range. |
| Common Partition Used (%) (max) | The maximum amount of space in use by the common partition of the Cisco Unified Communications Manager during the selected time range. |
| Common Partition Used (%) (min) | The minimum amount of space in use by the common partition of the Cisco Unified Communications Manager during the selected time range. |
| Common Partition Used (%) (avg) | The average space in use by the common partition of the Cisco Unified Communications Manager during the selected time range. |
| CPU Time (%) (max) | The maximum CPU utilization of the Cisco Unified Communications Manager during the selected time range. |
| CPU Time (%) (min) | The minimum CPU utilization of the Cisco Unified Communications Manager during the selected time range. |
| CPU Time (%) (avg) | The average CPU utilization of the Cisco Unified Communications Manager during the selected time range. |

| Metric Name | Description |
| --- | --- |
| Memory Used (%) (max) | The maximum memory utilization of the Cisco Unified Communications Manager during the selected time range. |
| Memory Used (%) (min) | The minimum memory utilization of the Cisco Unified Communications Manager during the selected time range. |
| Memory Used (%) (avg) | The average memory utilization of the Cisco Unified Communications Manager during the selected time range. |
| Process: ccm - CPU Time (%) (max) | The maximum CPU utilization of the ccm process during the selected time range. |
| Process: ccm - CPU Time (%) (min) | The minimum CPU utilization of the ccm process during the selected time range. |
| Process: ccm - CPU Time (%) (avg) | The average CPU utilization of the ccm process during the selected time range. |
| Process: ccm - Memory Usage (%) (max) | The maximum memory utilization of the ccm process during the selected time range. |
| Process: ccm - Memory Usage (%) (min) | The minimum memory utilization of the ccm process during the selected time range. |
| Process: ccm - Memory Usage (%) (avg) | The average memory utilization of the ccm process during the selected time range. |
| Swap Partition Used (%) (max) | The maximum space in use by the swap partition during the selected time range. |
| Swap Partition Used (%) (min) | The minimum space in use by the swap partition during the selected time range. |
| Swap Partition Used (%) (avg) | The average space in use by the swap partition during the selected time range. |

| Metric Name | Description |
|---|---|
| Swap Space Used (%) (max) | The maximum swap space used by the Cisco Unified Communications Manager during the selected time range. |
| Swap Space Used (%) (min) | The minimum swap space used by the Cisco Unified Communications Manager during the selected time range. |
| Swap Space Used (%) (avg) | The average swap space used by the Cisco Unified Communications Manager during the selected time range. |
| System Reboot (sum) | The total number of system reboots during the selected time range. |
| Total Processes (max) | The maximum number of processes on the Cisco Unified Communications Manager during the selected time range. |
| Total Processes (min) | The minimum number of processes on the Cisco Unified Communications Manager during the selected time range. |
| Total Processes (avg) | The average number of processes on the Cisco Unified Communications Manager during the selected time range. |
| Total Threads (max) | The maximum number of threads on the Cisco Unified Communications Manager during the selected time range. |
| Total Threads (min) | The minimum number of threads on the Cisco Unified Communications Manager during the selected time range. |
| Total Threads (avg) | The average number of threads on the Cisco Unified Communications Manager during the selected time range. |
| VM Used (%) (max) | The maximum virtual memory in use during the selected time range. |
| VM Used (%) (min) | The minimum virtual memory in use |

| Metric Name | Description |
|---|---|
|  | during the selected time range. |
| VM Used (%) (avg) | The average virtual memory in use during the selected time range. |

# Calendar Report

The Calendar Report uses a traditional, calendar-style layout to show hourly statistics for two metrics (which indicate the health of the Cisco Unified Communications Manager system) in a single, extended graph spanning over a day or multiple days.

**Defaults**

- Interval: one day

> **Note:** For this report, you cannot select an interval smaller than one day.

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered Cisco Unified Communications Managers

  - All SGUUIDs

  - All tenants

- Metrics:
  - Primary: Active partition used (%) (max)

  - Secondary: Active resources (%) (avg)

**Use Case**

Use this report to observe:

- gradual trends over time

- isolated spikes

- to verify that an abnormal condition has returned to normal

- to make comparisons

This report also reveals:

- Day of week patterns

- Hour of day patterns

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Details Report

This report plots the selected pair of metrics (which indicate the health of Cisco Unified Communications Managers) 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.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered Cisco Unified Communications Managers

  - All SGUUIDs

  - All tenants

- Metrics:
  - Y1 axis: Active resources (%) (avg)

  - Y2 axis: Active resources (%) (max)

The default report shows both graph and table.

