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Network Services Platform

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Analytics Report Catalog

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About this document

Purpose

The *NSP Analytics Report Catalog* provides information about the reports that NSP Analytics can generate.

Document structure

In addition to [Part I: “Getting started”](#), which explains how to use Analytics, the guide includes the following parts, each of which is named for an Analytics category; each chapter in a part describes a specific Analytics report dashboard:

- [Part II: “Administration”](#)
- [Part III: “Application Assurance”](#)
- [Part IV: “Network and Service”](#)
- [Part V: “NSP”](#)
- [Part VI: “Custom”](#)

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Part I: Getting started

Overview

Purpose

This part provides general NSP Analytics report information.

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1 Using Analytics

1.1 What is Analytics?

1.1.1 Overview

NSP Analytics generates reports and dashboard views to represent network conditions. The reporting is based on various data types that the NSP collects. For example, raw data is used for evaluating current conditions, and aggregated data helps to identify patterns and trends. Analytics reports and views provide vital information about network status, traffic, application usage, and more.

This document describes NSP Analytics functions, including report generation and visualizations, and provides a reference of the available Analytics report catalogs. For information about configuring telemetry subscriptions, using baseline analytics, NSP indicators, OAM tests, metric customization, and network tests, see the *NSP Data Collection and Analysis Guide*.

i **Note:** The term “NSP” in the guide refers to an NSP deployment that may or may not include an integrated NFM-P for classic management. The NFM-P is mentioned as a separate NSP component only in required contexts, for example, “NFM-P main server”, or content that describes NFM-P configuration.

i **Note:** Some Analytics reports require a variety of statistics or data types. All data for a report must be collected using the same collection interval; otherwise, the report generation fails or produces erroneous results.

i **Note:** Analytics reports cannot be exported while using a Firefox browser.

Aggregation reporting

The available data-aggregation levels, for example, Hourly, Daily, or Monthly, vary by report type and are selectable using the Granularity drop-down menu in the input prompt panel.

Aggregation-based reporting in NSP for MDM-mediated NEs and CN telemetry requires the configuration of data aggregation in the **Aggregation** view of **Data Collection and Analysis Management**. See the *NSP Data Collection and Analysis Guide*, and the Telemetry information on the [Network Developer Portal](#).

For classically managed NEs, in order to create a report or dashboard based on aggregated data, you must enable and configure aggregation for the required statistics using the NFM-P Aggregation Manager, as described in [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Telemetry reporting

Analytics includes reports based on collected telemetry data. These reports are in [Part V: “NSP”](#), and are based on data from model-driven Nokia or multivendor NEs, and may also include classic mediation data. These reports are different from the equivalent legacy NFM-P reports, which are based on classic mediation.

Classic mediation reporting

Analytics reporting for classic mediation requires the configuration of auxiliary database collection parameters such as the following using the samconfig utility on each NFM-P main server:

- statistics type, such as OAM, Application Assurance (AA), or both
- format, for AA flow statistics
- storage parameters

See the *NSP Installation and Upgrade Guide* for configuration information.

Object counts in Analytics reports

You can select up to 1000 objects for a report by entering comma-delimited names at a report input prompt that has a % search in the associated text box. For example, you can specify a list of objects such as %203.0%,%MSS%,%113.71% at the Name or name pattern for NEs prompt, or in any other text box that supports % searches, including NE names, Port-LAG, port names, interface, service, SAP, and customer.

If reporting is required for more than 1000 objects, you can filter using report prompts to generate multiple reports. The Comprehensive reports described in [Chapter 11, "Comprehensive reports"](#) do not implement the 1000-object limit; reporting is limited only by the available system resources.

Because no 1000-object limit is imposed, a Comprehensive report may take longer to render, or may fail due to insufficient resources. In such cases, you can use the report prompts to reduce the number of selected objects. Alternatively, you can create an ad hoc report without the 1000-object limit, or contact Nokia professional services to create a custom report.

Analytics Data Dictionary

To ensure optimal reporting performance, a subset of network and service objects, for example, subscribers, services, or ports is copied from the main NSP database to the auxiliary database. Analytics synchronizes the data for all object create, update, and delete operations. To ensure that no operations are missed, the data dictionary is periodically resynchronized and is entirely rebuilt every 30 days.

NSP Analytics uses the dictionary data to populate report prompts; the data are also available for use in ad hoc reports. Deleted objects are retained for up to 30 days, so may appear in newer reports, depending upon the report design. You can use report prompts to exclude such objects.

You can synchronize all or individual data dictionary objects from the PostgreSQL database to the auxiliary database. Synchronizing NSP objects, such as data dictionary objects, is managed using RESTCONF APIs; see the [Network Developer Portal](#) and the [API documentation page](#) for information about APIs and the *NSP Data Collection and Analysis Guide* for information about KPIs.

Tests and subscriptions limitations

If the CFM Association and MEP has Admin Name set to "N/A", some of the CFM Associations and MEPs are not migrated from NFM-P to NSP.

When deleting a test suite, if the NE is in MD mode, CFM objects get deleted. If the NE is managed via NFM-P, CFM objects are not deleted even though the test suite and tests are deleted.

Model-driven OAM (MD-OAM) features within NSP's data collection and analysis function are available in this release with the following limitations:

- MD-OAM is fully certified to be backwards-compatible with NSP 21.11 and newer OAM adaptors. OAM adaptors from release NSP 21.9 or older are not qualified.
- MD-OAM has been partially validated against multi-vendor NEs; however, certification with multi-vendor will continue over the next NSP releases.

MDM-OAM with classically managed NEs has the following additional restrictions:

- CFM Linktrace test execution is not supported.

1.1.2 Analytics API support

NSP Analytics functions are available for OSS using programmable APIs. For general information about developer support, see the [Network Developer Portal](#). For API documentation, see the [API documentation page](#).

1.1.3 Resource requirements

Analytics has significant data throughput and storage requirements that vary by the data type, such as telemetry, aggregated raw, or flow. An NSP deployment that includes Analytics reporting may require the following, based on the collected data types and volume:

- an NSP auxiliary database, for raw data collection and aggregation
- one or more enabled NSP installation options, for telemetry data collection and flow data collection using NSP Flow Collectors
- NFM-P auxiliary servers, for additional classic mediation collection throughput

 **Note:** The report characteristics table in a chapter indicates which system elements are required in order to collect the required report data. For example, the Source database row in the table for an aggregation-based report indicates that an NSP auxiliary database is required, and the NSP Flow Collector required row is present in a table that describes flow statistics collection.

If you intend to enable additional reporting that is not currently available in your deployment, see the *NSP Planning Guide*, which includes information about the NSP Analytics resource requirements, based on the managed network size, deployment scope, and other considerations.

1.1.4 Network domains for Application Assurance reports

NSP Analytics supports AA reporting for residential, business, Wi-Fi, and fixed wireless access subscribers. If needed, the network domain can be selected from the Domain drop-down menu in the input prompt panel.



Note: The use of “mobile” in this document implies fixed wireless access.

The domains are defined by the value of the Subscriber Type parameter in the AA Subscriber form, the Subscriber Scale parameter in the ISA AA group policy, or both:

- Residential / Wi-Fi (ESM)
 - Subscriber Type: ESM, ESM-MAC, or Transit
These subscribers must have an associated ISA AA group policy with a Subscriber Scale setting of Residential.
- Business
 - Subscriber Type: SAP, Spoke SDP Binding, or Prefix Transit
These subscriber types must have an associated AA group policy with a Subscriber Scale setting of VPN.
- Mobile
 - Subscriber Type: Mobile
- Wi-Fi (DSM)
 - Subscriber Type: DSM
The subscriber must have an associated ISA AA group policy with a Subscriber Scale setting of Lightweight-internet (LWI).

The following table describes the reports available for each domain.

Table 1-1 Application Assurance reports, by domain

Report type	Residential / Wi-Fi	Business	Wi-Fi (DSM)	Mobile
Business Subscribers	None	All	None	None
Devices and Domains	All	All	All	All
Firewall	None	All	None	All
Location and Congestion	None	None	All	All
Mobile Subscribers	None	None	None	All
Nodes	All	All	All	All
Performance	All	All	All	All
Subscribers	All	None	None	None

1.1.5 Baselining in Analytics reports

Some reports support the use of baselining. Baselining highlights deviations for the current period from the baseline data collected in the configured baseline period.



Note: Baselining in Analytics reports is different from baselines as seen in the **Data Collection and Analysis Management, Baselines** view.

For an Analytics report, NSP computes a baseline for data configured for reporting, for example, utilization and throughput for a port in a Port-LAG Details report, or bandwidth and data for an application group in a Router Level Usage Summary report with Baseline.

A baseline configured in **Data Collection and Analysis Management, Baselines** provides near-real-time trend and anomaly detection from telemetry counters, for example, received-octets for the /telemetry:base/interfaces/interface telemetry type.

For more information about baselines in Data Collection and Analysis Management, see the *NSP User Guide* and the *NSP Data Collection and Analysis Guide*.

The following table describes how baseline data is presented.

Report granularity	Baseline definition	Baseline composition
Raw	Raw + Hour of Day	Baseline is composed of all data points in the Baseline Report Range for matching intervals to the hour and minute for any day of the week. For example if May 15 14:05 is in the Report Range, and the Baseline Report Range is April 1 00:00 - April 30 11:59, the baseline minimum, maximum, and average values are based on the 30 samples from 14:05 for every day of April. The same baseline calculation is made for other data points in the Report Range.
	Raw + Hour of Day + Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching intervals to the hour and minute for the corresponding day of the week. In the above example, the baseline has 4 or 5 samples depending on the day of the week (as each day occurs 4 or 5 times per month).
Hourly	Hour of Day	Baseline is composed of all data points in the Baseline Report Range for matching hours for any day of the week. For example, if May 15 14:00 is in the Report Range, and the Baseline Report Range is April 1 00:00 - April 30 11:59, then the baseline minimum, maximum, and average values are based on the 30 samples from 14:00 for every day of April. The same baseline calculation is made for other data points in the Report Range.
	Hour of Day + Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the week. In the above example, the baseline has 4 or 5 samples depending on the day of the week (as each day occurs 4 or 5 times per month).
	Hour of Day + Day of Month	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the month. In the above example, the baseline has 1 sample (note: a longer Baseline Report Range is recommended).

Report granularity	Baseline definition	Baseline composition
Daily	Day of Week	Baseline is composed of all data points in the Baseline Report Range for matching days of the week. For example, if May 15 is in the Report Range, and the Baseline Report Range is January 1 00:00 - April 30 11:59, the baseline minimum, maximum, and average values are based on the 17 or 18 samples for every day in those 4 months.
	Day of Week + Month of Year	Baseline is composed of all data points in the Baseline Report Range for matching hours for the corresponding day of the week for the matching months. In the above example, the baseline has 4 or 5 samples for each of the months of January-April.
	Day of Month	Baseline is composed of all data points in the Baseline Report Range for matching days of the month. In the above example, the baseline has 4 samples for the 15th day of January-April.
	Day of Month + Month of Year	Baseline is composed of all data points in the Baseline Report Range for the matching days and months of the year. In the above example, the baseline is empty as May 15th does not occur (a different Baseline Report Range is required).
Monthly	Month of Year	Baseline is composed of all data points in the Baseline Report Range for matching months. For example, if May is in the Report Range, and the Baseline Report Range is January 1 2020 - December 31 2022, the baseline minimum, maximum, and average values are based on the 3 samples for every month of May between 2020-2022.

1.1.6 Analytics report branding

Some reports support the inclusion of a logo. A logo image that you add is displayed at the top of each report page in an 80-pixel square. See [1.17 “How do I upload images for report branding?” \(p. 37\)](#) for information.

1.2 What are reports and dashboards?

1.2.1 Analytics reports

Analytics reports enable a network operator to quickly determine the overall status of network functions and monitor trends. For example, you can identify the top subscribers in terms of overall network traffic, or based on application usage. Analytics allows a user to specify the reporting period, the objects on which to report, and the desired view. A report can be displayed in different formats such as a pie chart, trend diagram, or histogram.

You can [schedule](#) reports, or [save them](#) to be run again.

You can also export reports to files using the following formats:

- Excel (Paginated)
- Excel
- CSV
- DOCX
- RTF
- ODT
- ODS
- XLSX (Paginated)
- XLSX
- PPTX

1.2.2 Viewing reports

An NSP Analytics report consists of one or more charts and tables. By default, each chart or table is displayed on a separate page; you can select an option to display all on one page. To enhance the analysis, you can refine the chart display by clicking on a legend entry to include or exclude the data associated with the legend entry. Also, for increased granularity, you can click on any data portion in a chart to zoom in and view a chart that contains only the selected data portion.

From the report view, you can click on the menu items under the Repository menu to search results or configure schedules, custom dashboards, or ad hoc reports. To return to the report repository, click on Repository Top.

i **Note:** When viewing a report, be aware of the number of objects in the dataset. The report may become unreadable if more than 10 to 20 data points are present.

Similarly, it may not be possible to create a drill-down report on a subset of data if the subset includes more than 1000 groups or services.

Report runtime error

If the report output involves a horizontally growing table (crosstab-based output), running the report without narrowing down the data using the input controls may generate one of the following error messages: "Crosstab bucket/measure limit (100,000) exceeded" or "Please re-run the report with reduced report range or try again with different granularity". This is caused by the configured limit for crosstab components.

If you encounter this issue while running a report, re-run the report, narrowing down the result set. For example, instead of selecting all metrics available to report on, select a subset. Similarly select a subset of applications, select hourly or daily statistics instead of raw, or reduce the reporting period. If this fails, consider using a table which does not have this limit.

In-context launch

You can launch compatible reports from the Network Map and Health dashboard; see the *Network and Service Assurance Guide*.

i **Note:** The top-level report opens with the parameters selected. If you drill down from this report you can change the parameters on the drill-down report.

Language localization

Analytics supports language localization. Wording that is in all reports, such as on the **Apply** button, the labels of the Reports and Administration areas, and page labels such as Repository and Search

Results, are localized according to the NSP language localization configuration. Wording that is report-specific, such as an input parameter name, is in English only.

Object troubleshooting

Reports can be viewed from the Object Troubleshooting dashboard. A report in the dashboard displays when you have selected it based on your configurations. Reports in the dashboard are configurable. See the *NSP Network and Service Assurance Guide*.

1.2.3 Dashboards

An NSP Analytics dashboard consists of multiple dashlets that are displayed on one page. Each dashlet displays a chart or table based on key performance indicators; collectively, the dashlets provide a high-level view of various network management conditions.

The entire dashboard display automatically refreshes at 15-minute intervals; you can choose to refresh the display of an individual dashlet on demand using the circle icon in the dashlet title bar, and can enlarge a dashlet for closer scrutiny using the double-arrow icon in the dashlet title bar.

1.2.4 Workspaces

The initial use of Analytics automatically creates a personal folder for the user in the Results folder. The Results folder also provides user access to a Shared subfolder, in which all Analytics users can share items such as reports, dashboards, and ad hoc reports.

 **Note:** Because of a security limitation, an NSP user with Analytics access cannot have the following username:
samuser

 **Note:** Deleting an Analytics user also permanently deletes the associated personal folder, workspace, and scheduled tasks.

Users with Administrator privileges have access to the Administrators subfolder in the Results folder, and can manage the folders of other users.

The Users and System Security dashboard specifies which reports or resources a user group can access; see the *NSP System Administrator Guide*. Upgrade to the User Access Control (UAC) model is not supported.

1.2.5 Saving reports

Reports are saved in user-specific folders below the Results folder, and optionally in the Shared folder in the Results folder, as described in [1.2.4 “Workspaces” \(p. 24\)](#). You can save a report by clicking **Save As**, and then save the report input values by clicking **Save** in the report Options panel. The report must be saved first before the input values can be saved. You can later run the report using the saved input values. You can save multiple report versions that each use different input values, as required.

Within the Results folder, you can create custom folders to reflect report requirements, for example, a folder for use by a particular team; see [1.13 “How do I manage saved reports?” \(p. 33\)](#).



Note: After an NSP system upgrade, some saved Analytics reports or scheduled reporting jobs may not be available, depending on the functional differences between the old and new NSP releases; see the *NSP Release Description* for the new release, and any intervening release, for information.

In such an instance, Nokia recommends that you delete the unavailable old reports and scheduled jobs before the upgrade, and then run, save, and reschedule the reports after the upgrade.

1.2.6 Exporting reports

Click on **Export** and choose your file format to export a report to your PC. You can export a report in the following formats:

- Excel (Paginated)
- Excel
- CSV
- DOCX
- RTF
- ODT
- ODS
- XLSX (Paginated)
- XLSX
- PPTX



Note: If you export a file to PDF, clicking **Download** from the PDF viewer may generate an error. To download a PDF, open the Print menu and choose **Save as PDF**.

1.2.7 Scheduled report creation

You can create reports on demand, or schedule regular report creation. To schedule a report, right-click on the report name in the Reports repository.

The following general guidelines match data-aggregation levels and time spans to enable the creation of meaningful reports.

- None—current raw data
- Hourly—5 to 7 days
- Daily—up to one month
- Monthly—up to six months

Scheduled report results are saved to the Results folder. You can create and manage subfolders in the Results folder as needed. See [1.2.4 “Workspaces” \(p. 24\)](#) for more information about the Results folder.

Scheduled reports can be transferred to external systems using FTP or SFTP; on the Schedules view, enable the Output to FTP Server parameter and configure the required parameters. Additionally, scheduled reports can also be sent to an email address; see the *NSP System Administrator Guide*.

After an NSP system upgrade, scheduled reporting jobs created before the upgrade remain available and functional, but run the new report version.

1.2.8 Report purging

Saved reports that are no longer of interest consume database space unnecessarily. Reports that exceed a configured maximum number are purged automatically every 24 hours. The default maximum is 5000. You can configure the maximum number of reports, or run the purge operation manually from the System Settings form; see [1.11 “How do I configure application preferences?” \(p. 32\)](#).

If you need to save more than 5000 reports at a time, Nokia recommends saving them to another location using the Output to FTP Server option when you create the report schedule.

1.2.9 Custom reporting

You can create and deploy custom reports and dashboards using your specifications, as described in [Part VI: “Custom”](#). For information about custom reports created by Nokia, contact your support representative.

If the NSP has been upgraded, custom reports from the previous release cannot be run in the current release. Nokia recommends creating the reports again after the upgrade is completed.

1.3 When do I configure Analytics?

1.3.1 Overview

In order to enable the creation of Analytics reports and dashboards, an operator must:

- enable or disable the required types of data collection
- specify the statistics classes for data collection and aggregation
- specify how long to retain the data

The following can also be configured by an administrator:

- E-mail server settings; see “How do I configure e-mail notification of scheduled Analytics reports?” in the *NSP System Administrator Guide*.
- Logging of Analytics server events; see “How do I manage NSP Analytics logging?” in the *NSP System Administrator Guide*

1.4 How do I configure NSP Analytics for classic mediation?

1.4.1 Stages

1

Configure and enable the collection of the required statistics from NEs, as described in the *NSP NFM-P Statistics Management Guide*.

2

If the NSP deployment includes NSP Flow Collectors, configure and enable flow statistics collection, if required; see the *NSP Data Collection and Analysis Guide* for information about

how to configure NSP flow collection, and the *NSP Statistics Management Guide* for information about how to configure NFM-P AA Cflowd statistics collection.

3

Configure one or more NFM-P analytics rules that specify the statistics to collect; see [1.8 “How do I configure an NFM-P analytics rule?”](#) (p. 29).

4

Configure one or more aggregation rules; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

5

Configure the time zone for the analytics session in the Select Report Time Zone menu. See [1.10 “How do I configure the Analytics session time zone?”](#) (p. 31).

6

Configure report purging; see [1.11 “How do I configure application preferences?”](#) (p. 32).

7

Configure scheduled reports, as required; see [1.14 “How do I schedule a report?”](#) (p. 34).

1.5 How do I configure NSP Analytics for model-driven NEs?

1.5.1 Stages

1

Configure and enable the following for NSP data collection:

- subscriptions
- age-out policy
- aggregations

See the Telemetry information on the [Network Developer Portal](#) and in the *NSP Data Collection and Analysis Guide*.

2

Configure one or more analytics aggregation rules; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

3

Configure the time zone for the analytics session in the Select Report Time Zone menu. See [1.10 “How do I configure the Analytics session time zone?”](#) (p. 31).

4

Configure report purging from the System Settings form. See [1.11 “How do I configure application preferences?”](#) (p. 32).

5

Configure scheduled reports as needed; see [1.14 “How do I schedule a report?”](#) (p. 34).

1.6 How do I prevent suspect-interval data spikes in classic management reports?

1.6.1 Purpose

Statistics counters continue to accumulate on the NE during suspect intervals, for example, during a communication outage between the NSP and the NE. In the first successful collection interval following the last suspect interval, the periodic counter value reflects the count of all suspect intervals. Consequently, an impossible value, such as a utilization greater than 100%, may be collected and result in a data spike in an Analytics chart.

Perform this procedure to help prevent such spikes by increasing the periodic time value for the first successful interval following the last suspect interval. See the *NSP Administrator Guide* for more information about managing suspect data records.

1.6.2 Steps

1

Choose Administration→System Preferences from the NFM-P main menu. The System Preferences form opens.

2

Click on the Statistics tab.

3

Enable the Accumulate time over suspect intervals parameter and configure all other required parameters.

4

Save your changes and close the form.

END OF STEPS

1.7 What are the auxiliary database retention times?

1.7.1 Auxiliary database retention information

You can specify how long aggregation data is stored in the auxiliary database by configuring the parameters in the Aggregation Retention Configuration panel on the Aggregation Rule tab of the Aggregation Manager form; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

The following table describes the auxiliary database retention times.

Data type	Periodic		Hourly		Daily		Weekly		Monthly	
	System default	Maximum	System default	Maximum	System default	Maximum	System default	Maximum	System default	Maximum
	Days		Days		Days		Weeks		Months	
Performance (SNMP) statistics	1	365	30	403	90	403	26	52	24	36
Accounting statistics	1	365	30	403	90	403	26	52	24	36
NetFlow v5/IPFIX statistics	7	403	30	403	90	403	26	52	24	36
OAM test results	30	365	30	403	90	403	26	52	24	36
Events	7	365	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AA accounting statistics	7	403	30	403	90	403	26	52	24	36
AA Cflowd statistics	7	403	30	403	90	403	26	52	24	36
Telemetry statistics	1	403	30	403	90	403	26	52	24	36

1.8 How do I configure an NFM-P analytics rule?

1.8.1 Purpose

Perform this procedure to enable or disable raw data collection, and to specify data retention, for a statistics class to be processed using NFM-P analytics. Raw data collection is enabled by default for each statistics class.