**Use Case**

- Analyze the trend of health and performance of Cisco Unified Communications Managers

- Detect persistent problems in Cisco Unified Communications Managers

- Compare health and performance of multiple Cisco Unified Communications Manager systems

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

This report displays the hourly values of the selected 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.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection:
  - All discovered Cisco Unified Communications Manager clusters
  - All discovered Cisco Unified Communications Managers
  - All SGUUIDs
  - All tenants

- Metrics: Active partition used (%) (avg)

**Use Case**

Use the Heat Chart report to identify the gradual shift in the range of values for a specific metric. The heat chart report enables you to:

- Spot an isolated instance (when the metric value was high)

- Spot day-of-the-week patterns.

- See when high metric values returned to normal after a period of time.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Change Report

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

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection

  - All discovered Cisco Unified Communications Manager clusters

  - All discovered Cisco Unified Communications Managers

  - All SGUUIDs

  - All tenants

- Metrics: Active resources (avg), Active resources (max)

- Grouping by time period: Hour

- Metrics: Active partition used (%) (avg)

- Grouping by: Cluster ID

**Use Case**

Use this report to spot objects at selected grouping level 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.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Peak Period Report

The Peak Period Report ranks the utilization and performance of Cisco Unified Communications Managers during the busiest time of the selected time range.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered Cisco Unified Communications Managers

- All SGUUIDs

- All tenants

• Metrics: Active resources (avg), Active resources (max)

• Grouping by time period: Hour

**Use Case**

Using this report, you can:

• Identify the performance and utilization of the selected metrics during the peak period

• Identify the interfaces that have the highest or lowest performances or utilization levels during the peak period

• Compare the performance for multiple media devices during the peak period using this report

• Identify UCM clusters having a common network performance problem

• Identify the UCM that is suffering from a persistent performance problem

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

• To change the Time Controls defaults, see the *Change Time Controls* topic.

• To change the Topology Filters defaults, see the *Set Topology Filters* topic.

• To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

This report ranks media devices by the metric that you select. Use this report to spot the Cisco Unified Communications Manager that performed at the extremes. You can use this report to analyze the historical data for elements that are exhibiting unusual utilization levels.

**Defaults**

• Interval: one day

• Display grain: one hour

• Auto refresh: No

• Time zone: Server time

• Relative start: Yes; last rolling interval

• Topology attribute selection
  - All discovered Cisco Unified Communications Manager clusters

  - All discovered Cisco Unified Communications Managers

  - All SGUUIDs

  - All tenants

• Metrics: Active Partition Used (%) (max), Metrics: Active Partition Used (%) (avg)

• Grouping by: Cluster ID

**Use Case**

- Detect the media resource experiencing a health or performance problem

- Analyze the utilization of the NNMi-managed Cisco Unified Communications Manager against on a specific time range

- Detect the over-utilized and under-utilized media resources

- Compare the performance of multiple Cisco Unified Communications Managers

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Based on your selection of the attributes and the metric, this report ranks each Cisco Unified Communications Manager with a chart; the chart indicates the change in metric values over the specified time range.

**Defaults**

- Interval: one day

- Display grain: one hour

- Auto refresh: No

- Time zone: Server time

- Relative start: Yes; last rolling interval

- Topology attribute selection

    - All discovered Cisco Unified Communications Manager clusters

    - All discovered Cisco Unified Communications Managers

    - All SGUUIDs

    - All tenants

- Metrics: Active partition used (%) (avg), Active partition used (%) (max)

- Grouping by: Cluster ID

**Use Case**

- Spot the Cisco Unified Communications Manager that performed at the extremes.

- Analyze the historical data for media resources that are exhibiting unusual utilization levels

- Detect the Cisco Unified Communications Managers that are experiencing a health or performance problem

- Analyze the utilization of the NNMi-managed Cisco Unified Communications Managers

- Detect the over-utilized and under-utilized Cisco Unified Communications Managers

- Detect the underlying reason of a persistent problem with a Cisco Unified Communications Manager. You can compare the performance for multiple Cisco Unified Communications Managers using this report.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.

- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Cisco IP Telephony Voice Mail Reports

The iSPI for IP Telephony provides the Cisco IPT VM Information extension pack. You can use this extension pack to generate reports for the voice mail devices based on the voice mail attributes such as total number of ports provisioned (Total Number of Ports Provisioned) and voice mail metrics such as the number of ports active for inbound calls (Number of Ports Active for Inbound Calls (avg), the number of ports provisioned for outbound calls (Number of Ports Provisioned for Outbound Calls (avg).

The extension pack retains the detailed data in the Network Performance Server (NPS) for a period of 14 days and retains the summary data for a period of 70 days.

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

- Chart Detail

- Heat Chart

- Top N

- Most Changed

- Calendar

- Top N Chart

- Peak Period

# Prerequisites to Enable Cisco Voice Mail Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco IP voice mail reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

2. Enable Cisco Voice Mail reporting in the iSPI for IP Telephony. See the Online Help for the iSPI for IP Telephony > **Help for Administrators** > **Reporting Configuration** > **Enabling Voice Mail Reporting** section for additional information.

3. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IPT VM Information extension pack.

# Accessing the Cisco IP Telephony Voice Mail Reports

**To access the Cisco IP Telephony Voice Mail reports from the NNMi console:**

**To access the Cisco IP Telephony Gateway Calls 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 **Cisco IP Telephony** > **Cisco_IPT_VM_Information** > **CiscoIPTVMInfoMetrics** to see a list of reports you can launch using this extension pack.

4. You can click any report format to launch the specific report based on the default metrics (**Current Number of Licensed Subscribers (avg)**) as the primary metric and the **Current Number of Subscribers Licensed for VMI (avg)** as the secondary metric with no Topology Filter selected.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

Topology filters allow you to scope or filter the metric reports based on the various combinations of the attribute values available in the accumulated metric data. For example, you can specify the topology filters based on a combination of certain specific values for the Call Manager Name, Calling Party Number, Called Party Number, and so on. 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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

     and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon

     and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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.

| Call Attribute | Description |
| --- | --- |
| Unity IP Address | The IP address of the Cisco Unity voice mail device. |
| Max Subscribers Licensed | The maximum number of subscribers licensed with the voice mail device. |
| Max Subscribers Licensed for UM | The maximum number of subscribers licensed for Unified Messaging (UM). |
| Max Subscribers Licensed for VMI | The maximum number of subscribers licensed for Visual Messaging Interface (VMI). |
| Max Number of Languages Licensed | The maximum number of languages licensed. |
| Max Number of TTS Ports Licensed | The maximum number of Text-To-Speech (TTS) ports licensed. |
| Max Number of Voice Ports Licensed | The maximum number of voice ports licensed. |
| Total Number of Ports Provisioned | The total number of ports provisioned. |
| Number of Ports Provisioned for Inbound Calls | The number of ports provisioned for inbound calls. |

| Call Attribute | Description |
|---|---|
| Number of Ports Provisioned for Outbound Calls | The number of ports provisioned for outbound calls. |
| SGUUID | The UUID of the security group associated with the voice mail device.<br><br>**Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles. |

# 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Current Number of Licensed Subscribers | The current number of licensed subscribers. |
| [1]Current Number of Subscribers Licensed for VMI | The current number of subscribers licensed for Visual Messaging Interface (VMI). |
| [1]Total Number of Ports Active | The total number of ports active. |
| [1]Number of Ports Active for Inbound Calls | The number of ports active for inbound calls. |
| [1]Number of Ports Active for Outbound Calls | The number of ports active for outbound calls. |
| **Attribute Distinct Count** | **Description** |