1.8.2 Steps

- 1 _____
Choose Tools→Analytics→AA Collection Manager from the NFM-P main menu. The AA Collection Manager form opens with a list of analytics rules displayed.
- 2 _____
Select the required analytics rule and click **Properties**. The Analytics Rule (Edit) form opens.
- 3 _____
Select the Collection Enabled parameter.
- 4 _____
Configure the Raw Data Retention Time (days) parameter.
- 5 _____
Close the AA Collection Manager form.

END OF STEPS

1.9 How do I configure analytics aggregation?

1.9.1 Purpose

Perform this procedure to configure the following for a statistics class to be processed using Analytics:

- data aggregation level
- aggregation data retention



Note: You can also configure the aggregation rule for a statistics class from the properties form of the analytics rule associated with the statistics class.

1.9.2 Steps

- 1 _____
Choose Tools→Analytics→Aggregation Manager from the NFM-P main menu. The Aggregation Manager form opens.
- 2 _____
Select an aggregation time zone if needed. The aggregation time zone is the time zone used to define daily, weekly, or monthly aggregations, that is, the definition of midnight.

-
- 3

On the Aggregation Rule tab, select the required aggregation rule and click **Properties**. The Aggregation Rule (Edit) form opens.
 - 4

Select the Enable Aggregation parameter.
 - 5

Configure the Aggregation Sync Time parameter.
 - 6

Configure the Aggregation Levels parameter. As you select or deselect an option, other options may be automatically selected or deselected, as the aggregation logic requires.
 - 7

Configure the parameters in the Aggregation Retention Configuration panel to specify how long the aggregation data is stored.
 - 8

Click **OK** to save your changes and close the form.
 - 9

Close the Aggregation Manager form.

END OF STEPS

1.10 How do I configure the Analytics session time zone?

1.10.1 Purpose

Perform this procedure to configure the time zone for the analytics session. If no time zone is selected, the browser time zone is used for report generation.

The session time zone defines the current time displayed in Analytics. The time zone used for aggregation, that is, the definition of when a day ends, is the aggregation time zone. The session time zone and the aggregation time zone must be the same. See also [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

1.10.2 Steps

- 1

Open Data Collection and Analysis, Analytics Reports.

-
- 2

Click  (More actions), **Select Report Time Zone** at the top right of the Repository view. The Select Report Time Zone form opens.
 - 3

Configure the Time Zone parameter.
 - 4

Save your change and close the form.

END OF STEPS

1.11 How do I configure application preferences?

1.11.1 Purpose

When the number of reports in the Results folder exceeds the configured number of reports to keep, the oldest reports above the maximum number are permanently deleted. If you need to keep more than 5000 reports, Nokia recommends configuring your scheduled jobs to output to an FTP server, as described in [1.14 "How do I schedule a report?"](#) (p. 34).

Perform this procedure to specify when to purge old Analytics reports, or to manually invoke a purge.



Note: The NSP performs a daily purge of older reports based on the value that you specify in the procedure.

1.11.2 Steps

- 1

Open Data Collection and Analysis Management, Analytics Server Management. The System Settings form opens. The default number of reports to keep is displayed.
- 2

Configure the **Number of analytic reports to store** parameter.
- 3

To purge the excessive older reports manually, click **Clear Storage**, and then click **OK**.
- 4

Click **Update** to save your changes and close the form.

END OF STEPS

1.12 How do I run a report?

1.12.1 Purpose

Before you can run a report, statistics collection and aggregation must be configured in the NFM-P. Report-specific prerequisites may apply.

1.12.2 Steps

1

Open Data Collection and Analysis Visualizations, Repository.

2

Expand the folders in Reports and Dashboards and choose the report to run.

3

Configure the required parameters and click **Apply**.

4

To save the report:

1. Select **Save As**.
2. Configure the required parameters.
3. Navigate to the subfolder in the list view and click **Save**.

5

To save the report input values:

1. In the Options panel, click **Save**.
2. Specify a name for the saved values and click **Save**.

6

To export the report, point to Export and select a file type.

END OF STEPS

1.13 How do I manage saved reports?

1.13.1 Purpose

You can save reports to the Results folder to make them available to run again with the same inputs. You can save different versions of the same report with different inputs, and organize them in subfolders as needed. Save reports directly to subfolders. See [1.2.4 "Workspaces" \(p. 24\)](#) for more information about the Results folder.

Each report version is assigned a resource ID at the time of saving. The resource ID is based on the name that is entered in the Save As dialog when the report is saved. After the report is saved, the name field can be updated. This means that you can have two report versions with the same displayed name, because their resource IDs are unique in the folder.

Example If you want to save two different reports for a set of inputs representing the Eastern region, you can save the reports as PTEast and STEast. This gives each report a unique resource ID. From the Results folder, edit the name of both report versions to Eastern. This will make it easy to identify that both report versions have the same inputs.

1.13.2 Steps

- 1

Open Data Collection and Analysis Visualizations, Repository.
- 2

Expand Results and choose a folder.
The list of reports with saved user-specified report inputs is displayed. Click the arrow beside a report to expand the list.
- 3

To run a saved report, you can either:
 - a. Click on the report name to open the report inputs. At the top of the inputs panel, choose the report to run.
 - b. Click on the report name.
- 4

To create a subfolder in the Results folder:
 1. Right-click **Results/Shared** in the folder pane and choose Add Folder.
 2. In the Add Folder dialog, enter a name for the folder and a description.
 3. Click **Add**.A personal subfolder within the Results folder is also created automatically when you first log into Analytics. Additionally, a user folder is also created when you access a report in-context from the NSP.

END OF STEPS

1.14 How do I schedule a report?

1.14.1 Purpose

Perform this procedure to configure a schedule. You can schedule reports to run once or to repeat.

1.14.2 Steps

- 1 _____
Open Data Collection and Analysis Visualizations, Search Results.
- 2 _____
From the Search page, right-click on a report or report version and choose Schedule. The Scheduled Jobs page opens.
- 3 _____
In the Scheduled Jobs page, click **Create Schedule**. The New Schedule page opens.
- 4 _____
In the Schedule panel, configure the scheduled start of the job, and the recurrence.
- 5 _____
Click **Parameters** to set the input parameters for the scheduled report.
If you are scheduling a saved report version, the input parameters will already be set.
- 6 _____
Click **Output Options** to set the report format, for example, PDF, and where it will be saved.
- 7 _____
Click **Notifications** to configure notification of job status, success, or failure, or for email copies of the report to be sent.
- 8 _____
Click **Save** to add your scheduled job to the Schedules page.

END OF STEPS

1.15 How do I edit, disable, or delete scheduled report jobs?

1.15.1 Purpose

You can edit or delete scheduled report jobs that you created, that is, jobs for which your username appears in the owner column on the Schedules page.

In order to edit or delete a job that you do not own, you must be signed in to the NSP as an administrator.

If a scheduled job is deleted, it is immediately removed from the list and no further reports will be run according to the schedule. If you want a scheduled job to stop running but remain in the list for future use, you can disable it.

Deleting the scheduled job does not delete results of previously run reports from the Results folder.

Scheduled jobs that were upgraded from a release prior to 18.6 are owned by samuser. These tasks can only be managed by the admin user.

1.15.2 Steps

- 1

Open Data Collection and Analysis Visualizations, Schedules and Alerts. The scheduled jobs are displayed on the Schedules page, with the  (Edit) and  (Delete) buttons at the right of the page
- 2

To disable a scheduled job, move the Pause/Activate slider to pause. The job will stop running but remain in the list.
- 3

To delete a scheduled job, click  (Delete). The scheduled job is removed from the list.
- 4

To edit the scheduled job:
 1. Click  (Edit). The Scheduled Jobs page opens.
 2. Configure the parameters as required.
 3. Click **Save**.

END OF STEPS

1.16 How do I view, edit, or export an alert?

1.16.1 Purpose

Perform this procedure to view, edit, or export an alert for a report.

1.16.2

- 1

Open Data Collection and Analysis Visualizations, Schedules and Alerts.
- 2

Click **Alerts**. The Report Alerts page opens.
- 3

View the list of alerts, as needed.

4

To edit an alert:

1. Click  (Edit) next to the alert that you wish to edit. The Edit Alert page opens.
2. Click **Condition** to configure the required parameters, and click **Apply changes**.
3. Click **Parameters** to view the parameters.
4. Click **Schedule** to configure the recurrence and start time of the alert, and click **Apply changes**.
5. Click **Notifications** to email copies of the alert, and click **Apply changes**.
6. Click **Output** to configure the report format and other required parameters, and click **Apply changes**.

5

To export an alert, click **Export as CSV** on the Report Alerts page. An Excel spreadsheet opens with the alarms listed.

END OF STEPS

1.17 How do I upload images for report branding?

1.17.1 Purpose

Some Analytics reports allow you to embed a logo for branding. The following steps describe how to upload images for branding Analytics reports.

Image files can be in any of the following formats, and are scaled to fit an 80-pixel square for display in the report:

- BMP
- GIF
- JPEG
- JPG
- PNG
- SVG

1.17.2 Steps

1

Open Data Collection and Analysis Visualizations, Repository.

2

Right-click on the Images folder.

3

Choose **Add Resource, File, Image**. The Add File page opens.

4 Click **Choose File** and navigate to the image file.

5 Configure the Name and Resource ID parameters.

 **Note:** You are prompted for the Resource ID when adding the image to a report.

6 Click **Submit**. The file is saved to the Images folder.

END OF STEPS

1.18 How do I enable anonymization for Analytics reports?

1.18.1 Purpose

Data anonymization uses hashing to obscure specific sensitive information in the auxiliary database tables so that a non-admin NSP user with an anonymization role can access only encrypted information, such as the mobile subscriber name or ID.

 **Note:**

- Reports do not return data when anonymized attributes are prompts in the report.
- Drill-down reports do not return data when the drill-down parameter is an anonymized attribute.

Contact your Nokia support representative for information about which tables or table columns to anonymize based on your privacy needs.

1.18.2 Steps

1 Enable anonymization for Analytics reports:

1. Log in as the root user on an auxiliary database station.
2. Enter the following:

```
# cd /opt/nsp/nfmp/auxdb/install/bin ↵
```

3. Enter the following:

```
# ./auxdbAdmin.sh addAnonymization schema table_name column_name ↵
```

For example:

```
./auxdbAdmin.sh addAnonymization samdb Analytics_cflowd_aa_mobile_volume_ag_r_
day obsSubId
```

4. You are prompted for the samauxdb password.
5. Enter the password.

The anonymization entry is added.

2

Configure and assign the anonymization role to the NSP user.

1. Log in to the main server station as the nsp admin user or a user with admin privileges.
2. Create a role with Analytics Reports access permissions and anonymization enabled, and assign it to an NSP non-admin user:
 - for Permissions, choose Read/Write/Execute for Analytics
 - enable the Enable Report Data Anonymization check box
 - enable access to the reports and data domains, as requiredSee the *NSP System Administrator Guide* for more information.

3

Disable anonymization for Analytics reports, if required.

1. Log in as the root user on an auxiliary database station.
2. Enter the following:

```
# cd /opt/nsp/nfmp/auxdb/install/bin ↵
```
3. Enter the following:

```
# ./auxdbAdmin.sh removeAnonymization schema table_name column_name ↵
```

For example:

```
./auxdbAdmin.sh removeAnonymization samdb Analytics_cflowd_aa_mobile_volume_ag_r_day obsSubId
```
4. You are prompted for the samauxdb password.
5. Enter the password.

The anonymization entry is removed.

4

Close the open console window.

END OF STEPS

1.18.3 Example

The following figures show the same report but with different outputs. The first report displays anonymized output, in this case, subscriber information, as seen by an anonymized user. The second report shows output in clear text for the subscriber information.

Figure 1-1 A report with anonymized output

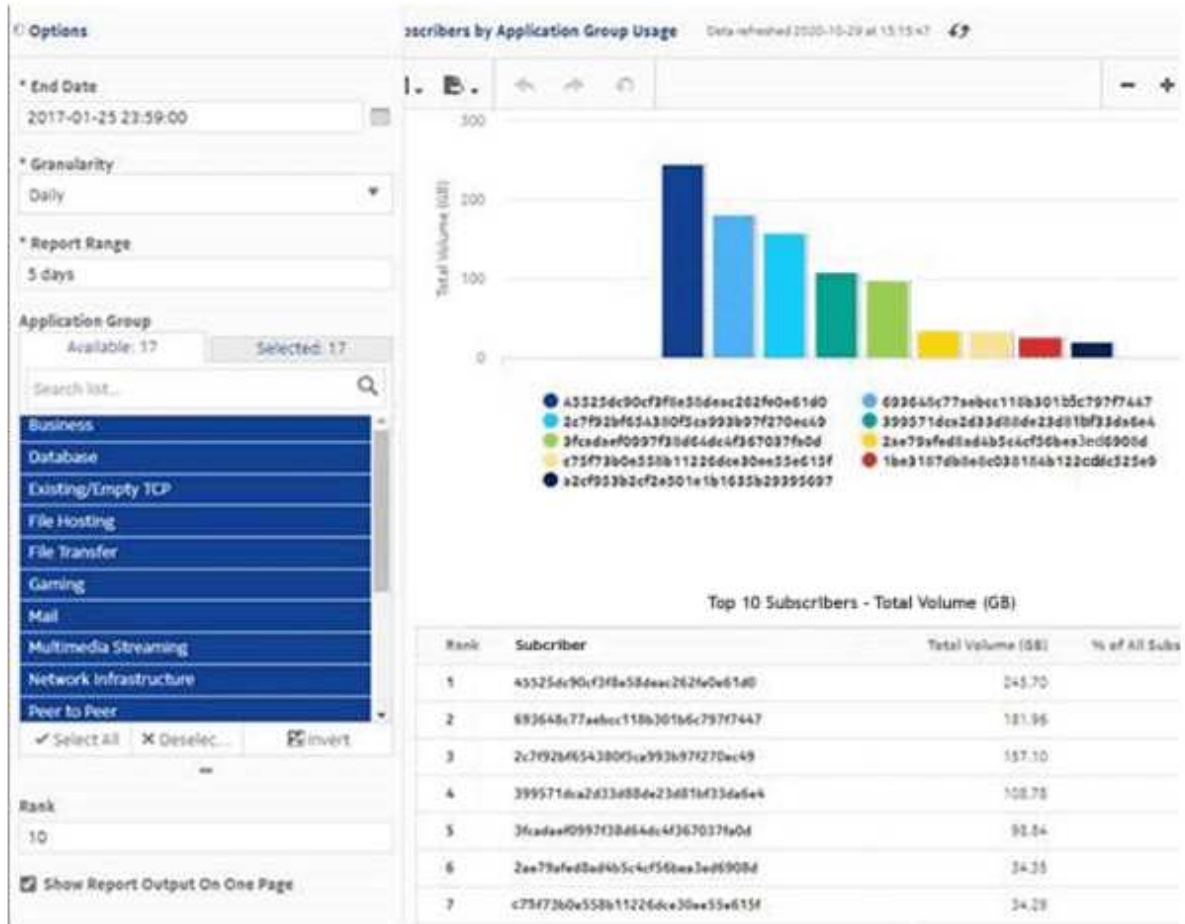
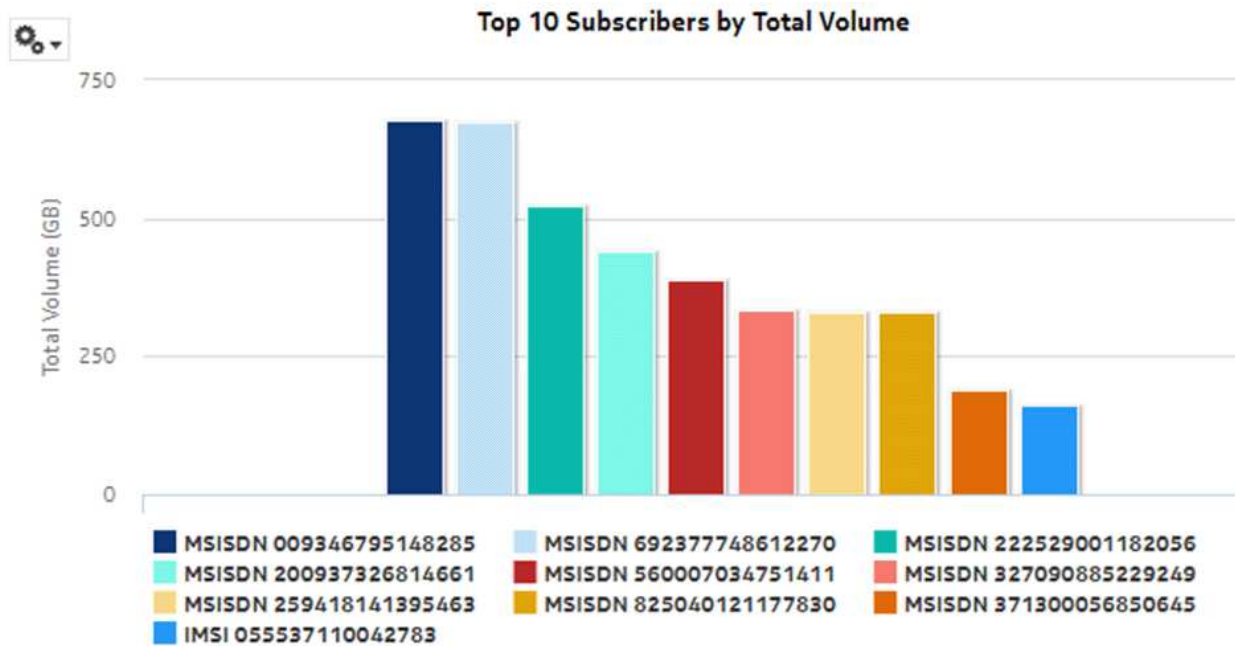


Figure 1-2 A report with clear text (non-anonymized) output



1.19 How do I delete an Analytics user?



CAUTION

Data Loss

Deleting an Analytics user permanently and irrevocably removes the user and the associated personal folders, workspace, and scheduled jobs.

Ensure that you are deleting only a user whose saved Analytics reports and jobs are no longer required.

1.19.1 Steps

- 1 _____
Open Data Collection and Analysis Management, Analytics Server Management.
- 2 _____
Click **User Management**.
- 3 _____
Select the users to delete.

4 Click  (Delete).

5 Confirm the deletion.

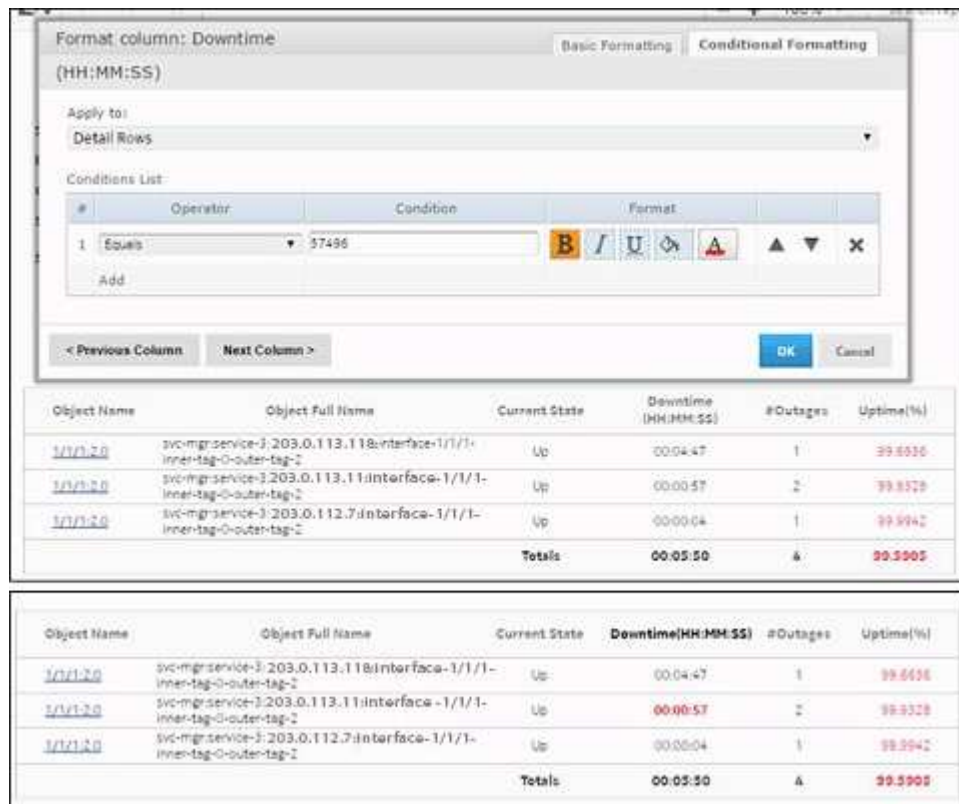
END OF STEPS

1.20 How do I format or filter a report?

1.20.1 How do I format or filter a report?

You can apply conditional formatting or filtering to report table columns by clicking on the column header to show filtering and sorting options. Conditional formatting and filtering of timestamps or duration columns uses Unix epoch format, as shown in the following figures.