| Metric | Description |
|--------|-------------|
| Unity IP Address (countDistinct) | The distinct count of the Unity IP Address, where Unity IP Address represents the name of the voice mail attribute. |
| Max Subscribers Licensed (countDistinct) | The distinct count of the Max Subscribers Licensed, where Max Subscribers Licensed represents the name of the voice mail attribute. |
| Max Subscribers Licensed for UM (countDistinct) | The distinct count of the Max Subscribers Licensed for UM, where Max Subscribers Licensed for UM represents the name of the voice mail attribute. |
| Max Subscribers Licensed for VMI (countDistinct) | The distinct count of the Max Subscribers Licensed for VMI, where Max Subscribers Licensed for VMI represents the name of the voice mail attribute. |
| Max Number of Languages Licensed (countDistinct) | The distinct count of the Max Number of Languages Licensed, where Max Number of Languages Licensed represents the name of the voice mail attribute. |
| Max Number of TTS Ports Licensed (countDistinct) | The distinct count of the Max Number of TTS Ports Licensed, where Max Number of TTS Ports Licensed represents the name of the voice mail attribute. |
| Max Number of Voice Ports Licensed (countDistinct) | The distinct count of the Max Number of Voice Ports Licensed, where Max Number of Voice Ports Licensed represents the name of the voice mail attribute. |
| Total Number of Ports Provisioned (countDistinct) | The distinct count of the Total Number of Ports Provisioned, where Total Number of Ports Provisioned represents the name of the voice mail attribute. |
| Number of Ports Provisioned for Inbound Calls (countDistinct) | The distinct count of the Number of Ports Provisioned for Inbound Callse, where Number of Ports Provisioned for Inbound Calls represents the name of the voice mail attribute. |
| Number of Ports Provisioned for Outbound Calls (countDistinct) | The distinct count of the Number of Ports Provisioned for Outbound Calls, where Number of Ports Provisioned for Outbound Calls represents the name of the voice mail attribute. |
| SGUUID (countDistinct) | The distinct count of the SGUUID, where SGUUID represents the name of the voice mail attribute. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

**Note:** The distinct count of call attributes represents the sum of the occurrences of unique values for the call attributes. For example, if you select the Calling Party Number (countDistinct) metric, and three distinct calling parties had made calls during the time specified, the report lists the value for the Calling Party Number (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

- Peak Period

# Chart Detail Report

This report plots the selected 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.

For example, if you select the **Current Number of Licensed Subscribers** as the primary metric, the **Current Number of Subscribers Licensed for VMI** as the secondary metric, generate the report and then select the **Display Grain** as one hour, you can analyze the trend for the number of licenses used for VMI.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Voice Mail Reports" on page 321 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 321 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 322 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 324 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Voice Mail Reports" on page 321 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 321 section.

3. Perform the steps in the section "Specifying Topology Filters" on page 322 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 324 to specify the metric for the report.

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

## Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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.

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

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Voice Mail Reports" on page 321 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 321 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 voice mail device metric values for two different (consecutive) time periods for specified grouping of voice mail device attributes and ranks these groups of voice mail device 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 voice mail device 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 voice mail device metric, specify the voice mail device attribute to group by, select the topology filter to scope the report only for certain voice mail device attribute values, and specify the time range before generating the report.

You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony Voice Mail Reports" on page 321 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 321 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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.

# Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section"Accessing the Cisco IP Telephony Voice Mail Reports" on page 321 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 321 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 322 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the "Specifying Metrics for Reports" on page 324 to specify the primary metric and the secondary metric for the report.

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

## Peak Period Report

This report by default, displays the top 10 calls based on the **Current Number of Licensed Subscribers (avg)** metric. You can generate this report for an hour, a day, or a week to analyze the number of licensed subscribers on your network. You can select the number subscribers you want the report to display from the options provided by the report template.

**To launch a Peak Period report based on your requirements, do as follows:**

1. Perform the steps in the section"Accessing the Cisco IP Telephony Voice Mail Reports" on page 321 to launch the Peak Period report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 321 section.

3. 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 Cisco IP Telephony Voice Mail Reports" on page 321 to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the "Specifying Time Controls" on page 321 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_IPT_VM_Information**

3. Click **CiscoIPTVMInfoMetrics**. This opens the CiscoIPTVMInfoMetrics page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail
   - Heat Chart
   - Top N
   - Most Changed
   - Calendar
   - Top N Chart
   - Peak Period

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.
   - **Display Grain**: set the interval at which the report must represent data.
   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.
   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.
   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Cisco IP Telephony UCM Call Activity Reports

The iSPI for IP Telephony provides the Cisco IPT UCM Call Activity extension pack. You can use this extension pack to generate reports for the call activity on the UCM clusters and the UCMs based on the call activity metrics such as the number of calls in progress, the number of incomplete

calls, the attempted calls, and so on. You can use these reports to identify the trends for the call activity on the UCM clulster or the UCM during a specific time frame.

For example, if you experience a lot of incomplete calls on the network, you can generate a Top N report by selecting the Incomplete Calls as the metric and then specifying a time frame to identify when the metric had the highest value. This helps in identifying the time frame when the metric value was above the acceptable value. You can then see the incidents generated for the specific time frame to check for any alerts that might assist you in rectifying the underlying cause.

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 Cisco UCM Call Activity Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco UCM call activity reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

2. Configure SSH credentials for the Cisco Unified Communication Manager you want to monitor.

3. Configure call activity monitoring.

4. Configure Call Activity Configuration Settings.

5. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IPT UCM Call Activity extension pack.

> **Note:** See the *HP NNM iSPI for IP Telephony Online Help* for more information regarding step 2 through step 4.

# Accessing the Cisco IP Telephony UCM Call Activity Reports

**To access the Cisco IP Telephony UCM Call Activity reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions** > **NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3.  Click **Cisco IP Telephony** > **Cisco_IPT_UCM_Call_Activity** > **UCM_Call_Activity** to see a list of reports you can launch using this extension pack.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4.  **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5.  Click **Submit** to apply the changes.

# Specifying Topology Filters

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

**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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

     and then select a value of your choice.

   - If you want to select multiple values for a topology filter, click the **Multi value select** icon

     and then select values of your choice (by pressing the Control **Ctrl** key).

   - If you want to search and select a value for a topology filter 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.

| Attribute | Description |
| --- | --- |
| Sample Count | The sum of the sample count of |

| Attribute | Description |
|---|---|
| | calls. Indicates the count of calls. |

# 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]Calls in Progress | Indicates the number of voice or video calls currently in progress on the Cisco Unified Communications Manager. This includes the number of active calls as well. |
| [1]Completed Calls | Indicates the number of calls that were connected and terminated through the Cisco Unified Communications Manager. |
| [1]Incomplete Calls | Indicates the difference between the attempted calls and the completed calls. |
| [1]Attempted Calls | Indicates the calls attempted. A call attempt occurs when the phone is taken from the hook and replaced back on the hook. A call attempt gets registered irrespective of the call being made. A call transfer or a conference attempt increments the number of attempted calls. |
| [1]Attempted System Calls | Indicates the number of calls originating from the Cisco Unified Communications Manager and the attempted calls to the Unity Message Waiting Indicator. |
| [1]Active Calls | Indicates the number of voice or video calls currently active and connected to the Cisco Unified Communications Manager. |
| **Attribute Distinct Count** | **Description** |
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

# Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM Call Activity Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM Call Activity Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the metric for the report.

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

# Top N Report

Based on your selection of the call attributes and the call metric, this report ranks the call attribute values in the ascending or descending order of the total raw values of the call metric. This report includes all the calls that had a variation for the specified call attribute. The report displays the rank of the call attribute value along with the call metric value and the percentage of the call 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM Call Activity Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the

   additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 metrics and ranks these metrics based on the variation. The sort order lists the metrics from the metrics with the most changed values to the metrics 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.

You can select multiple metrics by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony UCM Call Activity Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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 metrics.
   - **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.

# Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM Call Activity Reports 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 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 to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the primary metric and the secondary metric for the report.

5. 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 metric 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 Cisco IP Telephony UCM Call Activity Reports to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the Specifying Time Controls section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple call attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_IPT_UCM_Call_Activity**

3. Click **UCM_Call_Activity**. This opens the UCMCallActivity page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports.

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Cisco IP Telephony UCM TFTP Server Reports

The iSPI for IP Telephony provides the Cisco IPT UCM TFTP Server extension pack. You can use this extension pack to generate reports for the configuration build activities performed by the Cisco TFTP server based on the build metrics such as the `BuildCount`, `BuildAbortCount`, `BuildDevice Count`, and so on. See the Specifying Metrics for Reports section for more information about the build metrics.You can use these reports to identify the trends for the configuration file build activity on the Cisco TFTP server during a specific time frame.

For example, if you experience a lot of configuration file build failures on the network, you can generate a Top N report by selecting the `BuildAbortCount` as the metric and then specifying a time frame to identify when the metric had the highest value. This helps in identifying the time frame when the metric value was above the acceptable value. You can then see the incidents generated for the specific time frame to check for any alerts that might assist you in rectifying the underlying cause.

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 Cisco IP Telephony UCM TFTP Server Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco UCM TFTP server reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.
2. Configure SSH credentials for the Cisco Unified Communication Manager you want to monitor.
3. Configure Cisco TFTP server monitoring settings.
4. Configure Cisco TFTP Activity Configuration Settings.
5. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco IPT UCM TFTP Server extension pack.

**Note:** See the *HP NNM iSPI for IP Telephony Online Help* for more information regarding step 2 through step 4.

# Accessing the Cisco IPT UCM TFTP Server Reports

**To access the Cisco IPT UCM TFTP Server reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions** > **NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click **Cisco IP Telephony** > **Cisco_IPT_UCM_TFTP_Server** > **UCM_TFTP_Server** to see a list of reports you can launch using this extension pack.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

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

**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 and click the **Search** button:

   ▪ If you want to select only one value for a topology filter, click the **Single value select** icon
   
    and then select a value of your choice.