Figure 1-3 Conditional formatting example

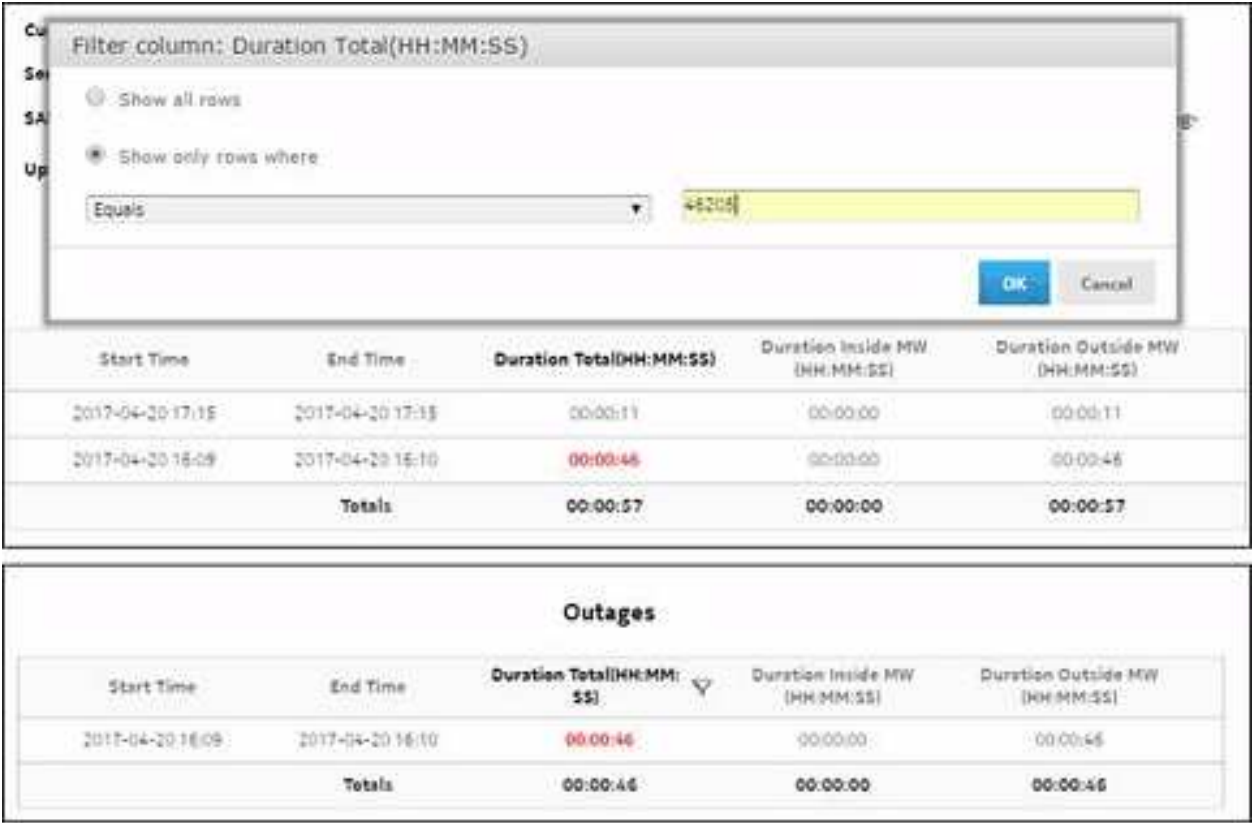


The screenshot shows a 'Format column: Downtime' dialog box with the 'Conditional Formatting' tab selected. The 'Apply to' dropdown is set to 'Detail Rows'. The 'Conditions List' table has one condition: '1 Equals 57496'. The 'Format' column shows icons for Bold (B), Italic (I), Underline (U), Text Color (A), and Background Color (X). Below the dialog box, two table snippets are shown. The top snippet shows the 'Downtime' column with values like '00:04:47', '00:00:57', and '00:00:04'. The bottom snippet shows the same table with the 'Downtime' column header changed to 'Downtime(HH:MM:SS)' and the values formatted accordingly.

Object Name	Object Full Name	Current State	Downtime (HH:MM:SS)	#Outages	Uptime(%)
1/1/20	svc-mgr-service-3-203.0.113.118:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:04:47	1	99.8636
1/1/20	svc-mgr-service-3-203.0.113.111:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:00:57	2	99.9328
1/1/20	svc-mgr-service-3-203.0.112.7:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:00:04	1	99.9942
Totals			00:05:50	4	99.5905

Object Name	Object Full Name	Current State	Downtime(HH:MM:SS)	#Outages	Uptime(%)
1/1/20	svc-mgr-service-3-203.0.113.118:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:04:47	1	99.8636
1/1/20	svc-mgr-service-3-203.0.113.111:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:00:57	2	99.9328
1/1/20	svc-mgr-service-3-203.0.112.7:interface-1/1/1-inner-tag-0-outer-tag-2	Up	00:00:04	1	99.9942
Totals			00:05:50	4	99.5905

Figure 1-4 Filtering example



1.21 Which report table columns cannot be sorted and filtered?

1.21.1 General information

You cannot sort and filter some columns for some reports; see the following table.

Table 1-2 Table columns that cannot be sorted and filtered

Report	Table columns that cannot be sorted and filtered
Comprehensive reports	

Table 1-2 Table columns that cannot be sorted and filtered (continued)

Report	Table columns that cannot be sorted and filtered	
Node Availability Summary	• Region • Sub Region • Sub Region1 • Sub Region2 • Node Name, • Node ID • Avg Availability (%) • Max Availability (%)	• Min Availability (%) • Max Availability Time • Min Availability Time • Downtime(DD:HH:MM:SS) • Outages • Last Outage Time(DD:HH:MM:SS) • Reachability Status
Ports and Interfaces Availability Summary	• Region • Sub Region • Sub Region1 • Sub Region2 • Mode • TerminationObject Type • TerminationObject NE IP Address • TerminationObject NE Name • TerminationObject Name • Interface Name	• Interface Description • Outer Encap • Inner Encap • Interface IP Address • Mask • Avg Availability (%) • Max Availability (%) • Min Availability (%) • Max Availability Time • Min Availability Time
Service Availability Summary	• Service Name • Service ID • ServiceType • Avg Availability (%)	• Max Availability (%) • Min Availability (%) • Max Availability Time • Min Availability Time
Utilization reports		
SAP, SDP Uptime Details	• Start time • End time	
Service Uptime Summary	• Current State • Object Name	
Wavence reports		
Feature and Capacity Inventory	Snapshot Date	
Radio Link Inventory	Radio Link	
Radio Links Summary	• ACM • Channel Bandwidth • Modulation • XPIC	

Table 1-2 Table columns that cannot be sorted and filtered (continued)

Report	Table columns that cannot be sorted and filtered
Bandwidth Throughput Summary	• Average Throughput • Maximum Throughput • Minimum Throughput • Link Name
Link Budget Calculation	• Link Name • distanceUnit • Port
Link Unavailability Summary	• Link Name • Link Distance (km) • Port • Unavailable Seconds
Radio Performance Per Port Summary	Date
NSP inventory reports	
Port Details	• Slot • Port Count • Ports Used • Ports Used (%)
Port Inventory Summary	• NE ID • NE Name • NE Type • Port Count • Ports Used • Ports Used (%)
NSP utilization reports	
Port-LAG Details	• Stat • Count
Port Throughput Summary	• Direction • NE Name
Resource Group Utilization Detail with Forecast	• Max Tx Utilization time • Min Tx Utilization time
Resource Group Utilization Summary	• Resource Group • Avg Max Utilization • Avg Threshold Violation • Max Threshold Violation • Top-N Date • Max Rx Utilization time • Min Rx Utilization time • Max Tx Utilization time • Min Tx Utilization time

Table 1-2 Table columns that cannot be sorted and filtered (continued)

Report	Table columns that cannot be sorted and filtered
Temperature, CPU, Memory Utilization Summary	All fields except for the CPU Memory Average and Maximum fields.

Part II: Administration

Overview

Purpose

This part describes the NSP Analytics reports in the Administration category.

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2 Administration reports

2.1 Administration reports overview

2.1.1 General information

Administration reports track user activity; for example, reports are tracked along with the selected parameters run by individual users. Additionally, administration reports track Analytics resource utilization and gather configuration information for monitoring or troubleshooting purposes.

Use cases

Capacity planning—Use the report to:

- track user activity; for example, track reports along with the selected parameters run by individual users
- ensure effective Analytics resource utilization

Drill-down reports

All reports can be run from the main Administration folder under Reports and Dashboards by expanding the Audit or Diagnostic folder within the Administration folder and choosing a report.

 **Note:** Using the Show Report On One Page option when creating reports as drill-downs may affect the report rendering time. Nokia recommends disabling the Show Report On One Page option when running the reports.

2.2 Resource Execution report

2.2.1 Resource Execution report overview

The Resource Execution report shows user activity; for example, track resources along with the selected parameters run by individual users.

Prerequisites

For the Resources Execution report to generate useful output, you must enable auditing; see “How do I manage NSP Analytics logging?” in the *NSP System Administrator Guide*.

Report characteristics

The following table lists the principal report characteristics.

 **Note:** Nokia recommends that you use the default values for the report.

Table 2-1 Resource Execution report characteristics

Characteristic	Value	
Data type	Audit and monitoring log data statistics	
Source database	NSP main database	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Date between	The reporting period.
	Resource Type	The types of resources to be monitored or reported.
	Prop Type	The properties to be reported for the selected resource type.
	User Name	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	No	

2.2.2 Example

The following figure shows a report example.

Figure 2-1 Resource Execution report

Date	Time	Resource Type	Resource URI	Prop Type	Property Details	User Name
11/13/19	9:49:54 AM	ReportUnit	/Reports/Network_and_Service/Inventory/Card_Inventory	reportExecutionStartTime	2019-11-13 09:49:54	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	SitesMultiSelect=35.121.9.101 35.121.9.104 35.121.9.107 1.10.1.102 35.121.9.120 35.121.9.124 35.121.9.128	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	CriticalThreshold=90.0	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	SitesNamePattern=	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	WarningThreshold=70.0	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	DisplayFNI=true	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/SitesMultiSelect	inputControlParam	IS_IGNORE_PAGINATION=true	admin
11/13/19	9:49:54 AM	InputControl	/Reports/Network_and_Service/_input_controls/vertical/Inventory_Reports/NodeTypeMultiSelect	inputControlParam	CriticalThreshold=90.0	admin

2.3 NSP Analytics Server Diagnostic Snapshot

2.3.1 NSP Analytics Server Diagnostic Snapshot overview

The NSP Analytics Server Diagnostic Snapshot displays current Analytics utilization information for monitoring and problem diagnosis. The information includes internal settings for advanced troubleshooting by technical support.

Report characteristics

The following table lists the principal report characteristics.

Table 2-2 NSP Analytics Server Diagnostic Snapshot report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	PostgreSQL database	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Ignore Pagination	Choose Yes or No.
Drill-down support	No	

2.3.2 Example

The following figure shows a report example.

Figure 2-2 NSP Analytics Server Diagnostic Snapshot report

NSP Analytics Server Diagnostic Snapshot		
Generated: Thu Nov 14 14:26:37 EST 2019		
Section	Attribute	Value
Users	LoggedInUsersCount	3
	LoggedInUsersList	semuser = 1 admin = 2 superuser = 6
	TotalEnabledUsersCount	5
	TotalRolesCount	216
	TotalUsersCount	5
Reports	RunningAsyncReportsActiveTaskCount	1
	RunningAsyncReportsCountCuml	16
	RunningAsyncReportsPoolSize	1
	RunningReportsCount	1
	RunningReportsCountCuml	16
	RunningReportsErrorsCuml	0
	RunningReportsList	/Reports/Administration/Diagnostic_Reports/AnalyticsServerDiagnosticSnapshot=0
Scheduler	RunningSyncReportsCountCuml	0
	RunningJobsCount	0
	RunningJobsList	
Settings	ScheduledJobsCount	0
	AdhocSettings	sqlQueryDataStrategy = false (Optimize Queries for JDBC-based Reports) canViewQuery = false (Configure View Query) maxAvailableValues = 10000 (Ad Hoc Filter List of Values Row Limit) maxResultSetRows = 1500000 (Ad Hoc Dataset Row Limit) domainDataStrategy = true (Optimize Queries for Domain-based Reports) maxExecutionTimeSec = 360 (Ad Hoc Query Timeout (seconds)) displayNullAsZeroForAggregateValue = false (Display Null as Zero)
	AwsSettings	aws.db.security.group.ingressPublicIp = (JasperReports Server Public IP) aws.db.security.group.suppressEc2CredentialsWarnings = false (Suppress EC2 Credentials Warning) aws.db.security.group.changes.enabled = true (Automatically Set Up an Access Rule for JasperReports Server) aws.db.security.group.name = JRS5SecurityGroup_i-00013d8c (Access Rule Name) aws.db.security.group.description = JasperReports Server Security Group (Access Rule Description)

Part III: Application Assurance

Overview

Purpose

This part describes the NSP Analytics reports in the Application Assurance category.

Data sources for reports

Application Assurance reports are based on application assurance (AA) information retrieved from file-based accounting records (AA accounting and/or ISA Performance) or from AA Cflowd records (IPFIX records augmented with application-level information). Unlike accounting-based data, AA Cflowd records are generated based on a sampling rate configured between 1:1 (no sampling – all flows are sampled and a record is created for each flow) to 1:N (where only one of N flows are sampled and one record created).

Sampling is a cost-effective method of collecting AA data for analysis – fewer resources are required to generate, collect, store and analyze the data. Reports that depend on AA sampled data are identified in this guide with “NSP Flow Collector required – Yes”. When the sampling rate is greater than 1:1 (for example, 1:10, 1:1000), the reports present data useful for approximations, comparisons (for example, Do I have proportionately more Netflix or Youtube traffic?), and identification of trends in subscriber activity, applications in use, volume of data consumed, and so on.

When report content must be representative of actual network and subscriber activity, then you must use only reports, ad hoc reports, or dashboards based on one of the following data sources:

- Accounting type records (AA accounting and/or ISA Performance)
- AA Cflowd records with 1:1 sampling rate

i **Note:** AA Cflowd Analytics reports may fail to generate or may contain invalid data if the configuration of 7750 SR is modified via dynamic templates to exclude required fields.

Global policies

Application and application groups must be enabled with global policies, not local policies. When local policies are used, applications and application groups are not populated properly in report prompts, resulting in the inability to select specific applications or application groups correctly at report run time.

NSP accounting telemetry

Application Assurance file collection is not currently supported by NSP. If NSP is collecting accounting information from classic NEs, AA information is not available. If AA reporting is required, ensure that the NSP is not collecting accounting files from classic NEs; see the *NSP System Architecture Guide*.

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3 Business Subscribers reports

3.1 Business Subscriber reports overview

3.1.1 General information

Business subscriber reports provide information about application and application group usage by subscribers.

Drill-down reports

All reports can be run from the main Business Subscriber reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Business Subscriber reports. Each level of indentation indicates a drill down.

Table 3-1 Available drill-downs for Business Subscriber reports

Top Application Groups by Volume	
	Application Group Usage Report
Top Applications by Volume	
	Application Usage Report

3.2 Application Bandwidth Distribution report

3.2.1 Application Bandwidth Distribution report overview

The Application Bandwidth Distribution report shows the distribution of application bandwidth for selected business subscribers. The default chart has columns showing the percentage of time in each bandwidth range and a line showing the average of the bandwidth across the ranges.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-2 Application Bandwidth Distribution report characteristics

Characteristic	Value
Statistics type	AA accounting business application

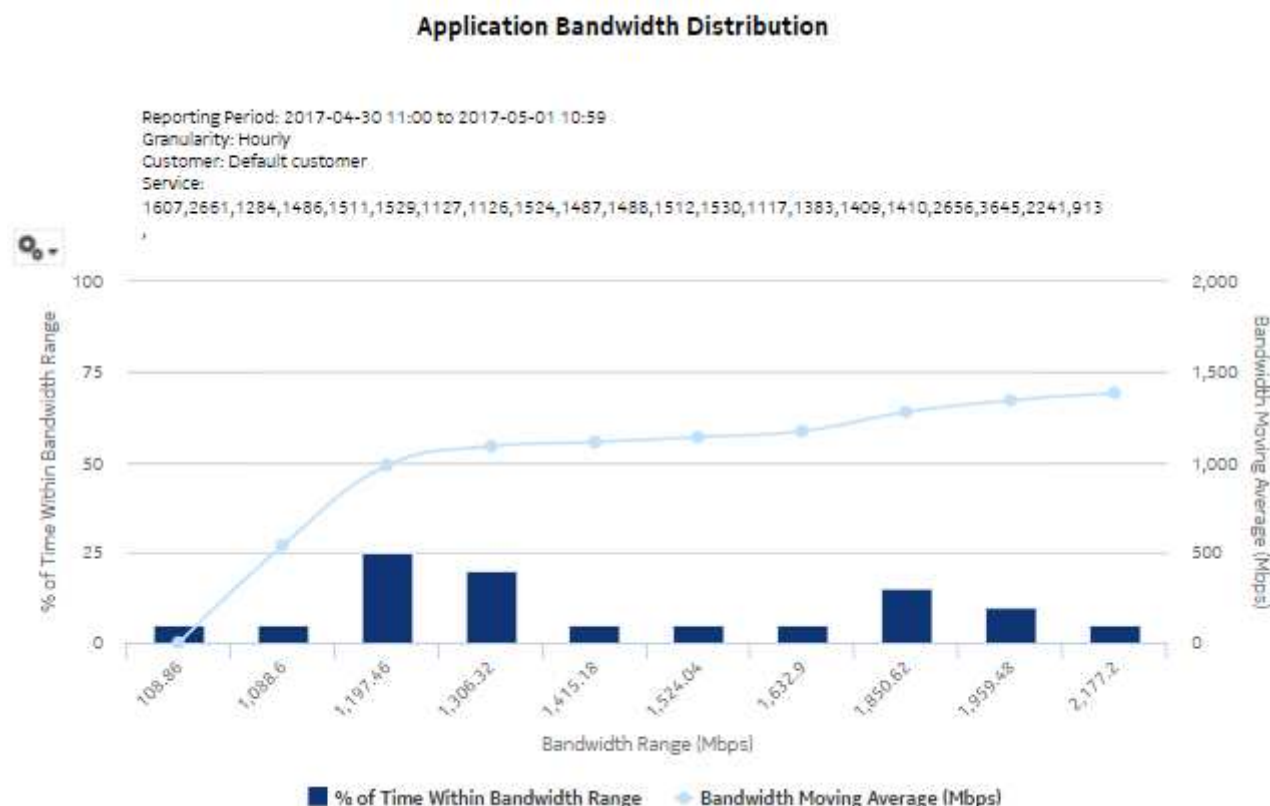
Table 3-2 Application Bandwidth Distribution report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click Select All .
	Traffic Direction	Upload, download or total
Drill-down support	No	

3.2.2 Example

The following figure shows a report example.

Figure 3-1 Application Bandwidth Distribution report



3.3 Application Group Bandwidth Distribution report

3.3.1 Application Group Bandwidth Distribution report overview

The Application Group Bandwidth Distribution report shows the distribution of application group bandwidth for selected business subscribers. The default chart has columns showing the percentage of time in each bandwidth range and a line showing the average of the bandwidth across the ranges.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

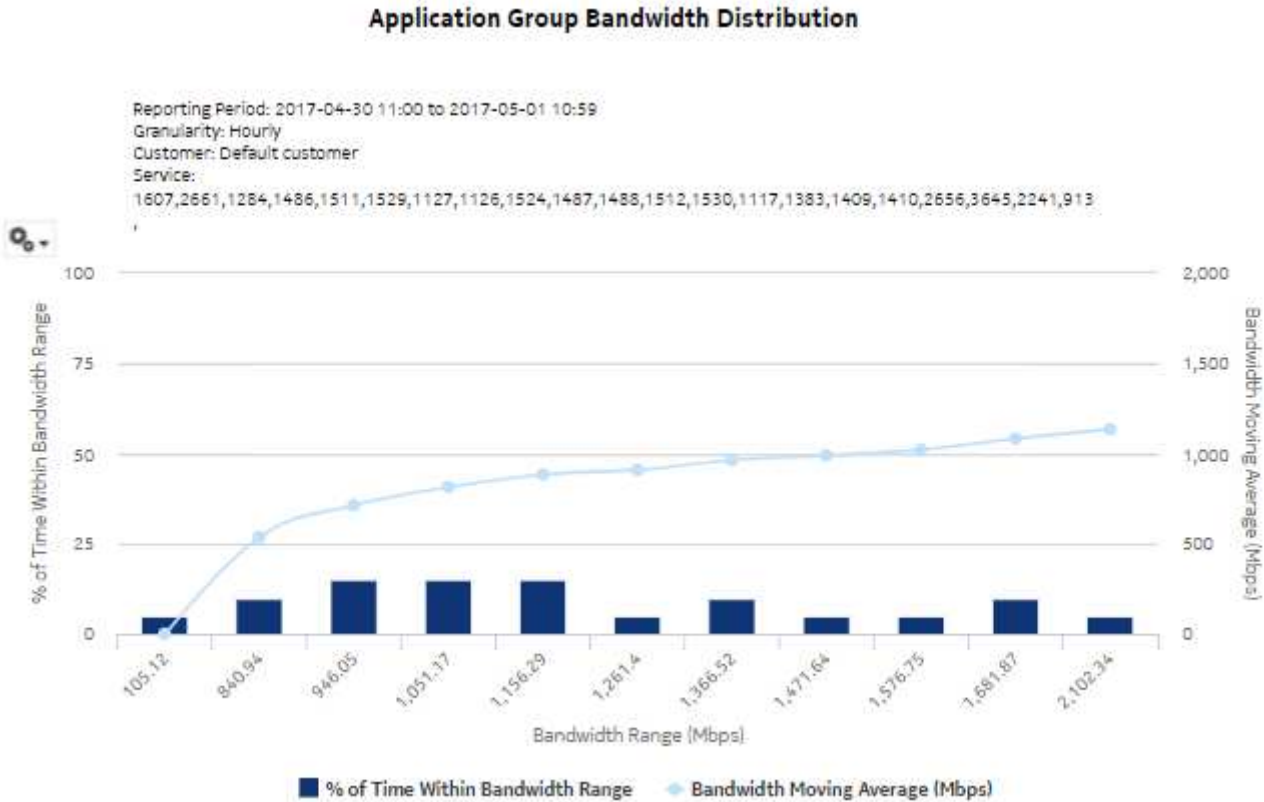
Table 3-3 Application Group Bandwidth Distribution report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click Select All .
	Traffic Direction	Upload, download or total
Drill-down support	No	

3.3.2 Example

The following figure shows a report example.

Figure 3-2 Application Group Bandwidth Distribution report



3.4 Application Group Inventory Report

3.4.1 Application Group Inventory Report overview

The Application Group Inventory Report shows a summary of traffic by application group and by business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-4 Application Group Inventory Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
Drill-down support	No	

3.4.2 Example

The following figures show a report example.