   ▪ If you want to select multiple values for a topology filter, click the **Multi value select** icon
   
    and then select values of your choice (by pressing the Control **Ctrl** key).

   ▪ If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Sample Count | The sum of the sample count of configuration file builds. Indicates the count of all configuration file builds. |

# 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|---|---|
| [1]BuildAbortCount | Indicates the number of times the configuration file build process was aborted. The count increases when the build process for devices, soft keys, units, and dial rules get aborted due to group-level change notifications. |
| [1]BuildCount | Indicates the number of times the TFTP server performed a new build of all the configuration files in response to a database change notification affecting all the devices. The count starts from the time th TFTP service started. |
| [1]BuildDeviceCount | Indicates the number of devices that were processed during the last configuration build. This count increases when processing device change notifications. The count increases when new devices get added and reduces when existing devices are removed. |

| Metric | Description |
|---|---|
| [1]BuildDialRuleCount | Indicates the number of dial rules that were processed during the last configuration build. This count increases when processing dial rule change notifications. The count increases when new dial rules get added and reduces when existing dial rules are removed. |
| [1]BuildSignCount | Indicates the number of security-enabled phones for which the configuration file was digitally signed with the Cisco UCM server key during the last configuration build. The count increases when processing security-enabled phone change notifications. |
| [1]BuildSoftKeyCount | Indicates the number of soft keys that were processed during the last configuration build. The count increases when new soft keys get added and reduces when existing soft keys are removed. |
| [1]BuildUnitCount | Indicates the number of gateways that were processed during the last configuration build. The count increases when processing gateway change notifications. The count increases when new gateways get added and reduces when existing gateways are removed. |
| [1]ChangeNotifications | Indicates the total number of all the Cisco UCM database change notifications received by the TFTP server. This count increases every time a device configuration is updated using the Cisco UCM Administration interface. This update triggers a database change notification to the TFTP server to rebuild the configuration files. |
| [1]DeviceChangeNotifications | Indicates the number of times the TFTP server received database change notifications to create, update, or delete configuration files for devices. |
| [1]DialRuleChangeNotifications | Indicates the number of times the TFTP server received database change notifications to create, update, or delete configuration files for dial rules. |
| [1]HTTPRequestsAborted | Indicates the total number of HTTP requests canceled by the HTTP server unexpectedly. An HTTP request cancellation occurs when the requested device cannot be located on the network or when the file transfer gets interrupted due to network connectivity issues. |
| [1]HTTPRequestsProcessed | Indicates the total number of HTTP requests successfully processed by the HTTP server. |
| [1]RequestsAborted | Indicates the total number of TFTP requests canceled by the TFTP server unexpectedly. A TFTP request cancellation occurs when the requested device cannot be located on the network or when the file transfer gets interrupted due to network connectivity issues. |
| [1]RequestsProcessed | Indicates the total number of TFTP requests successfully processed by the TFTP server. |
| **Attribute Distinct Count** | **Description** |

| Metric | Description |
|--------|-------------|
| Sample Count | The sum of the sample count of calls. Indicates the count of calls. |

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

- Average (avg)

- Minimum (min)

- Maximum (max)

# 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

## Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM TFTP Server Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM TFTP Server Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the metric for the report.

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

## Top N 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. This report includes all the configuration file builds that had a variation for the attribute. The report displays the rank of the attribute 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.

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

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM TFTP Server Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 metrics and ranks these metrics based on the variation. The sort order lists the metrics from the metrics with the most changed values to the metrics 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.

You can select multiple metrics by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco IP Telephony UCM TFTP Server Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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 metrics.
   - **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.

# Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco IP Telephony UCM TFTP Server Reports 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 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 to specify the topology filters to be
   applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the primary metric and
   the secondary metric for the report.

5. 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 metric 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 Cisco IP Telephony UCM TFTP Server
   Reports to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the Specifying Time Controls section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down
   list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking
   on this icon displays another drop-down list of the attributes. You can remove the additional

   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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

# Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_IPT_UCM_TFTP_Server**

3. Click **UCM_TFTP_Server**. This opens the UCMTFTPServer page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail

   - Heat Chart

   - Top N

   - Most Changed

   - Calendar

   - Top N Chart

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.