Figure 3-3 Application Group Inventory Report

Application Group Inventory Report				
Reporting Period: 2017-05-01 to 2017-05-01				
Granularity: Daily				
Customer: Default customer				
Service:				
1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913				
25,26,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,1201,2162,3452,1278,1,820,1132,208				
6,2482,2089,2090,2091,881,2092,2093,2094,2101,920,2102,2103,2104,2105,2109,921,2111,922,923,924,2128,212				
Per Application Group Traffic				
Application Group	Download (GB)	Upload (GB)	Total (GB)	%
Web	1,961.71	561.21	2,522.92	36.53%
Multimedia Streaming	1,016.68	199.90	1,216.57	17.62%
Real-Time Communication	510.71	118.87	629.58	9.12%
Business	346.03	163.56	509.59	7.38%
Peer to Peer	324.32	67.02	391.34	5.67%
File Hosting	334.35	53.73	388.07	5.62%
Social Networking	284.28	65.14	349.42	5.06%
Mail	264.35	45.34	309.69	4.48%
Tunnel and Remote Access	247.91	46.53	294.45	4.26%
Existing/Empty TCP	243.00	50.90	293.89	4.26%
Total	5,533.34	1,372.19	6,905.53	100%

Figure 3-4 Application Group Inventory Report, Per Business Subscriber Traffic

Per Business Subscriber Traffic				
Business Subscriber	Download (GB)	Upload (GB)	Total (GB)	%
192.0.2.1 BusTransPrefixSub20_2-	3,501.96	792.58	4,294.54	62.19%
192.0.2.1 BusTransPrefixSub20_2-	998.63	289.96	1,288.59	18.66%
192.0.1.1 1/2/3:12	506.86	127.23	634.10	9.18%
192.0.1.1 BusTransIP2_1-	315.41	82.99	398.39	5.77%
192.0.2.1 1:4	210.45	79.43	289.88	4.20%
192.0.1.1 BusTransIP2_1-	.03	.00	.03	.00%
Total	5,533.34	1,372.19	6,905.53	100%

3.5 Application Group Traffic Trending report

3.5.1 Application Group Traffic Trending report overview

The Application Group Traffic Trending report shows a summary of growth of traffic per application group and business subscriber for the last two months or two quarters.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-5 Application Group Traffic Trending report characteristics

Characteristic	Value
Statistics type	AA accounting business application group
NSP Flow Collector required	No

Table 3-5 Application Group Traffic Trending report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Compare	Last two months or Last two quarters
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click Select All .
	Direction	Upload, download or upload and download
Drill-down support	No	

3.5.2 Example

The following figures show a report example.

Figure 3-5 Application Group Traffic Trending report

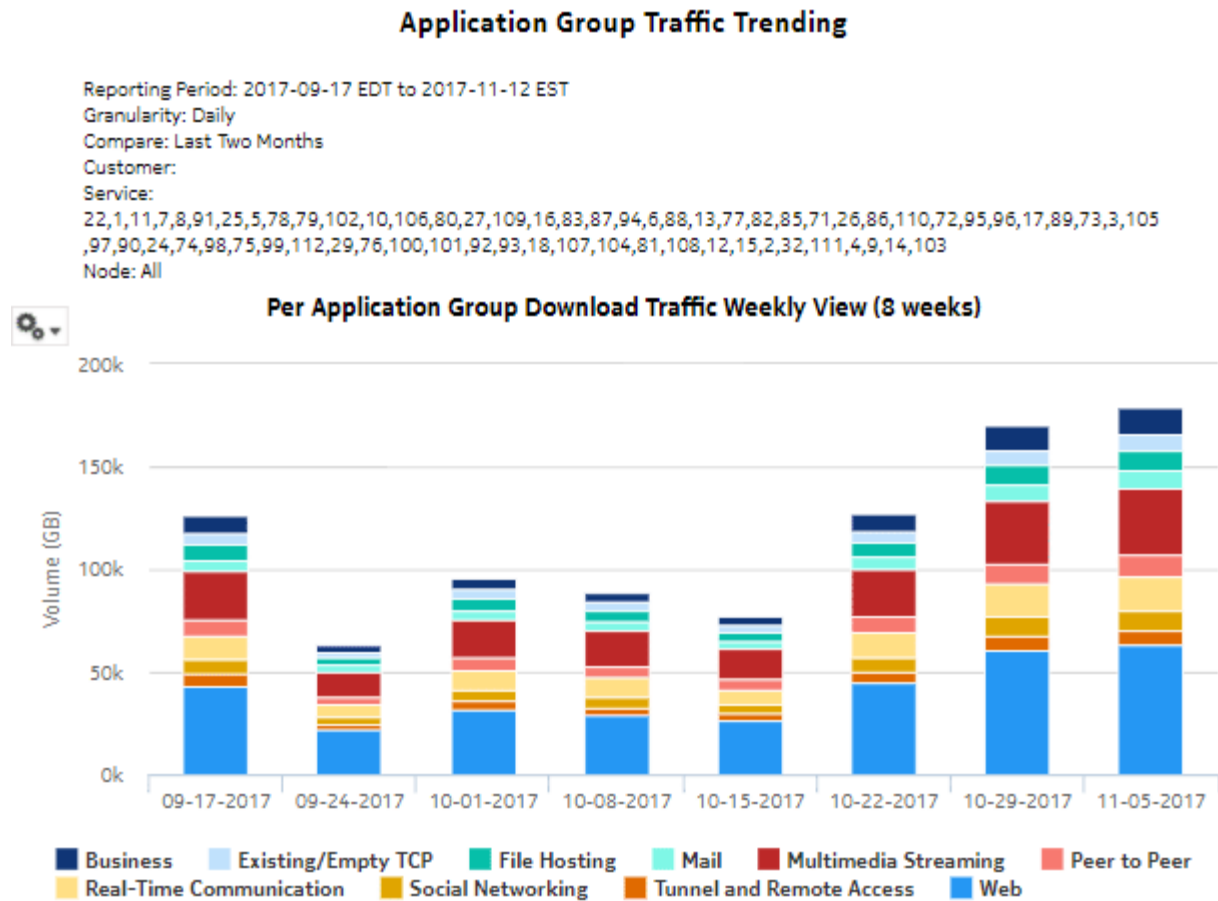


Figure 3-6 Application Group Traffic and Growth summary

Per Application Group Download Traffic and Growth Summary						
Application Group	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
Web			4,177	36.34%		36.34%
Multimedia Streaming			2,110	18.36%		18.36%
Real-Time Communication			1,059	9.22%		9.22%
Peer to Peer			679	5.91%		5.91%
Business			673	5.86%		5.86%
File Hosting			662	5.77%		5.77%
Social Networking			595	5.18%		5.18%
Mail			552	4.80%		4.80%
Tunnel and Remote Access			499	4.34%		4.34%
Existing/Empty TCP			485	4.23%		4.23%
Total		100%	11,496	100%		100%

Figure 3-7 Business Subscriber Traffic and Growth summary

Per Business Subscriber Download Traffic and Growth summary						
Business Subscriber	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
192.0.2.1 BusTransPrefixSub20_2-			7,255	63.12%		63.12%
192.0.2.1 1:4			1,415	12.31%		12.31%
192.0.2.1 BusTransPrefixSub20_2-			1,360	11.84%		11.84%
192.0.1.1 1/2/3:12			932	8.11%		8.11%
192.0.1.1 BusTransIP2_1-			531	4.63%		4.63%
192.0.1.1 BusTransIP2_1-			0	.00%		.00%
Total		100%	11,496	100%		100%

3.6 Application Group Usage Hourly Details report

3.6.1 Application Group Usage Hourly Details report overview

The Application Group Usage Hourly Details report shows upload or download traffic, or both, for a selected application group from or to a selected business subscriber during the reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-6 Application Group Usage Hourly Details report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Application Group	Select individual applications or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Traffic Direction	Upload, download or total
	Present Traffic (Bytes) As	KB, MB, or GB
Drill-down support	No	

3.6.2 Example

The following figures show a report example.

Figure 3-8 Application Group Usage Hourly Details report - download usage details

Application Group Usage Hourly Details						
Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59 Customer: Default customer Service Name: 1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913						
Download Usage Details (MB)						
Download Volume (% of Overall Total)		File Hosting	Mail	Peer to Peer	Total	% of Overall Total
2017-04-30 (41.25%)	14:00:00	.00	.00	.00	.00	0.0%
	15:00:00	8,965.45	11,634.32	24,844.75	45,444.52	2.82%
	16:00:00	24,466.21	22,534.35	18,563.27	65,563.82	4.08%
	17:00:00	16,617.74	18,142.10	28,551.71	63,311.55	3.94%
	18:00:00	30,154.29	25,659.91	29,172.03	84,986.23	5.28%
	19:00:00	26,123.68	25,410.26	31,273.99	82,807.93	5.15%
	20:00:00	28,648.93	11,661.18	28,903.06	69,213.17	4.3%
	21:00:00	25,899.76	25,142.86	21,442.64	72,485.26	4.51%
	22:00:00	31,818.66	25,088.89	22,988.86	79,896.41	4.97%
	23:00:00	31,636.43	31,158.20	37,018.93	99,813.56	6.2%
Total (2017-04-30)					663,522.45	41.25%
2017-05-01 (58.75%)	00:00:00	36,552.77	15,846.59	40,242.10	92,640.46	5.76%
	01:00:00	37,134.06	35,232.17	26,452.40	98,818.64	6.14%
	02:00:00	27,398.61	25,106.30	25,583.54	78,088.45	4.85%
	03:00:00	33,476.87	33,153.65	42,935.58	109,566.30	6.81%
	04:00:00	36,244.66	10,627.53	50,395.97	97,268.15	6.05%
	05:00:00	48,659.00	43,917.27	19,332.14	111,908.41	6.96%
	06:00:00	32,263.47	29,704.90	33,041.58	95,009.94	5.91%
	07:00:00	39,773.24	43,753.13	49,276.02	132,804.38	8.26%
	08:00:00	22,083.41	7,307.02	32,598.00	61,988.43	3.85%
	09:00:00	28,784.65	26,050.49	12,244.96	67,080.09	4.17%
Total (2017-05-01)					945,173.26	58.75%
Overall Total		566,701.87	467,130.32	574,863.52	1,608,695.71	100.0%

Figure 3-9 Application Group Usage Hourly Details report - upload usage details

Upload Usage Details (MB)						
Upload Volume (% of Overall Total)		File Hosting	Mail	Peer to Peer	Total	% of Overall Total
2017-04-30 (41.35%)	14:00:00	.00	.00	.00	.00	0.0%
	15:00:00	3,493.78	3,057.13	3,362.72	9,913.63	3.42%
	16:00:00	3,970.35	3,386.47	3,095.92	10,452.75	3.6%
	17:00:00	3,752.75	3,215.77	4,731.44	11,699.96	4.03%
	18:00:00	2,892.54	2,568.60	4,707.14	10,168.28	3.51%
	19:00:00	4,567.26	3,864.68	2,730.45	11,162.40	3.85%
	20:00:00	4,157.01	3,578.05	5,270.85	13,005.91	4.49%
	21:00:00	3,411.60	3,028.02	5,189.61	11,629.23	4.01%
	22:00:00	11,316.25	9,629.24	7,050.34	27,995.83	9.65%
	23:00:00	3,718.21	3,374.94	6,769.63	13,862.78	4.79%
	Total (2017-04-30)				119,910.77	41.35%
2017-05-01 (58.65%)	00:00:00	6,503.64	5,503.19	3,194.55	15,201.38	5.24%
	01:00:00	6,716.97	4,696.74	7,215.40	18,629.11	6.42%
	02:00:00	5,790.09	5,067.82	2,250.06	13,127.97	4.53%
	03:00:00	6,724.16	5,696.52	6,818.95	19,239.63	6.63%
	04:00:00	2,538.89	2,390.66	6,861.69	11,791.23	4.07%
	05:00:00	7,347.02	6,243.75	6,899.14	20,489.91	7.07%
	06:00:00	2,725.61	2,602.58	17,668.70	22,996.88	7.93%
	07:00:00	5,792.10	7,466.55	5,668.26	24,926.90	8.6%
	08:00:00	4,183.44	3,556.72	4,213.98	11,954.14	4.12%
	09:00:00	3,694.60	3,183.52	4,835.97	11,714.10	4.04%
	Total (2017-05-01)				170,071.25	58.65%
Overall Total		96,296.26	82,130.97	111,554.79	289,982.02	100.0%

3.7 Application Group Usage Report

3.7.1 Application Group Usage report overview

The Application Group Usage Report shows the pattern of usage for a selected application group for a specified reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-7 Application Group Usage Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types • None (raw data) • Hourly • Monthly • Daily
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click Select All .
Drill-down support	No	

3.7.2 Example

The following figures show a report example.

Figure 3-10 Application Group Usage Report - total volume

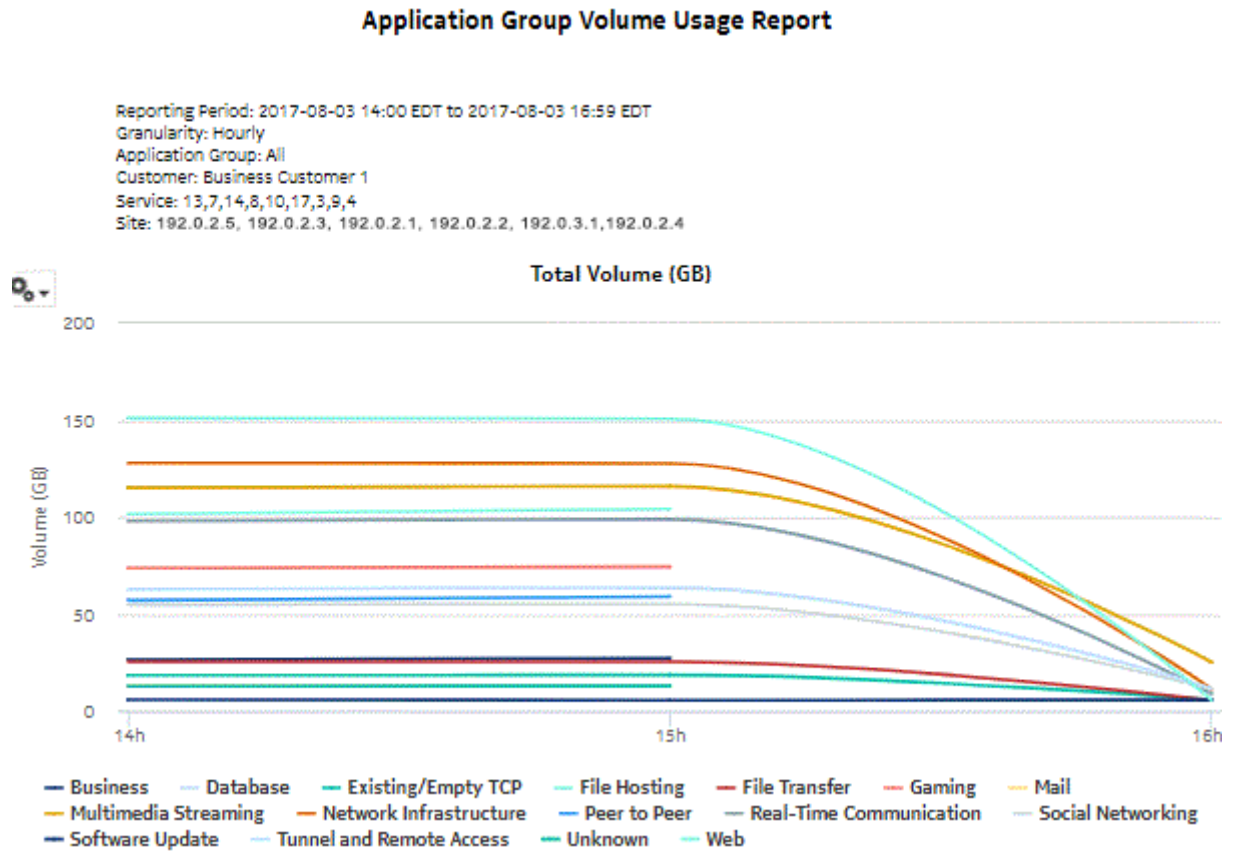


Figure 3-11 Application Group Usage report - download volume

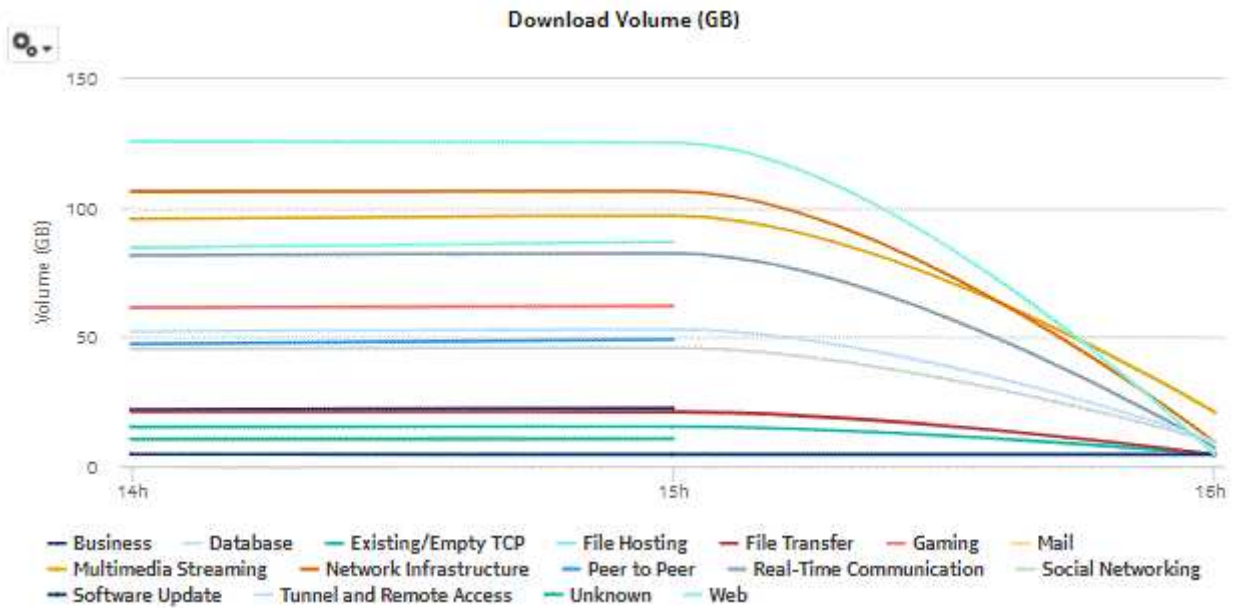
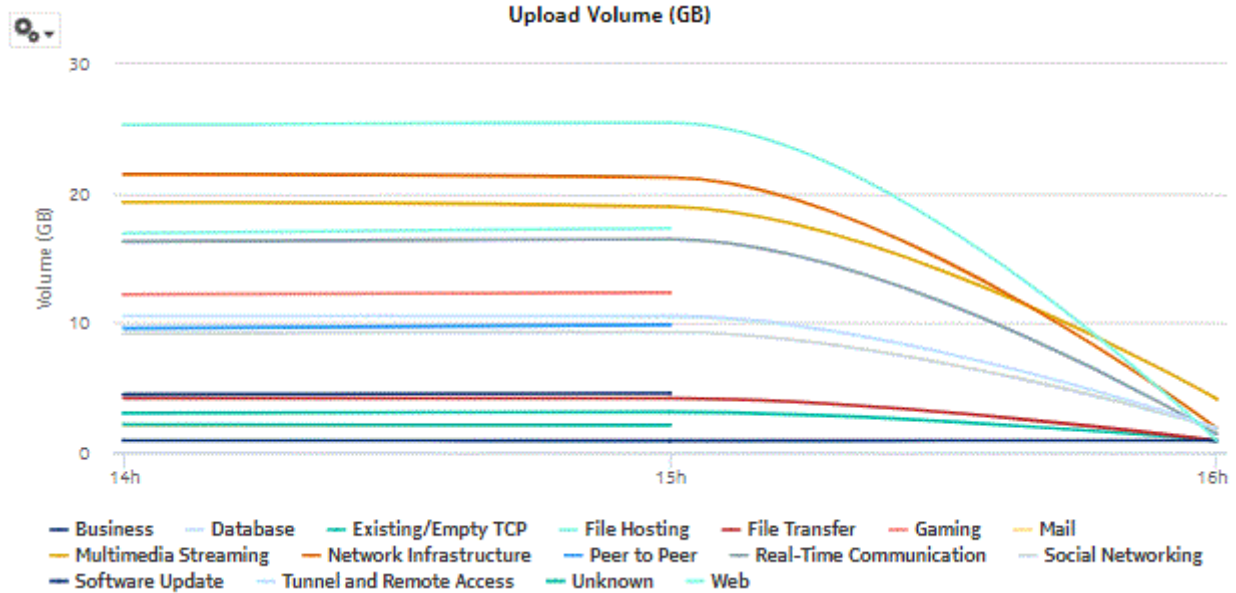


Figure 3-12 Application Group Usage report - upload volume



3.8 Application Inventory Report

3.8.1 Application Inventory report overview

The Application Inventory Report shows a summary of traffic by application and by business subscriber.

Use cases

Application pattern identification—Use the report to determine which applications consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-8 Application Inventory Report characteristics

Characteristic	Value	
Statistics type	AA accounting business application	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
Drill-down support	No	

3.8.2 Example

The following figures show a report example.

Figure 3-13 Application Inventory Report

Application Inventory Report

Reporting Period: 2017-05-01 to 2017-05-01

Granularity: Daily

Customer: Default customer

Service:

1607,2661,1284,1486,1511,1529,1127,1126,1524,1487,1488,1512,1530,1117,1383,1409,1410,2656,3645,2241,913

6

25,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,1201,2162,3452,1278,1,820,1132,208

6,2482,2089,2090,2091,881,2092,2093,2094,2101,920,2102,2103,2104,2105,2109,921,2111,922,923,924,2128,212

Per Application Traffic

Application	Download (GB)	Upload (GB)	Total (GB)	%
Wikipedia	433.41	88.13	521.54	6.38%
Flickr	430.98	86.78	517.76	6.33%
HTTPS Server	438.28	78.89	517.17	6.32%
Adobe Document Cloud	421.18	81.05	502.22	6.14%
PayPal	405.88	71.48	477.36	5.84%
Opera Mini	377.63	83.89	461.52	5.64%
BBC iPlayer	373.34	72.34	445.68	5.45%
Deezer	359.09	72.05	431.14	5.27%
Symantec Backup	346.61	72.54	419.16	5.13%
Microsoft	320.04	83.59	403.63	4.94%
Total	3,906.44	790.75	4,697.18	100%

Figure 3-14 Application Inventory Report, continued

Per Business Subscriber Traffic				
Business Subscriber	Download (GB)	Upload (GB)	Total (GB)	%
192.0.2.1 BusTransPrefixSub20_2-	4,032.77	823.23	4,856.00	59.38%
192.0.2.1 BusTransPrefixSub20_2-	1,444.20	292.88	1,737.08	21.24%
192.0.3.1 1/2/3:12a	577.90	125.93	703.83	8.61%
192.0.3.1 BusTransIP2_1-	395.12	79.57	474.69	5.81%
192.0.2.1	349.73	55.89	405.61	4.96%
192.0.3.1 BusTransIP2_1-	.03	.00	.03	.00%
Total	6,799.74	1,377.50	8,177.25	100%

3.9 Application Traffic Trending report

3.9.1 Application Traffic Trending report overview

The Application Traffic Trending report shows a summary of traffic growth per application and business subscriber for the last two months or two quarters.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-9 Application Group Traffic Trending report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

Table 3-9 Application Group Traffic Trending report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Compare	Last two months or Last two quarters
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click Select All .
	Direction	Upload, download or upload and download
Drill-down support	No	

3.9.2 Example

The following figures show a report example.

Figure 3-15 Application Traffic Trending report

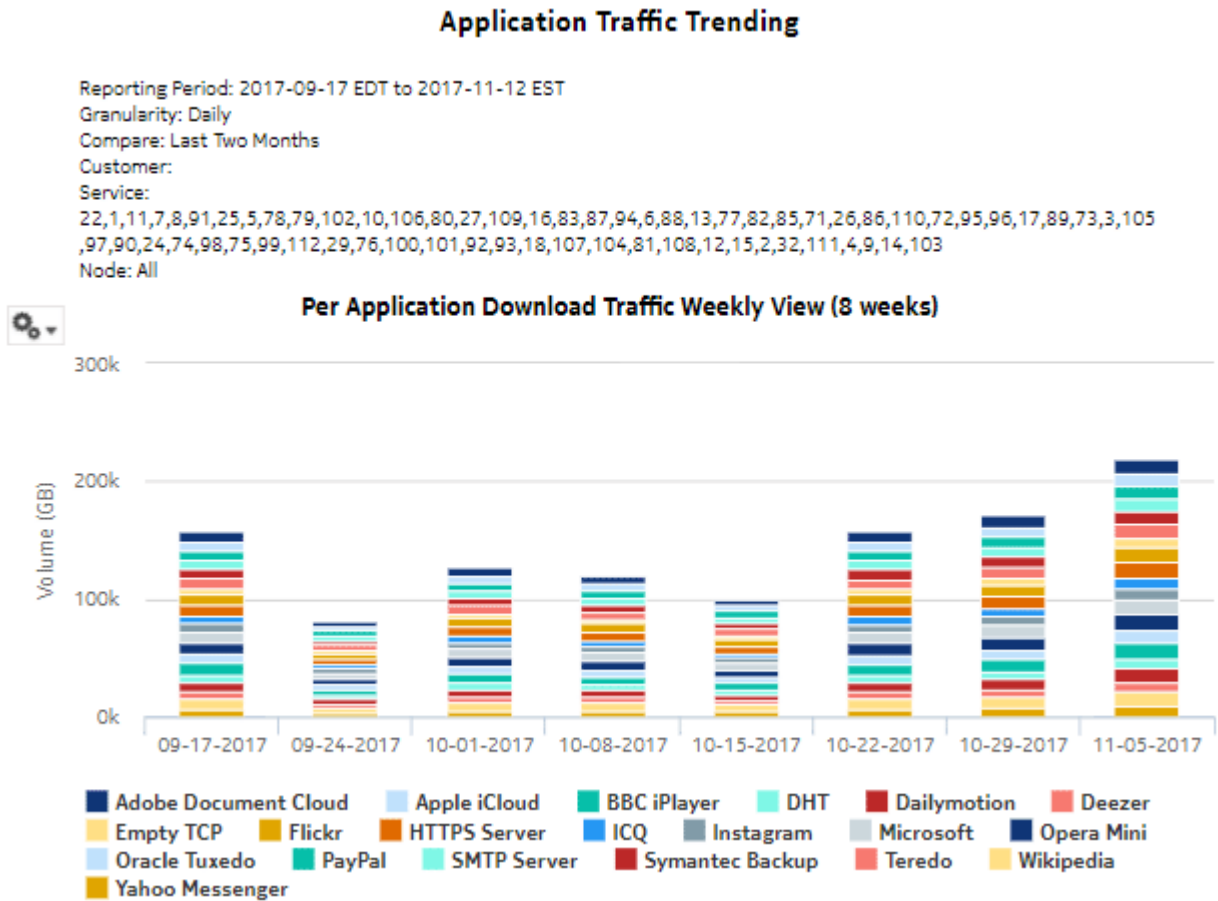


Figure 3-16 Application Download Traffic and Growth Summary

Per Application Download Traffic and Growth Summary

Application	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
Wikipedia			895	6.40%		6.40%
HTTPS Server			892	6.37%		6.37%
Adobe Document Cloud			875	6.25%		6.25%
Flickr			869	6.21%		6.21%
PayPal			816	5.83%		5.83%
Opera Mini			796	5.69%		5.69%
BBC iPlayer			773	5.53%		5.53%
Deezer			744	5.31%		5.31%
Symantec Backup			712	5.09%		5.09%
Oracle Tuxedo			694	4.96%		4.96%
DHT			679	4.86%		4.86%
Microsoft			676	4.83%		4.83%
Apple iCloud			662	4.73%		4.73%
Dailymotion			636	4.54%		4.54%
Total		100%	14,002	100%		100%

Figure 3-17 Business Subscriber Download Traffic and Growth summary

Per Business Subscriber Download Traffic and Growth summary

Business Subscriber	Last Period (GB)	%	Current Period (GB)	%	Growth (%)	Impact to Overall Growth (%)
192.0.2.1 BusTransPrefixSub20_2-			8,342	59.58%		59.58%
192.0.2.1 1:4			1,920	13.71%		13.71%
192.0.2.1 BusTransPrefixSub20_2-			1,889	13.50%		13.50%
192.0.3.1 1/2/3:12			1,173	8.38%		8.38%
192.0.3.1 BusTransIP2_1-			676	4.83%		4.83%
192.0.3.1 BusTransIP2_1-			0	.00%		.00%
Total		100%	14,002	100%		100%

3.10 Application Usage Hourly Details report

3.10.1 Application Usage Hourly Details report overview

The Application Usage Hourly Details report shows upload and/or download traffic for a selected application from, or to, a selected business subscriber during the reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-10 Application Usage Hourly Details report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

Table 3-10 Application Usage Hourly Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Application	Select individual applications or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Direction	Upload, download or upload and download
	Present Traffic (Bytes) As	KB, MB, or GB
Drill-down support	No	

3.10.2 Example

The following figures show a report example.

Figure 3-18 Application Usage Hourly Details report - download usage details

Application Usage Hourly Details							
Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59 Customer: Default customer Service Name: 1007,2001,1204,1400,1511,1529,1127,1128,1524,1407,1408,1512,1530,1117,1303,1409,1410,2056,3645,2241,913 ***							
Download Usage Details (MB)							
Download Volume (% of Overall Total)	Adobe Document Cloud	Apple iCloud	Flickr	HTTPS Server	Microsoft	Total	% of Overall Total
2017-04-30 (41.04%)	14:00:00	.00	.00	.00	.00	.00	0.0%
	15:00:00	21,622.79	8,965.45	32,600.03	33,354.78	30,842.80	127,465.85 3.77%
	16:00:00	36,418.83	24,466.21	37,076.62	36,427.69	24,061.56	160,450.91 4.75%
	17:00:00	31,907.59	16,617.74	15,601.51	17,544.61	35,179.03	116,647.49 3.46%
	18:00:00	39,225.49	30,154.29	36,623.13	37,362.84	37,078.24	180,413.98 5.34%
	19:00:00	33,325.92	26,123.66	28,228.10	29,834.18	11,911.34	129,423.23 3.83%
	20:00:00	23,386.45	26,648.93	38,856.30	39,700.88	36,352.99	165,945.36 4.94%
	21:00:00	40,606.85	25,899.76	39,637.94	39,654.24	27,227.26	173,626.04 5.15%
	22:00:00	33,810.97	31,818.66	38,255.35	39,212.46	29,182.68	172,280.12 5.1%
	23:00:00	49,306.89	31,636.43	32,310.10	34,761.90	10,779.45	158,794.77 4.7%
Total (2017-04-30)						1,386,447.76	41.04%
2017-05-01 (58.96%)	00:00:00	31,854.94	36,552.77	51,980.82	52,994.83	50,468.64	223,851.99 6.63%
	01:00:00	56,729.14	57,134.06	56,080.91	54,928.57	34,573.31	239,455.99 7.09%
	02:00:00	29,499.41	27,398.61	33,259.04	34,004.21	31,657.80	155,619.07 4.61%
	03:00:00	57,962.55	33,476.87	33,148.43	36,025.28	11,225.10	171,838.24 5.09%
	04:00:00	20,878.13	36,244.66	58,886.71	59,224.45	62,569.37	237,833.32 7.04%
	05:00:00	68,392.56	46,659.00	54,922.07	56,534.96	26,660.45	255,199.03 7.55%
	06:00:00	38,093.82	32,263.47	38,962.46	39,908.71	40,768.91	190,047.36 5.63%
	07:00:00	73,252.71	39,773.24	38,674.52	42,429.55	12,589.01	206,719.02 6.12%
	08:00:00	14,075.29	22,083.41	41,680.84	38,459.18	40,546.64	156,845.36 4.64%
	09:00:00	40,545.34	28,764.85	33,500.12	34,288.70	16,773.63	153,892.44 4.58%
Total (2017-05-01)						1,991,501.82	58.96%
Overall Total	741,195.68	566,701.87	740,594.99	758,671.83	570,785.19	3,377,949.57	100.0%

Figure 3-19 Application Usage Hourly Details report - upload usage details

Upload Usage Details (MB)								
Upload Volume (% of Overall Total)		Adobe Document Cloud	Apple iCloud	Flickr	HTTPS Server	Microsoft	Total	% of Overall Total
2017-04-30 (39.67%)	14:00:00	.00	.00	.00	.00	.00	.00	0.0%
	15:00:00	2,557.84	3,493.78	4,975.07	5,784.49	4,933.35	21,744.55	3.34%
	16:00:00	5,462.47	3,970.35	5,471.78	5,495.88	5,326.18	25,726.65	3.95%
	17:00:00	5,656.24	3,732.75	4,545.36	5,055.99	4,712.76	23,693.10	3.56%
	18:00:00	2,234.22	2,892.54	6,029.19	5,422.87	5,945.85	22,524.67	3.46%
	19:00:00	5,972.36	4,567.26	4,794.34	5,633.67	5,104.54	26,072.12	4.0%
	20:00:00	6,329.56	4,157.01	4,417.32	5,053.86	4,046.67	24,014.42	3.69%
	21:00:00	7,370.85	3,411.60	6,882.98	4,723.25	6,799.60	29,188.28	4.48%
	22:00:00	13,509.88	11,516.25	3,854.19	12,989.29	3,962.08	45,451.69	6.98%
	23:00:00	7,705.15	3,738.21	10,589.76	7,433.23	10,527.02	39,971.37	6.14%
Total (2017-04-30)							257,896.84	39.61%
2017-05-01 (60.39%)	00:00:00	7,633.25	6,503.64	7,307.87	7,886.28	7,099.68	36,612.71	5.62%
	01:00:00	8,442.35	6,716.97	5,274.65	7,003.66	4,892.11	32,129.74	4.93%
	02:00:00	7,959.00	5,790.09	17,616.58	13,923.24	17,511.99	62,800.90	9.44%
	03:00:00	8,707.47	6,724.16	4,472.44	7,090.88	3,744.18	30,729.13	4.72%
	04:00:00	7,597.66	2,538.89	9,862.76	6,734.82	9,800.02	36,534.14	5.51%
	05:00:00	7,437.79	7,347.02	10,295.16	9,991.04	10,159.97	45,220.98	6.94%
	06:00:00	15,804.51	2,725.61	15,066.12	7,777.45	14,191.58	55,565.26	8.53%
	07:00:00	9,845.53	8,792.10	10,712.18	11,880.89	10,586.88	51,817.59	7.86%
	08:00:00	5,257.02	4,183.44	2,376.77	5,620.72	1,962.34	19,402.29	2.98%
	09:00:00	4,105.61	3,894.60	5,888.01	2,802.46	5,846.15	22,436.83	3.45%
Total (2017-05-01)							393,249.57	60.39%
Overall Total		139,766.75	96,296.26	140,224.54	138,385.92	136,472.95	651,146.41	100.0%

3.11 Application Usage report

3.11.1 Application Usage report overview

The Application Usage report shows the pattern of usage for a selected application group for a specified reporting period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 3-11 Application Usage report characteristics

Characteristic	Value
Statistics type	AA accounting business application
NSP Flow Collector required	No

Table 3-11 Application Usage report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Monthly • Daily
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application	Select individual applications or click Select All .
Drill-down support	No	

3.11.2 Example

The following figures show a report example.

Figure 3-20 Application Usage report - total volume

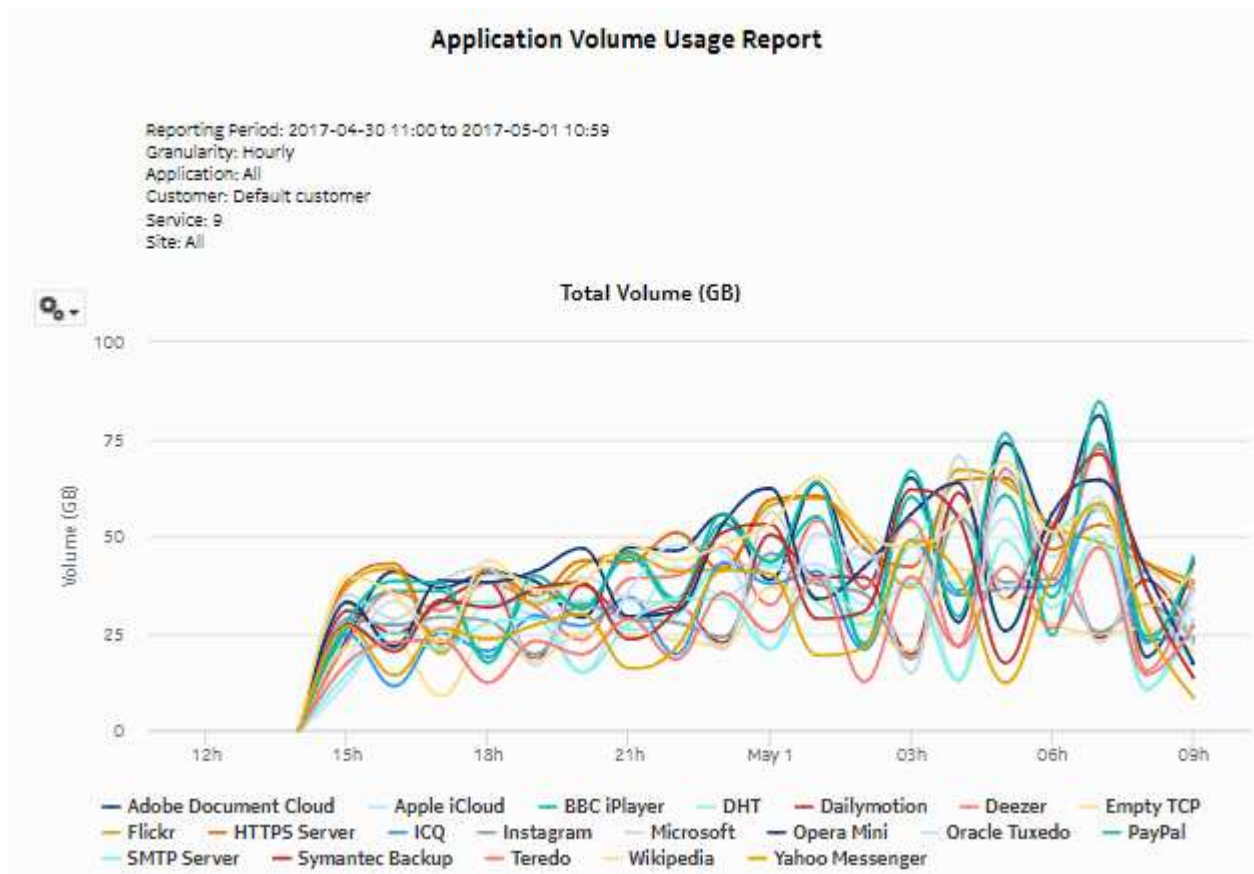


Figure 3-21 Application Usage report - download volume

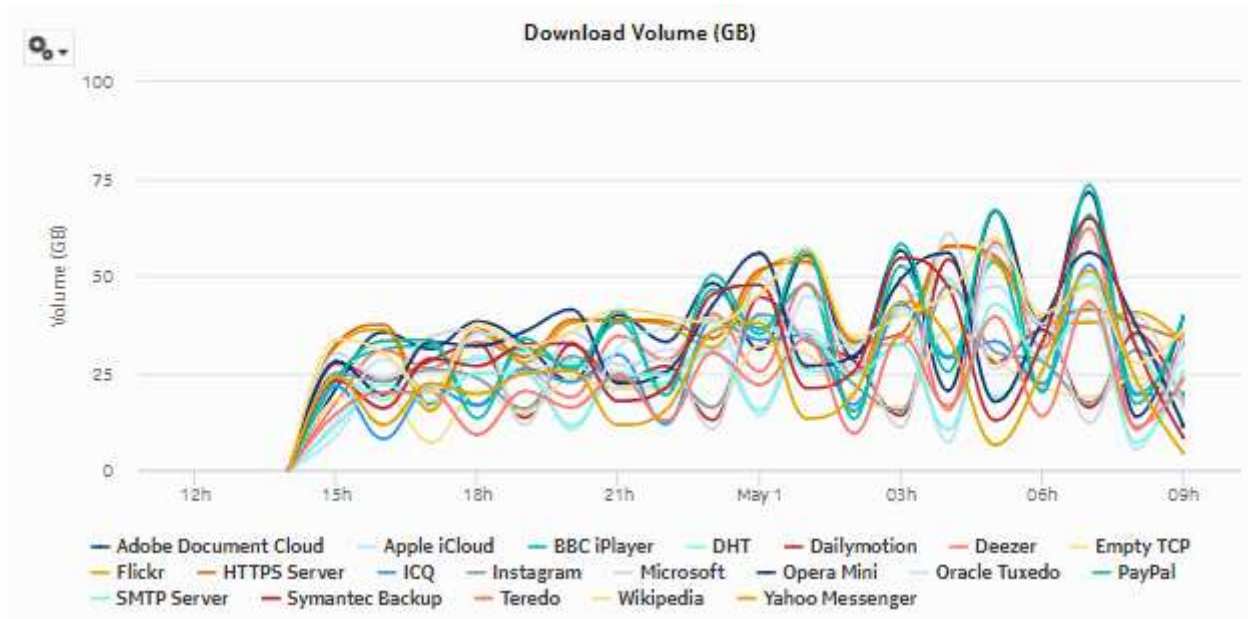
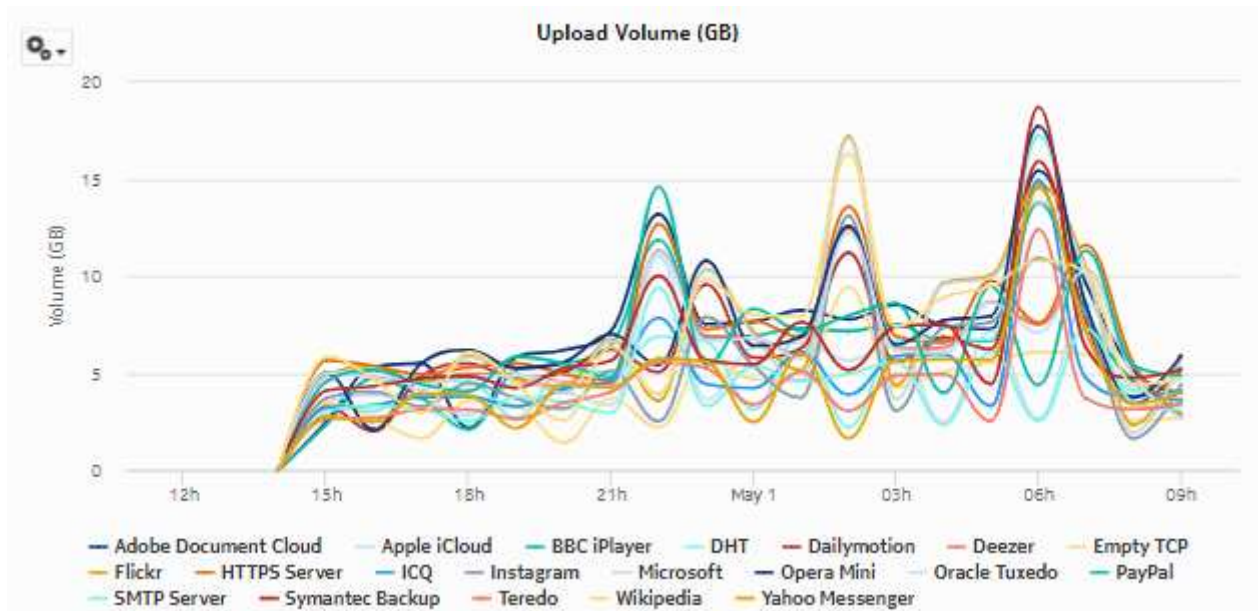


Figure 3-22 Application Usage report - upload volume



3.12 Top Application Groups by Volume report

3.12.1 Top Application Groups by Volume report overview

The Top Application Groups by Volume report shows the top application groups by volume for a selected customer, service, or business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-12 Top Application Groups by Volume report characteristics

Characteristic	Value	
Statistics type	AA accounting business application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types • None (raw data) • Hourly • Monthly • Daily
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Rank	Number of application groups to report
Drill-down support	Yes—Open Application Group Usage Report for the selected application group. Note: Drilling down from the Others segment opens the Application Usage Report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

3.12.2 Example

The following figures show a report example.