# Cisco Call Manager Service Availability Reports

The iSPI for IP Telephony provides the Cisco UCOS Service Availability extension pack. You can use this extension pack to generate reports on the availability of the services on the Cisco UCM. You can generate the reports for all the UCM services on a cluster. You can base the report generation on the services discovered on the UCM and the attributes of the services such as the Cluster ID, the Call Manager Name, the Service Name, and so on. You can use these reports to identify the trends for the availability of services and the change of state for services during a specific time frame.

For example, if you experience a service down time above the permissible level for one of the services on the UCM, such as the Cisco AXL Web Service, which results in the failure to collect AXL data from the cluster, you can generate a Top N report by selecting the `Cisco AXL Web Service`as the metric and then specifying a time frame to identify when the metric had the highest value. This helps in identifying the time frame when the metric value was above the acceptable value. You can then see the incidents generated for the specific time frame to check for any alerts that might assist you in rectifying the underlying cause.

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 Cisco Call Manager Service Availability Reporting

You must make sure that the following prerequisites are satisfied to enable Cisco Call Manager Service Availability reporting:

1. Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for IP Telephony.

2. Configure SSH credentials for the Cisco Unified Communication Manager you want to monitor.

3. Configure Call Manager Service Availability monitoring settings.

4. Configure Cisco Call Manager Service Availability Configuration Settings.

5. Verify that the iSPI Performance for Metrics is running before opening the reports provided by the Cisco Cisco UCOS Service Availability extension pack.

> **Note:** See the *HP NNM iSPI for IP Telephony Online Help* for more information regarding step 2 through step 4.

# Accessing the Cisco Call Manager Service Availability Reports

**To access the Cisco Call Manager Service Availability reports from the NNMi console:**

1. Log on to the NNMi console.

2. Click **Actions** > **NNM iSPI Performance** > **Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.

3. Click **Cisco IP Telephony** > **Cisco_UCOS_Service_Availability** > **Service_Availability** to see a list of reports you can launch using this extension pack.

After launching a report, you can configure the report based on your requirements by specifying the following details and regenerating the report:

- Specify time controls

- Specify topology filters

- Specify metrics

# Specifying Time Controls

You can specify the time-specific details using which you want the report to be generated on the Time Controls page. This page lets you specify the following time control details:

---

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. You can select the time zone of your choice even if you choose to enable the **Relative Start** option.

4. **Auto Refresh**: set the auto refresh rate for the report to a specific interval or disable the auto refresh feature for the report.

5. Click **Submit** to apply the changes.

# Specifying Topology Filters

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

**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 and click the **Search** button:
   - If you want to select only one value for a topology filter, click the **Single value select** icon

      and then select a value of your choice.

- If you want to select multiple values for a topology filter, click the **Multi value select** icon
   and then select values of your choice (by pressing the Control **Ctrl** key).

- If you want to search and select a value for a topology filter 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.

| Attribute | Description |
|---|---|
| Cluster ID | Indicates the ID of the cluster that includes the Call Manager. |
| Cluster Call Manager Name | Indicates the name of the Call Manager. |
| Service Name | Indicates the name of the service on the Call Manager. |
| SGUUID | Indicates the ID of the security group associated with the cluster that includes the call manager. |
| Started | Indicates if the service is started. The value 0 indicates that the service is not started and the value 1 indicates that the service is started. |

| Attribute | Description |
|-----------|-------------|
| Stopped | Indicates if the service is stopped. The value 0 indicates that the service is not stopped and the value 1 indicates that the service is stopped. |
| Deactivated | Indicates if the service is deactivated. The value 0 indicates that the service is not deactivated and the value 1 indicates that the service is deactivated. |
| Timestamp | Indicates the time stamp to be specified. |

# 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:**

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.

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

Click here to see the metrics and the distinct count of attributes that you can select to generate reports.

| Metric | Description |
|--------|-------------|
| Service Availability | Indicates the availability of the service. |
| **Attribute Distinct Count** | **Description** |
| Cluster ID (countDistinct) | Indicates the distinct count of the Cluster ID where Cluster ID indicates the attribute for service availability. |
| Cluster Call Manager Name (countDistinct) | Indicates the distinct count of the Cluster Call Manager Name where Cluster Call Manager Name indicates the attribute for service availability. |

| Metric | Description |
|---|---|
| Service Name (countDistinct) | Indicates the distinct count of the Service Name where Service Name indicates the attribute for service availability. |
| SGUUID | Indicates the ID of the security group associated with the cluster that includes the call manager. |
| Started | Indicates the attribute of service availability. |
| Stopped | Indicates the attribute of service availability. |
| Deactivated | Indicates the attribute of service state. |
| Timestamp | Indicates the time stamp to be specified. |

# 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

## Chart Detail Report

This report plots the selected 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.