Figure 3-23 Top Application Group Usage

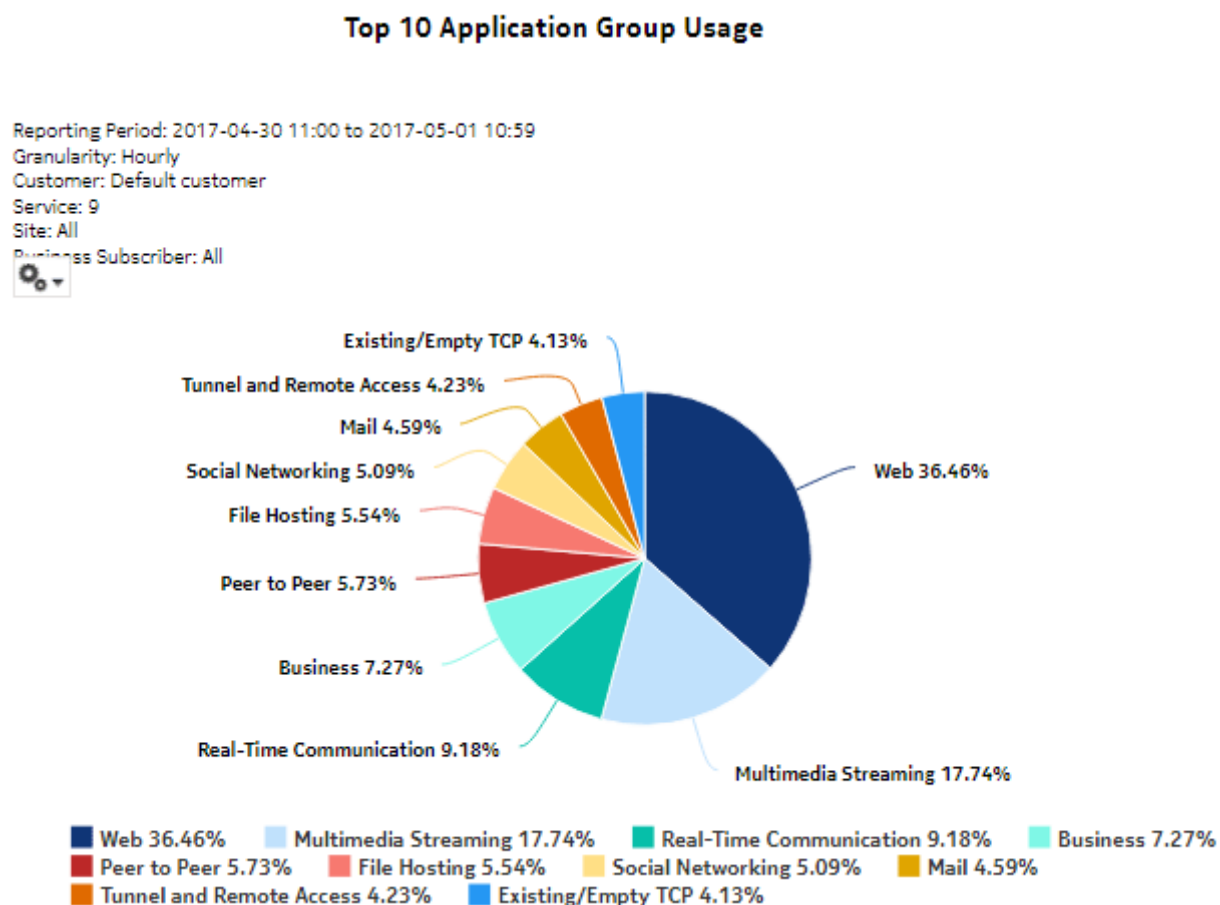


Figure 3-24 Top Application Groups—Total Volume (GB)

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application Group
1	Web	4,259.71	36.46%
2	Multimedia Streaming	2,072.61	17.74%
3	Real-Time Communication	1,072.34	9.18%
4	Business	849.55	7.27%
5	Peer to Peer	670.33	5.73%
6	File Hosting	647.45	5.54%
7	Social Networking	594.79	5.09%
8	Mail	536.38	4.59%
9	Tunnel and Remote Access	494.43	4.23%
10	Existing/Empty TCP	483.45	4.13%
Top 10 Application Group Subtotal		11,681.09	100.00%

Figure 3-25 Top Application Groups—Download Volume (GB)

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application Group
1	Web	3,439.10	36.16%
2	Multimedia Streaming	1,745.79	18.36%
3	Real-Time Communication	876.60	9.21%
4	Business	564.09	5.93%
5	Peer to Peer	561.39	5.90%
6	File Hosting	553.42	5.82%
7	Social Networking	491.82	5.17%
8	Mail	456.18	4.79%
9	Tunnel and Remote Access	415.38	4.36%
10	Existing/Empty TCP	404.89	4.25%
Top 10 Application Group Subtotal		9,508.66	99.99%

Figure 3-26 Top Application Groups—Upload Volume (GB)

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application Group
1	Web	820.61	37.77%
2	Multimedia Streaming	326.82	15.04%
3	Business	285.47	13.14%
4	Real-Time Communication	195.74	9.01%
5	Peer to Peer	108.94	5.01%
6	Social Networking	102.98	4.74%
7	File Hosting	94.04	4.32%
8	Mail	80.21	3.69%
9	Tunnel and Remote Access	79.06	3.63%
10	Existing/Empty TCP	78.57	3.61%
Top 10 Application Group Subtotal		2,172.43	99.99%

3.13 Top Applications by Volume report

3.13.1 Top Applications by Volume report overview

The Top Applications by Volume report shows the top application groups by volume for a selected customer, service or business subscriber.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 3-13 Top Applications by Volume report characteristics

Characteristic	Value
Statistics type	AA accounting business application

Table 3-13 Top Applications by Volume report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Monthly • Daily
	Customer	Search using partial names or wildcard (%). At least one Customer or Service Name must be entered.
	Service Name (or Name Pattern)	
	Service	
	Node	
	Business Subscriber	
	Application Group	Select individual application groups or click Select All .
	Rank	Number of applications to report
Drill-down support	Yes—Open Application Usage Report for the selected application group. Note: Drilling down from the Others segment opens the Application Group Usage Report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

3.13.2 Example

The following figures show a report example.

Figure 3-27 Top Application Usage

Top 10 Application Usage

Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59

Granularity: Hourly

Customer: Default customer

Service: 9

Site: All

Business Subscriber: All

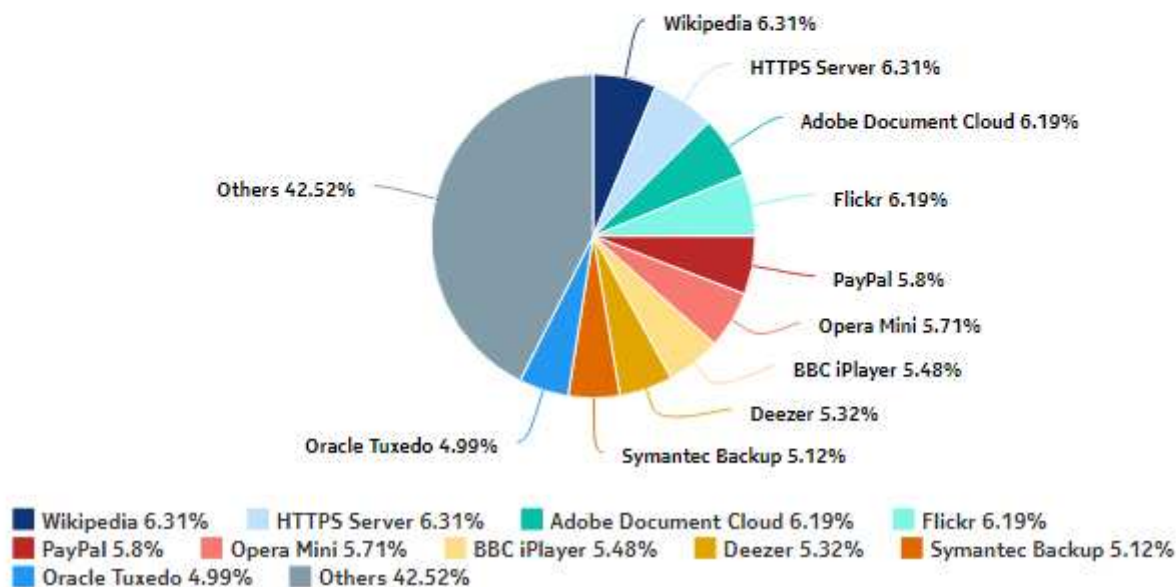


Figure 3-28 Top Applications—Total Volume (GB)

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Wikipedia	876.49	6.31%
2	HTTPS Server	876.03	6.31%
3	Adobe Document Cloud	860.31	6.19%
4	Flickr	860.17	6.19%
5	PayPal	805.49	5.80%
6	Opera Mini	793.86	5.71%
7	BBC iPlayer	761.27	5.48%
8	Deezer	739.12	5.32%
9	Symantec Backup	711.62	5.12%
10	Oracle Tuxedo	692.64	4.99%
Top 10 Applications Subtotal		7,977.04	57.47%

Figure 3-29 Top Applications—Download Volume (GB)

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Application
1	Wikipedia	741.70	6.39%
2	HTTPS Server	740.89	6.38%
3	Adobe Document Cloud	723.82	6.23%
4	Flickr	723.24	6.23%
5	PayPal	679.67	5.85%
6	Opera Mini	657.13	5.66%
7	BBC iPlayer	640.32	5.51%
8	Deezer	615.72	5.30%
9	Symantec Backup	590.27	5.08%
10	Oracle Tuxedo	571.52	4.92%
Top 10 Applications Subtotal		6,684.29	57.61%

Figure 3-30 Top Applications—Upload Volume (GB)

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Application
1	Flickr	136.94	6.01%
2	Opera Mini	136.73	6.00%
3	Adobe Document Cloud	136.49	5.99%
4	HTTPS Server	135.14	5.93%
5	Wikipedia	134.79	5.91%
6	Microsoft	133.27	5.85%
7	PayPal	125.82	5.52%
8	Deezer	123.40	5.41%
9	Symantec Backup	121.36	5.32%
10	Oracle Tuxedo	121.13	5.31%
Top 10 Applications Subtotal		1,305.08	57.30%

4 Devices and Domains reports

4.1 Top Devices by # Subscribers

4.1.1 Top Devices by # Subscribers report overview

The Top Devices by # Subscribers report shows the most-used device types in terms of the number of subscribers.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type, for example, when the devices are known to adversely affect traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 4-1 Top Devices by # Subscribers report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per subscriber, per device, or per application group)
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-fi (DSM) Business

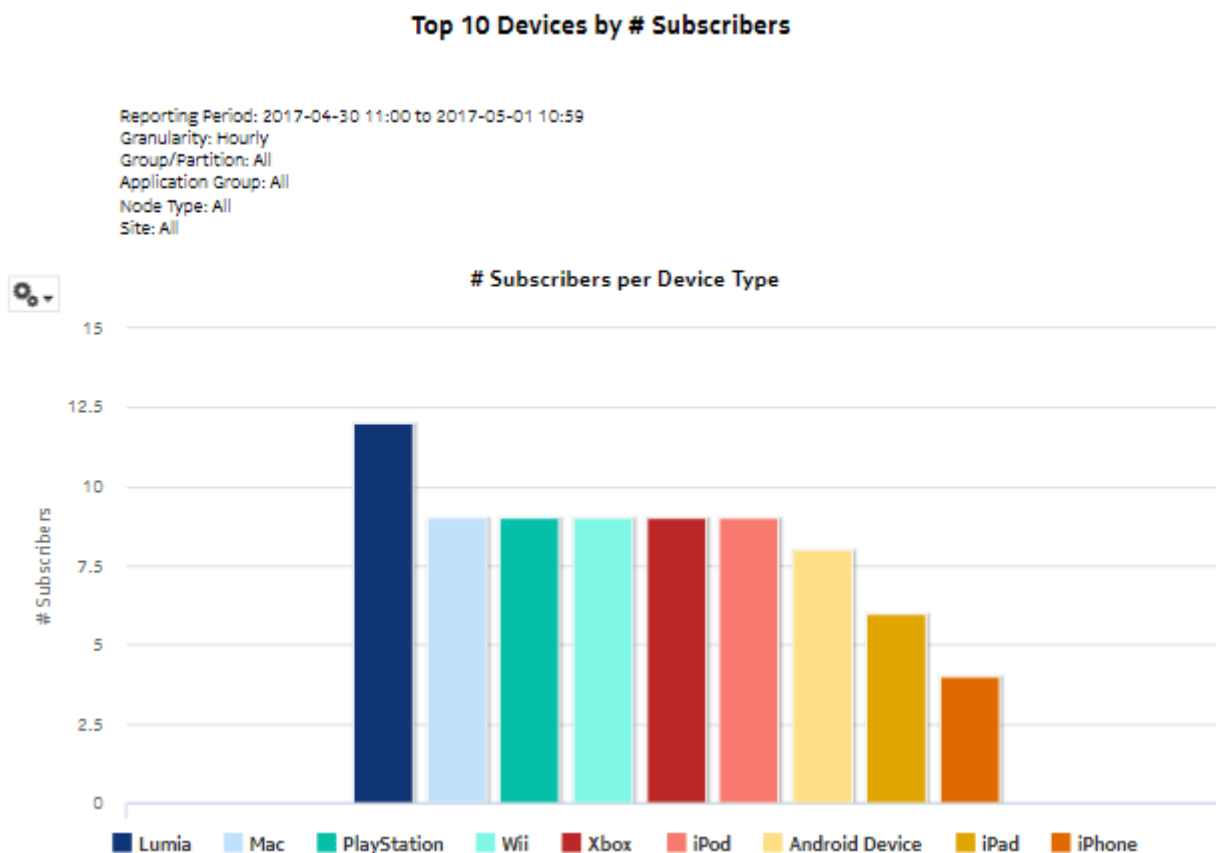
Table 4-1 Top Devices by # Subscribers report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	Select individual application groups or click Select All .
	Rank	Number of devices to report
Drill-down support	No	

4.1.2 Example

The following figure shows a report example.

Figure 4-1 Top Devices by # Subscribers report



4.2 Top Devices by Device Usage report

4.2.1 Top Devices by Device Usage report overview

The Top Devices by Device Usage report shows the top device types based on traffic per device type for a selected application group.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type, for example, when the devices are known to adversely affect traffic in some manner.

Report characteristics

The following table lists the principal report characteristics.

Table 4-2 Top Devices by Device Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive application group (per device or per application group)	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-fi (DSM) Business	
Report inputs	Prompt	Notes
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	
	Metrics	Upload Traffic, Download Traffic, or Total Traffic
	Rank	Number of devices to report
Drill-down support	No	

4.2.2 Example

The following figure shows a report example.

Figure 4-2 Top Devices by Device Usage report

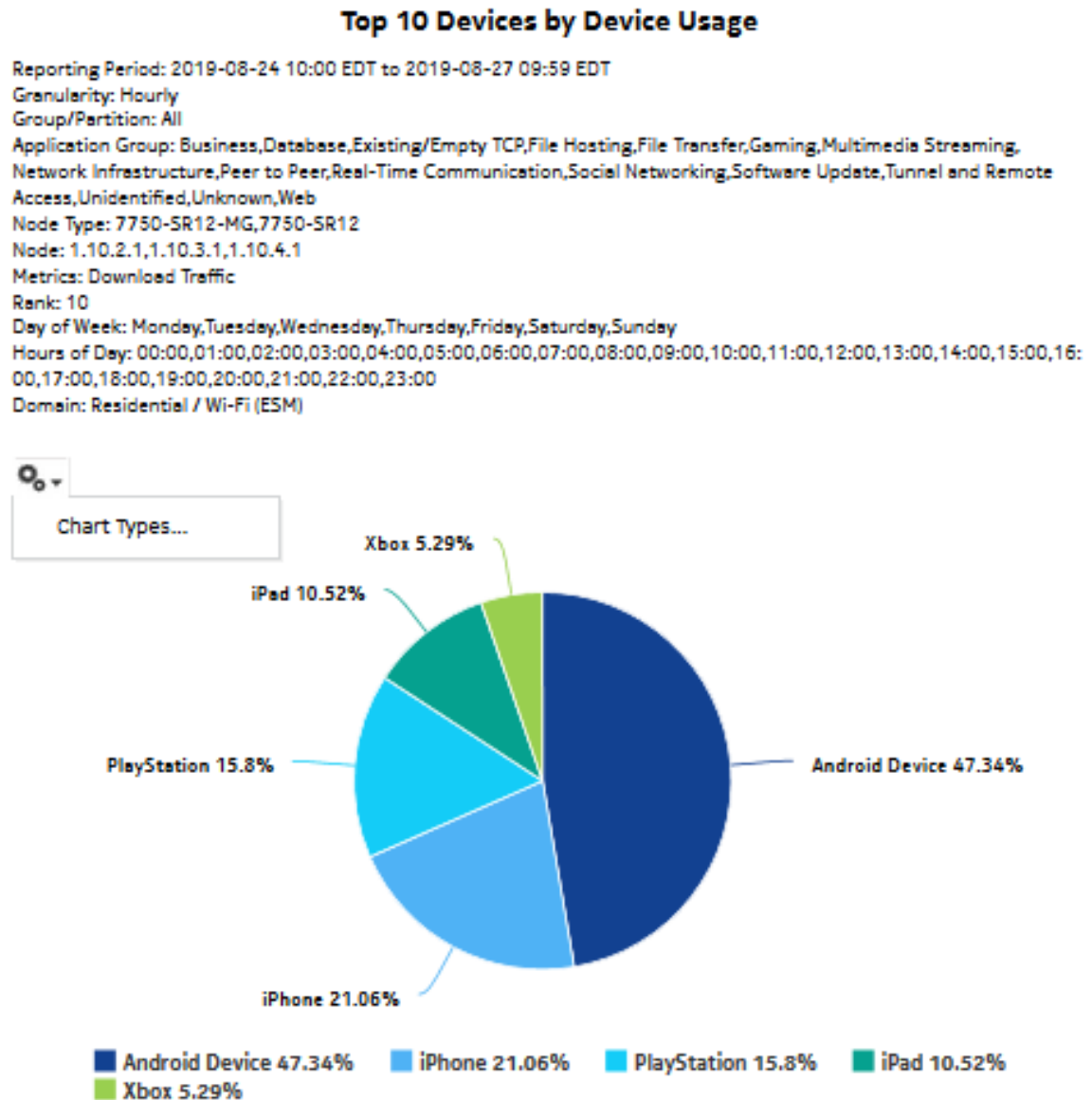
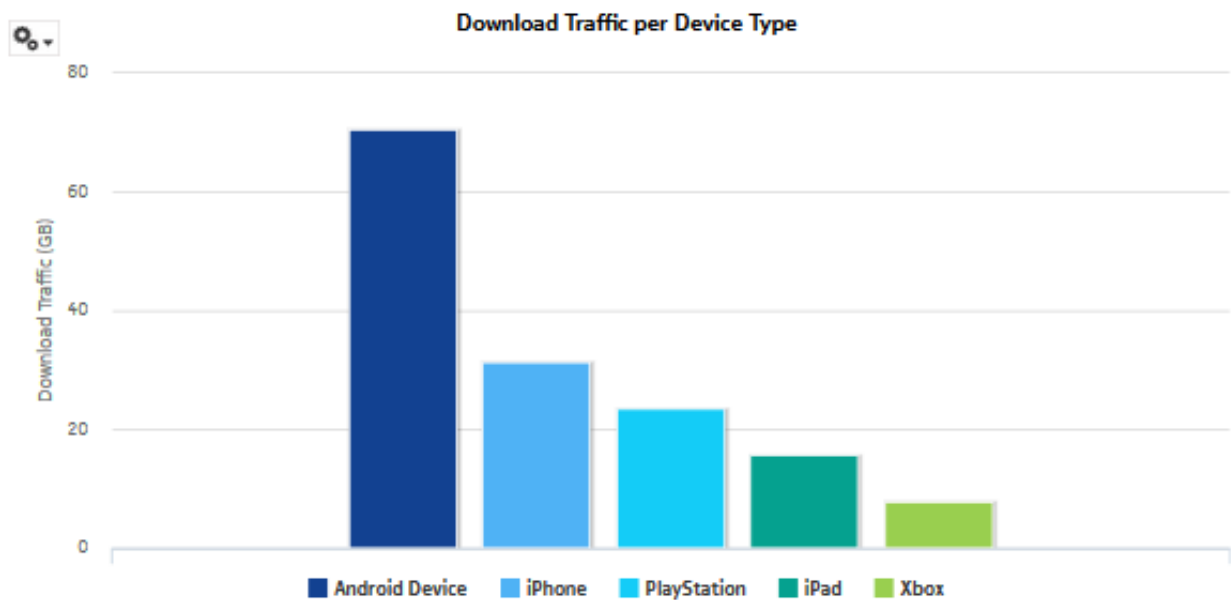


Figure 4-3 Top Devices by Device Usage report



4.3 Top HTTP Host Domain reports

4.3.1 Top HTTP Host Domains report overview

The Top HTTP Host Domains report shows the top HTTP host domains in a network that are accessed most frequently or have the most traffic.

Use cases

Top talkers—Use this report to identify which domains are accessed most in the network.

Report characteristics

The following table lists the principal report characteristics.

Table 4-3 Top HTTP Host Domains report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per host or per application group)
NSP Flow Collector required	Yes

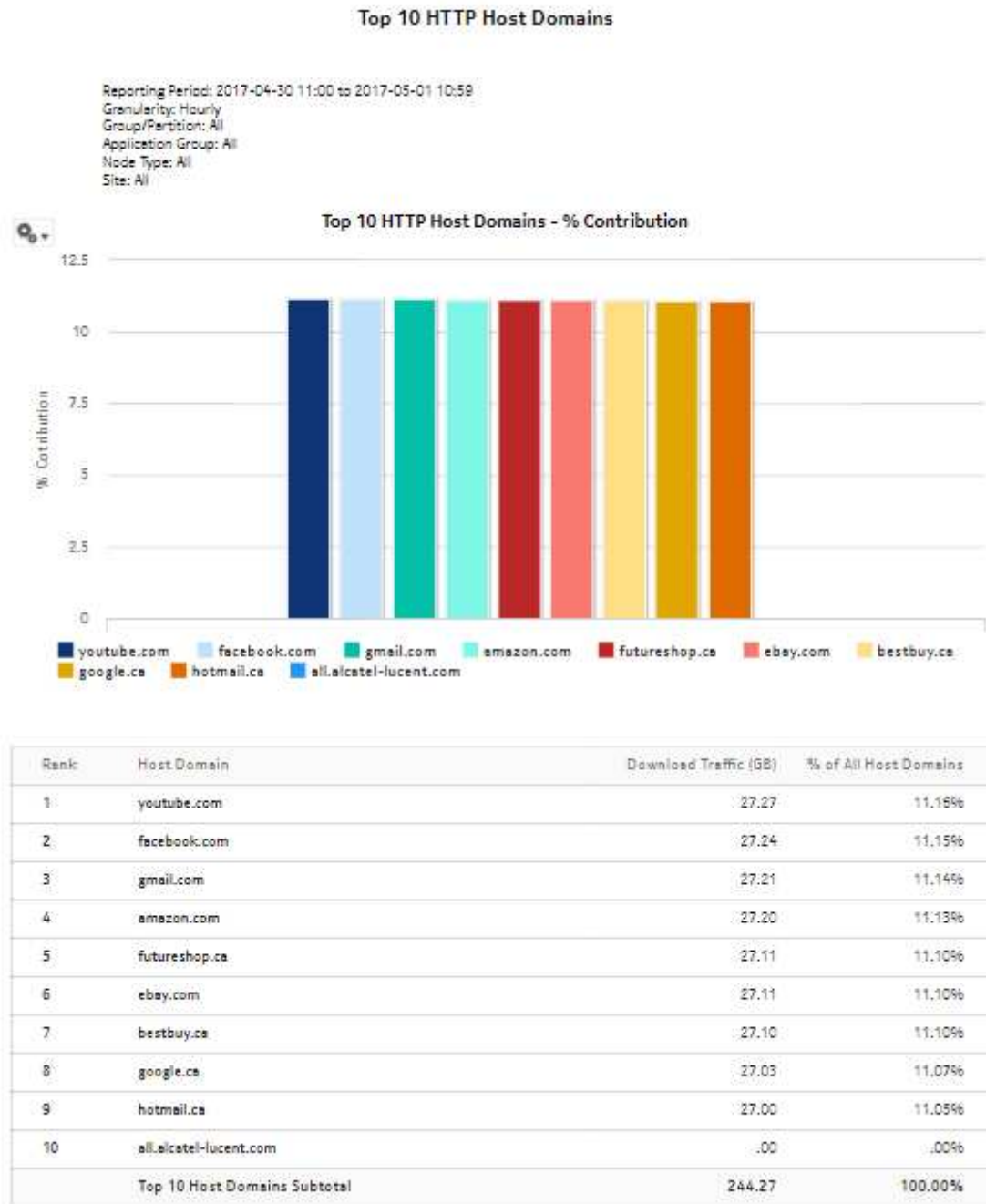
Table 4-3 Top HTTP Host Domains report characteristics (continued)

Characteristic	Value	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Node	
	Group/Partition	
	Application Group	Select individual application groups or click Select All .
	Metrics	Download Traffic, Upload Traffic, or # Hits
	Rank	Number of host domains to report
Drill-down support	No	

4.3.2 Example

The following figures show a report example.

Figure 4-4 Top HTTP Host Domains report



4.4 Traffic Distribution By Device Operating System report

4.4.1 Traffic Distribution By Device Operating System report overview

The Traffic Distribution By Device Operating System report shows the traffic distribution based on the end-user device OS.

Use cases

Network resource planning—Use the report to adjust bandwidth, for example, based on the availability of a new device OS version, and the projected mass download of the new OS.

Risk management—Use the report to apprise customers of the number of devices of a specific type; for example, when the devices are known to adversely affect traffic in some manner.

Report characteristics

The following table lists the principal report characteristics.

Table 4-4 Traffic Distribution By Device Operating System report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive application group (per device or per application group)
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 4-4 Traffic Distribution By Device Operating System report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Domain	Residential / Wi-Fi (ESM), Mobile, Wi-Fi (DSM), Business
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Hours of day	Select individual hours or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Application Group	Select individual application groups or click Select All .
	Device Operating System	Select individual OSs or click Select All .
	Metrics	Download Traffic, Upload Traffic, Total Traffic or # Hits
	Percentage Threshold for Chart	Specify the threshold to collapse an OS into the Other category. The default is 5%.
Drill-down support	No	

4.4.2 Example

The following figure shows a report example.



Note: A question mark (?) indicates that the device operating system version (major, minor, or dot) is not identified.

Figure 4-5 Traffic Distribution by Device Operating System report

Traffic Distribution by Device Operating System

Reporting Period: 2017-04-30 11:00 to 2017-05-01 10:59
Granularity: Hourly
Application Group: All
Device OS: All
Metrics: Download Traffic
Day of Week: All



Download Traffic per Device OS (Major Version)

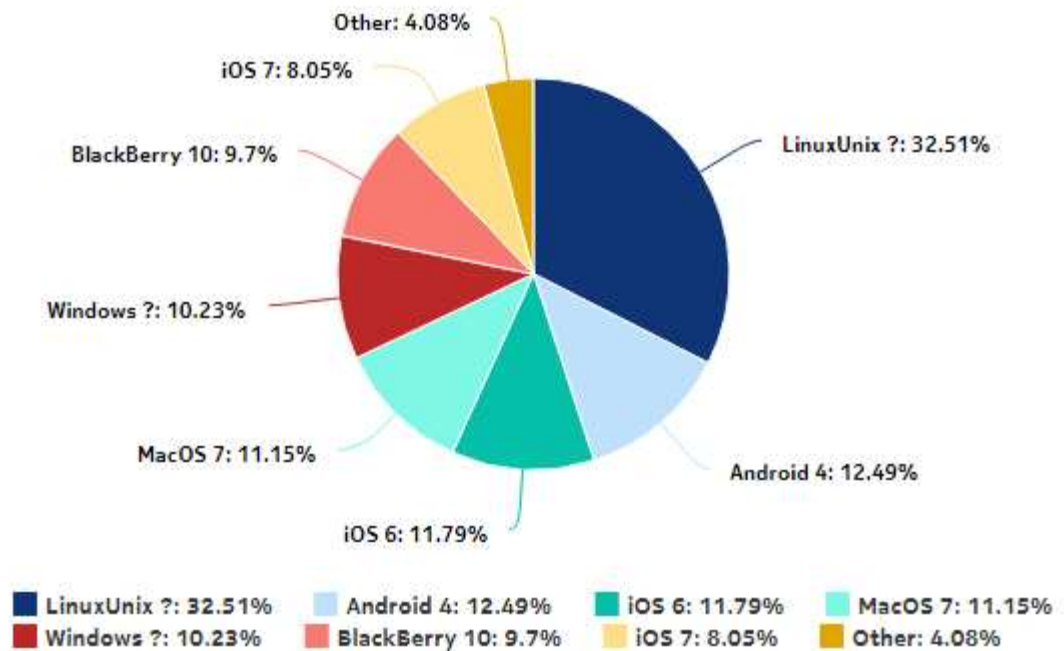


Figure 4-6 Traffic Distribution By Device Operating System report—download traffic breakdown

Download Traffic Breakdown per Device OS

OS Name (% of Overall Total)	OS Version - Major (% of OS)	OS Version - Minor (% of Major)	OS Version - Dot (% of Minor)	Download Traffic (GB)	Total	% of Overall Total
Android (12.49%)	4 (100.0%)	4.4 (100.0%)	4.4.3 (45.91%)	14.01		
			4.4.4 (54.09%)	16.51		
		Total (v4.4)				30.51 (12.49%)
		Total (v4)				30.51 (12.49%)
Total (Android)						30.51 (12.49%)
BlackBerry (9.7%)	10 (100.0%)	10.3 (100.0%)	10.3.1 (100.0%)	23.71		
			Total (v10.3)		23.71 (9.7%)	
		Total (v10)				23.71 (9.7%)
		Total (BlackBerry)				23.71 (9.7%)
LinuxUnix (32.51%)	?	0.0 (100.0%)	0.0.0 (100.0%)	79.46		
			Total (v0.0)		79.46 (32.51%)	
		Total(?)				79.46 (32.51%)
		Total (LinuxUnix)				79.46 (32.51%)
MacOS (11.15%)	7 (100.0%)	7.1 (100.0%)	7.1.2 (100.0%)	27.25		
			Total (v7.1)		27.25 (11.15%)	
		Total (v7)				27.25 (11.15%)
		Total (MacOS)				27.25 (11.15%)
Windows (10.23%)	1 (0.01%)	1.2 (100.0%)	1.2.3 (100.0%)	0		
			Total (v1.2)			0 (0.0%)
			Total (v1)			0 (0.0%)
	10 (0.0%)	10.1 (100.0%)	10.1.0 (100.0%)	0		
			Total (v10.1)			0 (0.0%)
			Total (v10)			0 (0.0%)
	? (99.99%)	0.0 (100.0%)	0.0.0 (100.0%)	24.99		
			Total (v0.0)			24.99 (10.23%)
Total(?)				24.99 (10.23%)		
Total (Windows)						24.99 (10.23%)
iOS (23.92%)	6 (49.27%)	6.1 (100.0%)	6.1.1 (100.0%)	28.81		
			Total (v6.1)			28.81 (11.79%)
			Total (v6)			28.81 (11.79%)
	7 (33.66%)	7.1 (100.0%)	7.1.1 (100.0%)	19.68		
			Total (v7.1)			19.68 (8.05%)
			Total (v7)			19.68 (8.05%)
	8 (17.07%)	8.0 (100.0%)	8.0.1 (100.0%)	9.98		
			Total (v8.0)			9.98 (4.08%)
Total (v8)				9.98 (4.08%)		
Total (iOS)						58.47 (23.92%)
Overall Total				244.4	244.4	(100.0%)

Note - A question mark (?) indicates the device operating system version (major, minor or dot) is not identified

5 Firewall reports

5.1 Firewall reports overview

5.1.1 General information

Firewall reports provide information about admit and drop counts for AA accounting add/drop statistics.

Drill-downs

All reports can be run from the main Firewall reports folder. Click on a report to show tables of the admit or drop counts per direction.

5.2 Firewall Drop Dashboard

5.2.1 Firewall Drop Dashboard overview

The Firewall Drop Dashboard shows the AA firewall packet-drop activity on selected AA partitions.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that policies are not dropping legitimate traffic.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 5-1 Firewall Drop Dashboard characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 5-1 Firewall Drop Dashboard characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Site	
	Group/Partition	
	Session Filter Direction	Upload and Download, Upload, or Download
	Policer Type	Subscriber Flow Count, Subscriber Flow Rate, System Flow Count, System Flow Rate
	Anomaly Type	Select individual items or click Select All .
	Anomaly Direction	Upload and Download, Upload, or Download
	TCP Validation Direction	
	Rank	Number of statistics to report
Drill-down support	Yes—Display tables of the session filter, policer, and anomaly drop counts per direction	

5.2.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 5-1 Top Session Filter Drop dashlet

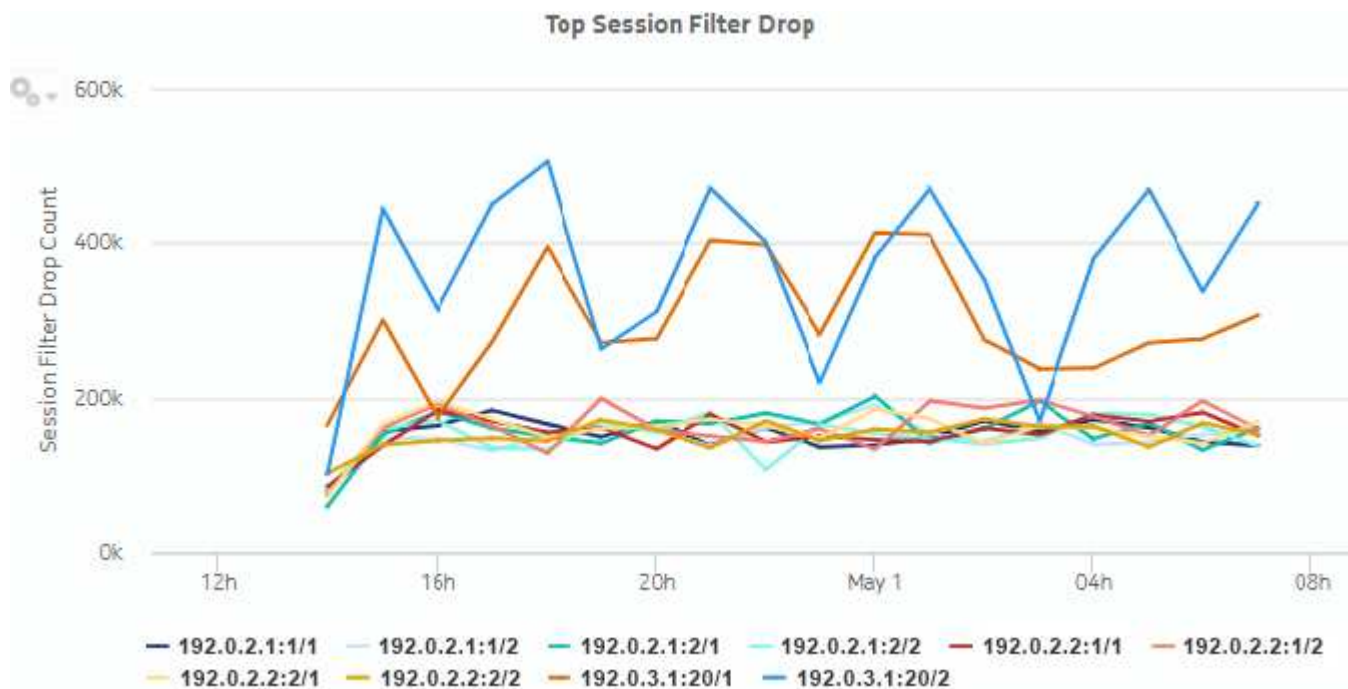


Figure 5-2 Top Session Filter Drop drill-down

Reporting Period: 2017-04-30 23:00 to 2017-04-30 23:59

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Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

Session Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
Session Filter 1/1	default-action	Upload Drop	25,828
		Download Drop	24,853
	entry 1	Upload Drop	5,702
		Download Drop	9,843
	entry 2	Upload Drop	10,239
		Download Drop	13,134

Figure 5-3 Top Policer Drop dashlet

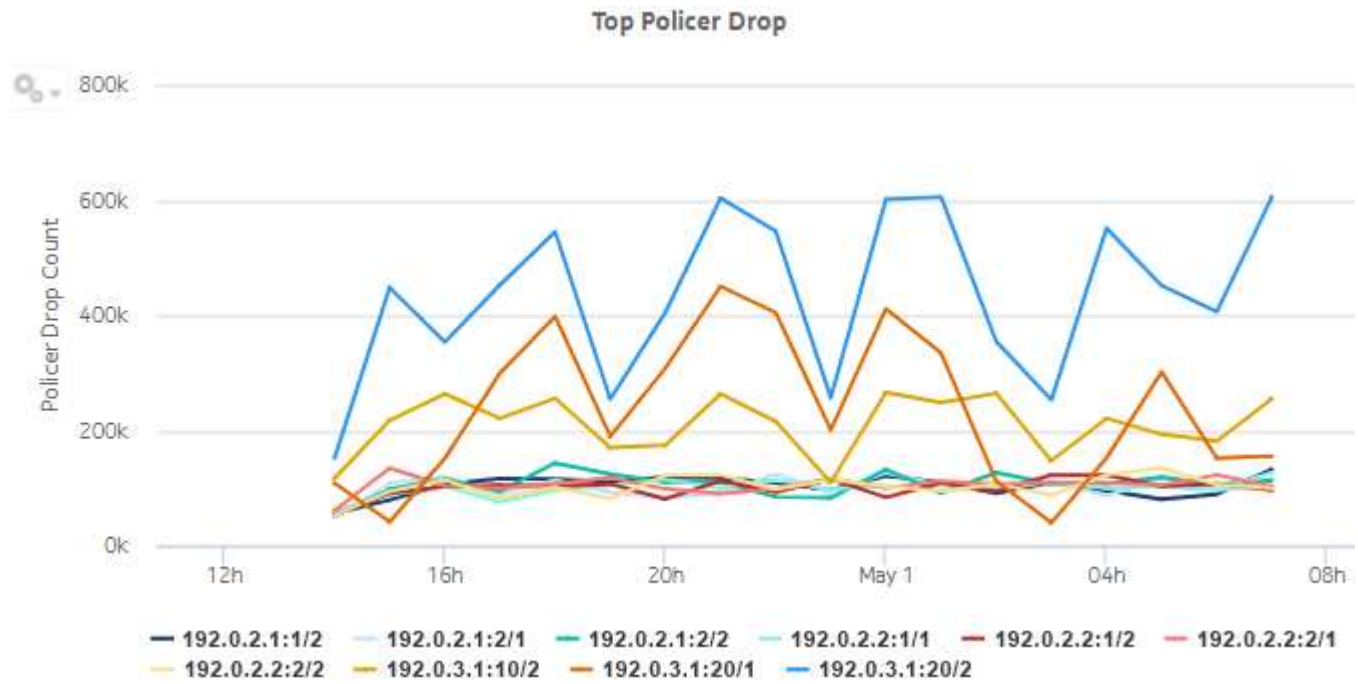


Figure 5-4 Top Policer Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59 [Go Back](#)

Granularity: Hourly

Site: 192.0.2.1

Partition: 1/2

Policer Drop Sub-Report

Policer Type	Policer Entry	Direction	Drops
System Flow Rate	Policer 1 FRL/Sys	Upload Drop	14,766
	Subtotal		33,158
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Drop	14,922
	Subtotal		29,095
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Drop	18,173
	Subtotal		24,141
System Flow Count	Policer 1 FCL/Sys	Upload Drop	13,177
	Subtotal		23,126
Total			109,520

Note: Counters with a sub-total of zero are not displayed.

Figure 5-5 Top Anomaly Drop dashlet

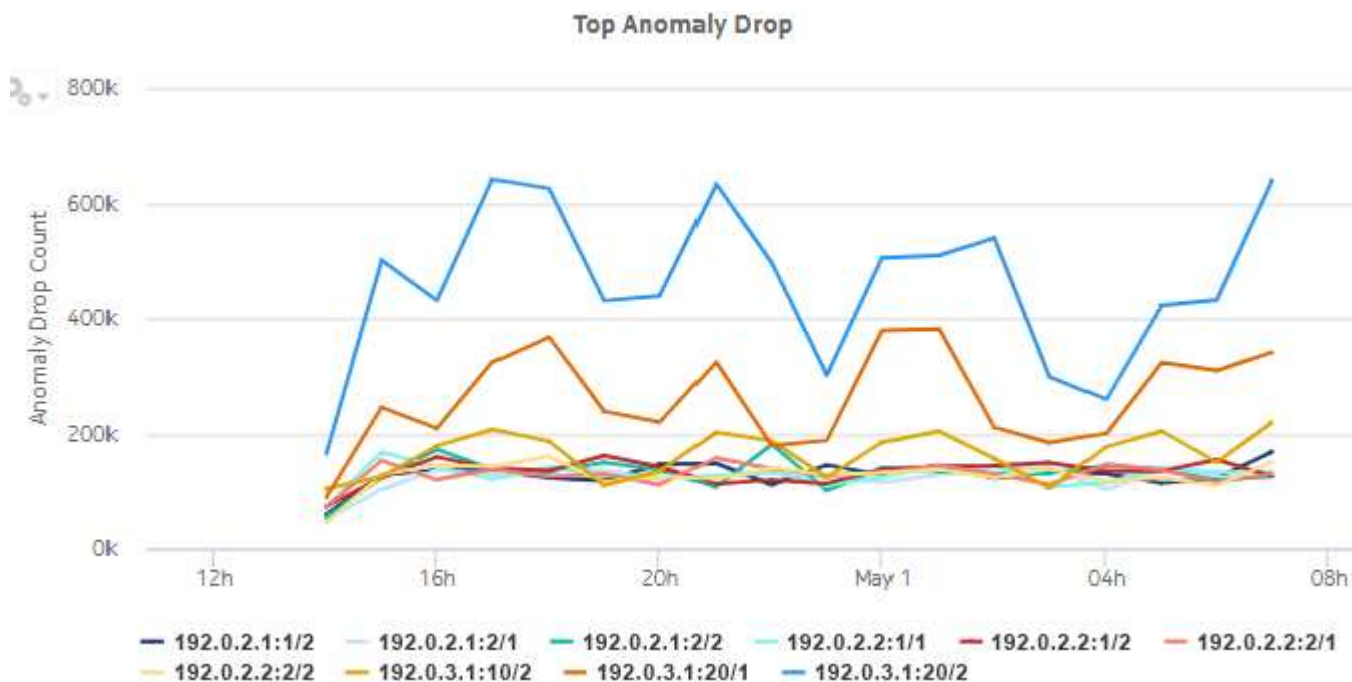


Figure 5-6 Top Anomaly Drop drill-down

Reporting Period: 2017-04-30 23:00 to 2017-04-30 23:59 [Go Back](#)
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1

Anomaly Drop Sub-Report		
Anomaly	Direction	Drops
Error	Upload Drop	21,714
	Download Drop	18,538
	Subtotal	40,252
GTP Sanity	Upload Drop	20,612
	Download Drop	12,523
	Subtotal	33,135
Overload	Upload Drop	10,185
	Download Drop	17,493
	Subtotal	27,678
Out-of-order Fragments	Upload Drop	13,305
	Download Drop	9,372
	Subtotal	22,677
All Fragments	Upload Drop	11,299
	Download Drop	10,201
	Subtotal	21,500
Total		145,242

Note: Counters with a sub-total of zero are not displayed.

Figure 5-7 Top TCP Validation Drop dashlet

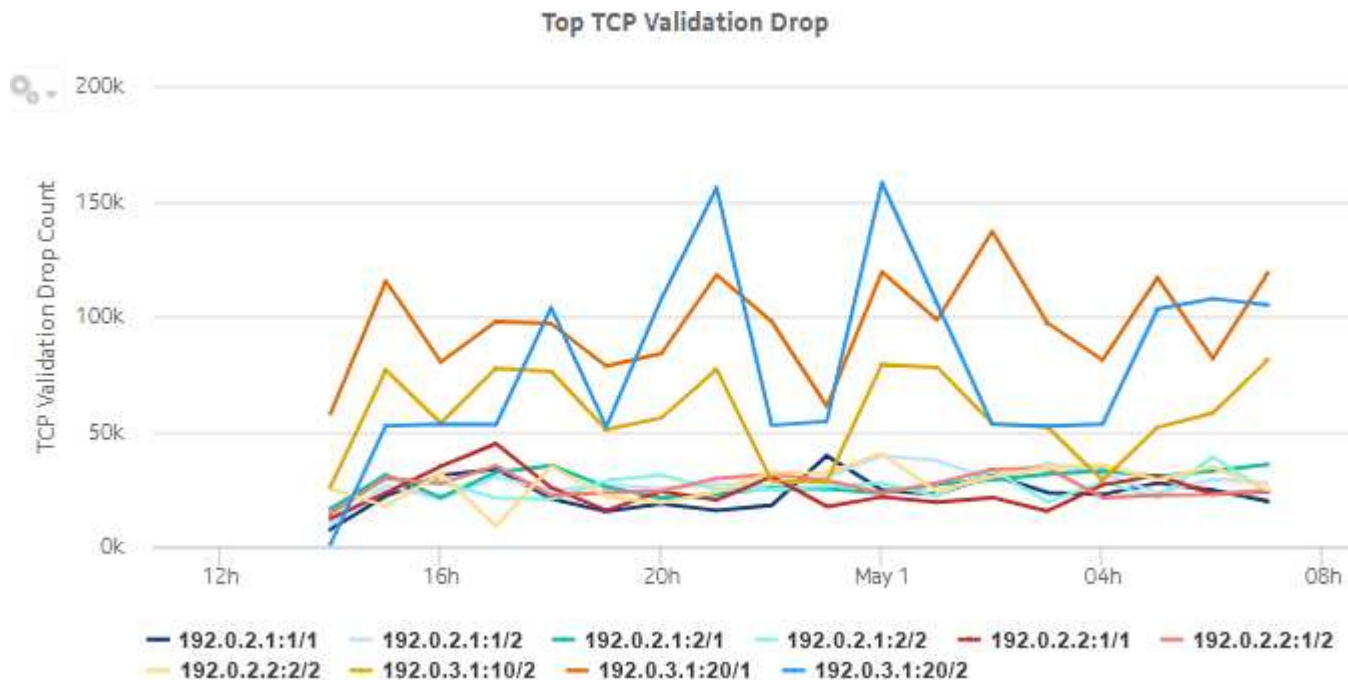


Figure 5-8 Top TCP Validation Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59

[Go Back](#)

Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

TCP Validation Drop Sub-Report

TCP Validation Name	TCP Validation Entry	Direction	Drops
TCP Validation 1/1	tcp-validate	Upload Drop	13,092
		Download Drop	4,940
	Subtotal		18,032
Total			18,032

Note: Counters with a sub-total of zero are not displayed.