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

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

1. Perform the steps in the section Accessing the Cisco Call Manager Service Availability Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports 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 call 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 generate a Heat Chart Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco Call Manager Service Availability Reports 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 section.

3. Perform the steps in the section Specifying Topology Filters to specify the topology filters to be applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the metric for the report.

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

# Top N 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. This report includes all the configuration file builds that had a variation for the attribute. The report displays the rank of the attribute 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.

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

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

1. Perform the steps in the section Accessing the Cisco Call Manager Service Availability Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the attributes. You can remove the additional 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 pf 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 pf 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 pf 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 pf the list.

   - **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

   - **Sort All in Descending**: lists all 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.

   - **Sort All in Ascending**: lists all the specified attributes with the maximum 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 metrics and ranks these metrics based on the variation. The sort order lists the metrics from the metrics with the most changed values to the metrics 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.

You can select multiple metrics by clicking the **Add New Grouping** icon . Clicking on this icon displays another drop-down list of the call attributes. You can remove the additional call 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 Cisco Call Manager Service Availability Reports 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 section.

3. Click **Options** from the menu.

4. Select the topology filter you want to apply for 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 metrics.
   - **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.

# Calendar Report

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

**Note:** You can generate a Calendar Report on a Daily (**D**), Weekly (**W**), or a Monthly (**M**) basis.

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

1. Perform the steps in the section Accessing the Cisco Call Manager Service Availability Reports 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 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 to specify the topology filters to be
   applied on the report.

4. Perform the steps listed in the Specifying Metrics for Reports to specify the primary metric and
   the secondary metric for the report.

5. 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 metric 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 Cisco Call Manager Service Availability
   Reports to launch the Top N chart report for a specific time frame.

2. Specify the time controls for the report as mentioned in the Specifying Time Controls section.

3. Click **Options** from the menu.

4. Select the topology filter that you want to apply on the report from the **Grouping by:** drop-down
   list.

   **Note:** You can select multiple attributes by clicking the **Add New Grouping** icon . Clicking
   on this icon displays another drop-down list of the attributes. You can remove the additional

   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 pf 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 pf 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 pf 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 pf the list.

- **Bottom 50**: lists 50 of the specified attributes with the lowest metric value in the ascending order of the value with the highest value at the top pf 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 pf the list.

- **Sort All in Descending**: lists all 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.

- **Sort All in Ascending**: lists all the specified attributes with the maximum 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.

## Scheduling Reports

This extension pack allows you to schedule your reports to run at specified intervals. You can do as follows to schedule the generation of reports:

**To schedule report generation:**

1. Click **BI Server** > **Public Folders** from the NNM iSPI Performance Report Menu page. This opens the HP NNM iSPI Performance BI Portal page.

2. Click **Cisco_UCOS_Service_Availability**

3. Click **Service_Availability**. This opens the ServiceAvailability page.

4. Click **Report Templates suitable for scheduling**. This displays the report templates that you can use to schedule generation of reports:
   - Chart Detail

   - Heat Chart

   - Top N

   - Most Changed

   - Calendar

   - Top N Chart

5. Click a report template. This opens the Time Controls page.

6. Specify the following details for the time controls:
   - **Time Range**: set the time range for report generation. The Server Start Date/Time changes automatically based on your selection for this field.

   - **Display Grain**: set the interval at which the report must represent data.

   - Note: The minimum value you can specify for the display grain is one hour for Cisco IP Telephony reports.

   - **Hour of the Day**:specify the hour of the day for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

   - **Day of the Week**: specify the day of the week for which you want to generate the report. You can select multiple values from this drop-down list by pressing the Control (Ctrl) key.

7. Click **Confirm Selection**. This opens the Topology Filter page.

8. Select the required topology attributes for the call that you want to filter while generating the report.

9. Click **Confirm Selection**. This opens the Report Options page.

10. Select the primary and the secondary metrics for the report

11. Click **Confirm Selection** to generate the report and complete the scheduling procedure. The iSPI for IP Telephony generates the report periodically based on the time controls, topology filter, and the metrics specified.