5.3 SecGW Drop Dashboard

5.3.1 SecGW Drop Dashboard overview

The SecGW Drop Dashboard shows the AA firewall packet-drop activity on selected AA partitions.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that policies are not dropping legitimate traffic.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 5-2 SecGW Drop Dashboard characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential

Table 5-2 SecGW Drop Dashboard characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Site	
	Group/Partition	
	Session Filter Direction	Upload and Download, Upload, or Download
	GTP Filter Direction	
	SCTP Filter Direction	
	Policer Type	Subscriber Flow Count, Subscriber Flow Rate, System Flow Count, System Flow Rate
	Anomaly Type	Select individual items or click Select All .
	Anomaly Direction	Upload and Download, Upload, or Download
	TCP Validation Direction	
	Rank	Number of statistics to report
Drill-down support	Yes—Display tables of the session filter, policer, and anomaly drop counts per direction	

5.3.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 5-9 Top GTP Filter Drop dashlet

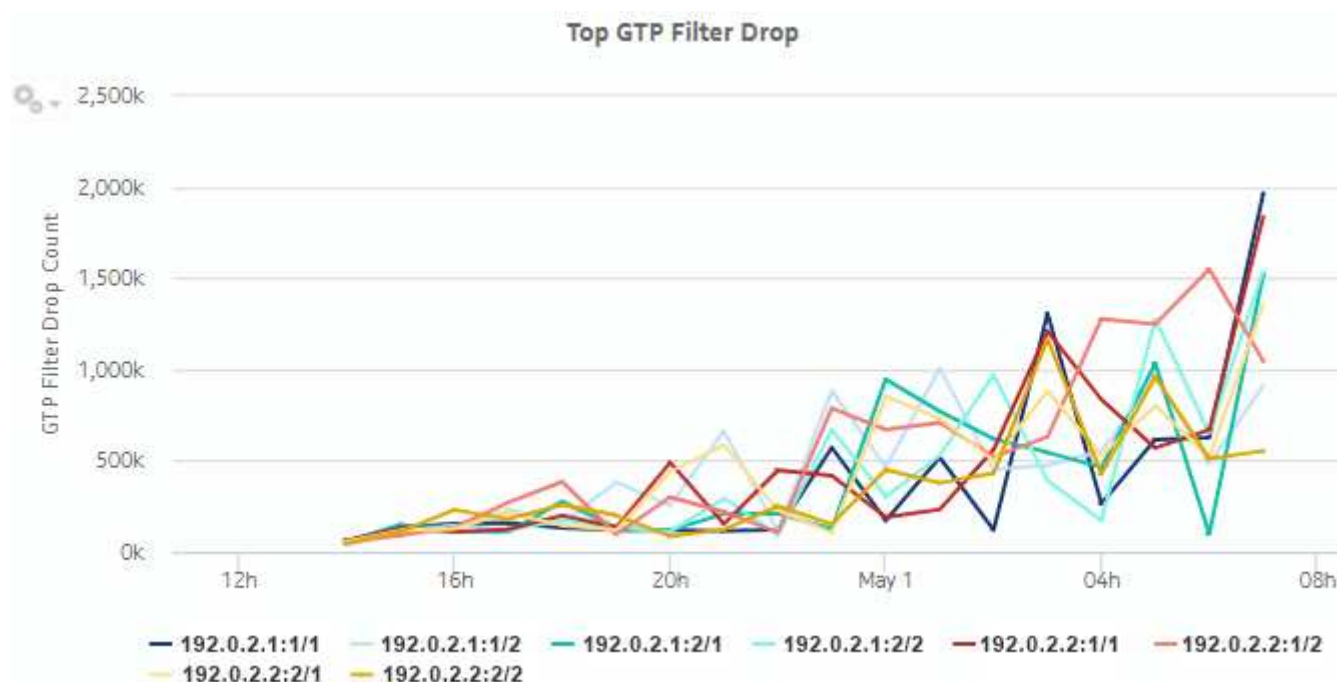


Figure 5-10 Top GTP Filter Drop drill-down

Reporting Period: 2017-05-01 00:00 to 2017-05-01 00:59

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Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

GTP Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
GTP Filter 1/1	default-action	Upload Drop	20,915
		Download Drop	15,517
	entry 1	Upload Drop	19,765
		Download Drop	17,264
	entry 2	Upload Drop	0
		Download Drop	0
	entry 3	Upload Drop	0
		Download Drop	0

Figure 5-11 Top SCTP Filter Drop dashlet

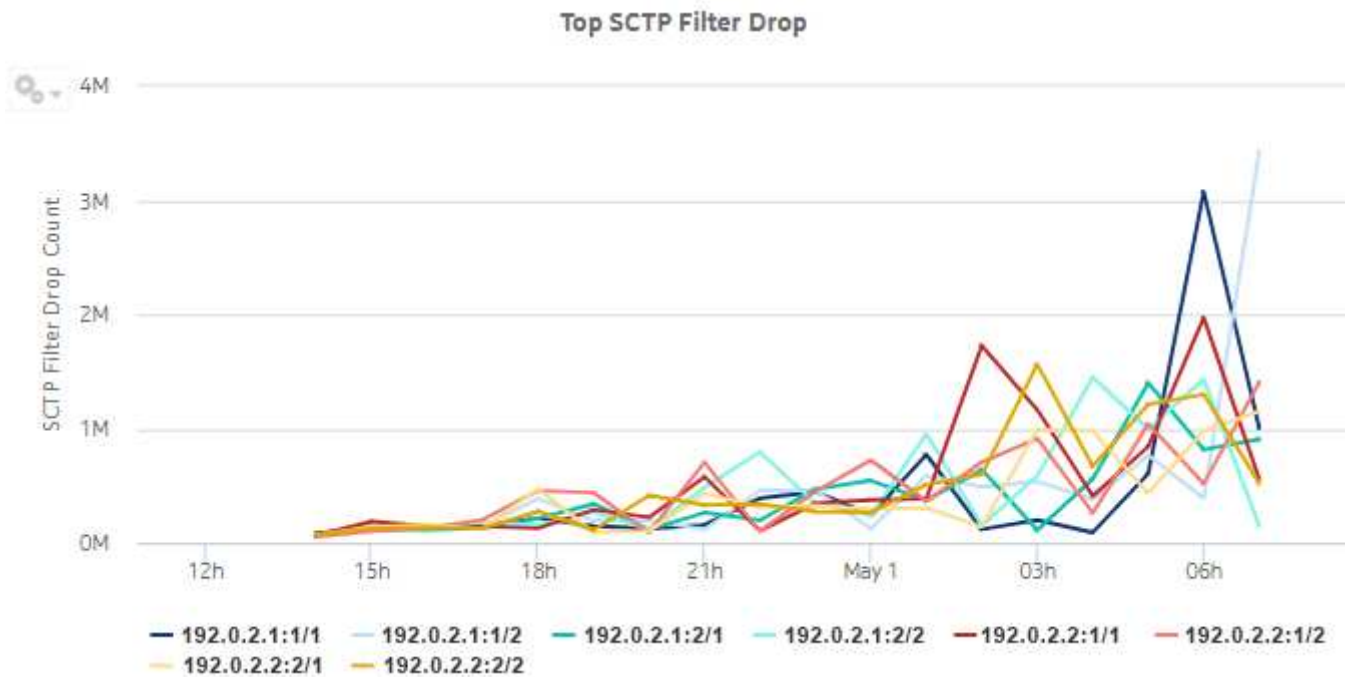


Figure 5-12 Top SCTP Filter Drop drill-down

Reporting Period: 2017-05-01 01:00 to 2017-05-01 01:59 [Go Back](#)

Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

SCTP Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
SCTP Filter 1/1	default-action	Upload Drop	17,434
		Download Drop	20,335
	entry 1	Upload Drop	0
		Download Drop	0
	entry 2	Upload Drop	92,985
		Download Drop	95,817
	entry 3	Upload Drop	230,194
		Download Drop	233,940

Figure 5-13 Top Session Filter Drop dashlet

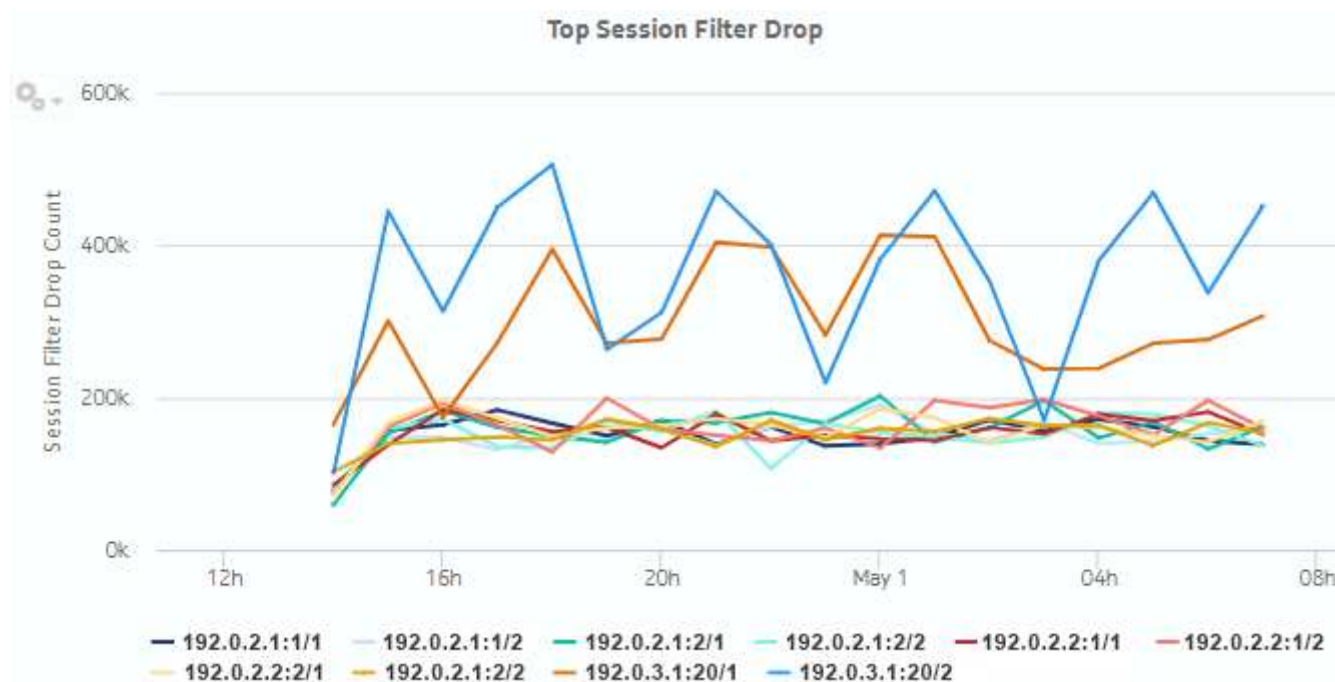


Figure 5-14 Top Session Filter Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59

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Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

Session Filter Drop Sub-Report

Filter Name	Filter Entry	Direction	Drops
Session Filter 1/1	default-action	Upload Drop	15,792
		Download Drop	18,001
	entry 1	Upload Drop	27,423
		Download Drop	22,264
	entry 2	Upload Drop	19,435
		Download Drop	18,284
	entry 3	Upload Drop	21,586
		Download Drop	18,522

Figure 5-15 Top Policer Drop dashlet

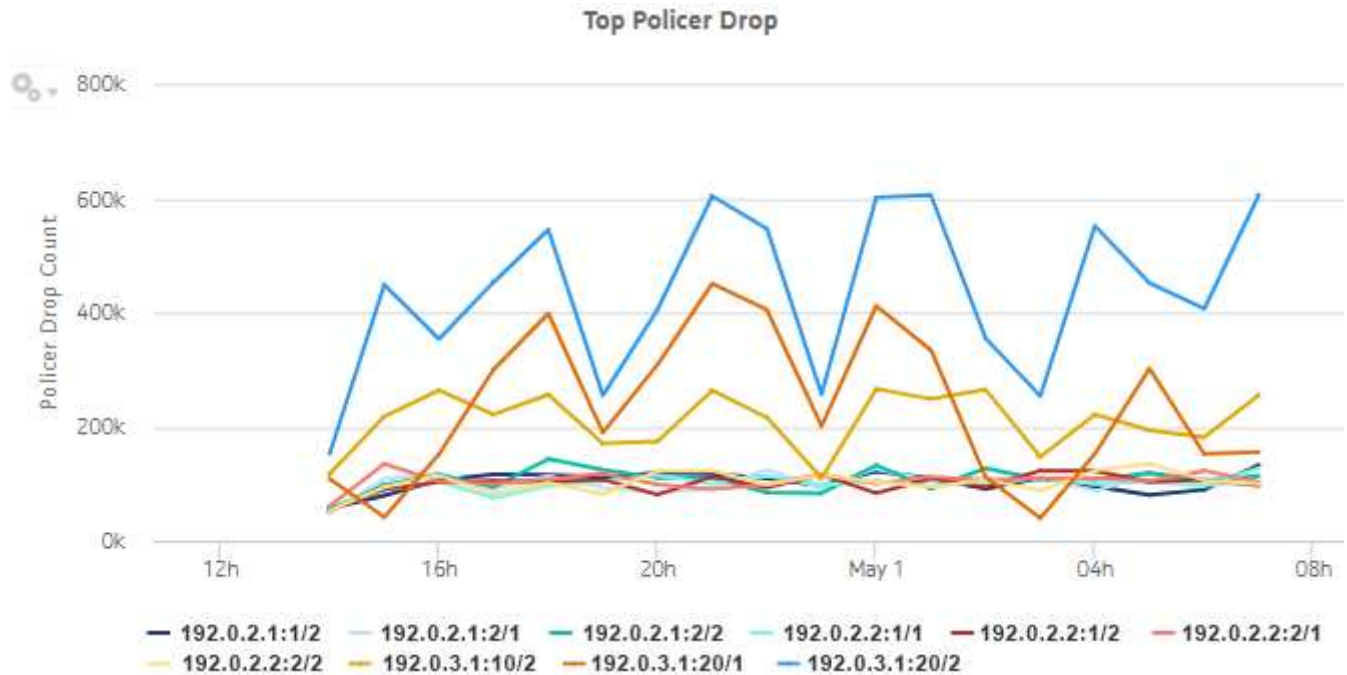


Figure 5-16 Top Policer Drop drill-down

Reporting Period: 2017-04-30 22:00 to 2017-04-30 22:59

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Granularity: Hourly

Site: 192.0.2.1

Partition: 1/2

Policer Drop Sub-Report

Policer Type	Policer Entry	Direction	Drops
System Flow Rate	Policer 1 FRL/Sys	Upload Drop	14,766
	Subtotal		33,158
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Drop	14,922
	Subtotal		29,095
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Drop	18,173

Figure 5-17 Top Anomaly Drop dashlet

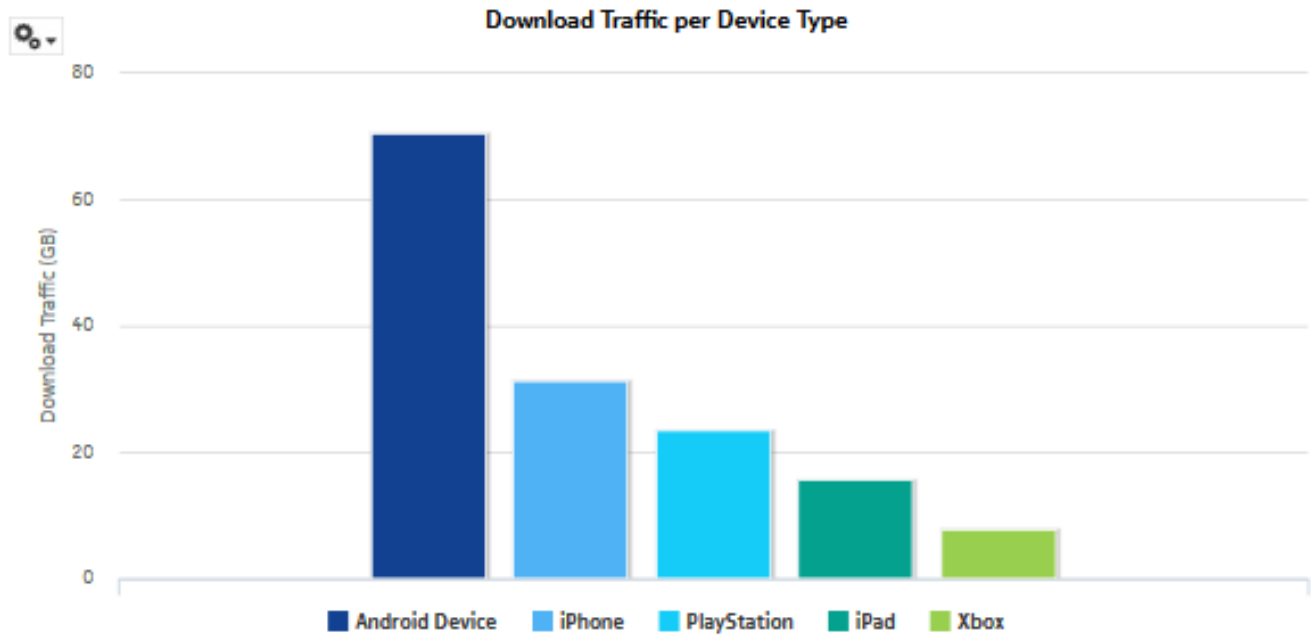


Figure 5-18 Top Anomaly Drop drill-down

Reporting Period: 2017-05-01 04:00 to 2017-05-01 04:59

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Granularity: Hourly

Site: 192.0.2.1

Partition: 1/1

Anomaly Drop Sub-Report

Anomaly	Direction	Drops
Out-of-order Fragments	Upload Drop	18,757
	Download Drop	12,995
	Subtotal	31,752
Error	Upload Drop	14,400
	Download Drop	15,663
	Subtotal	30,063
Overload	Upload Drop	9,173
	Download Drop	16,056

Figure 5-19 Top TCP Validation Drop dashlet

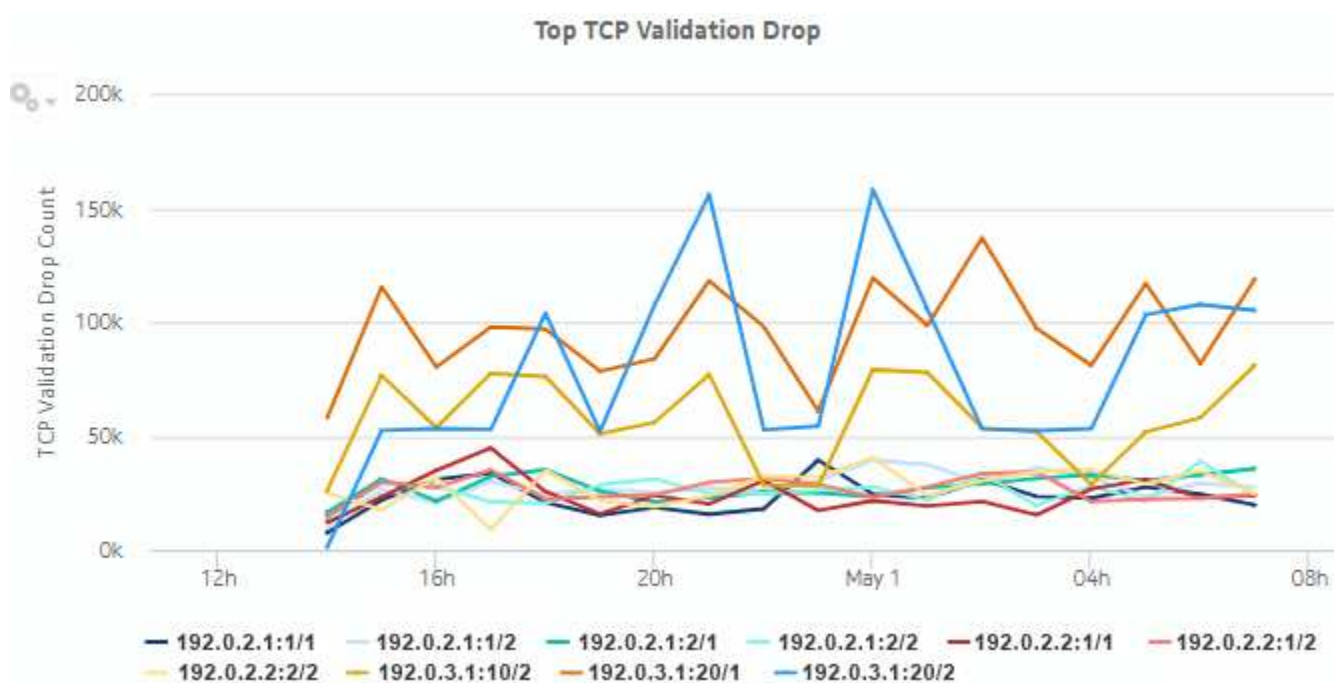
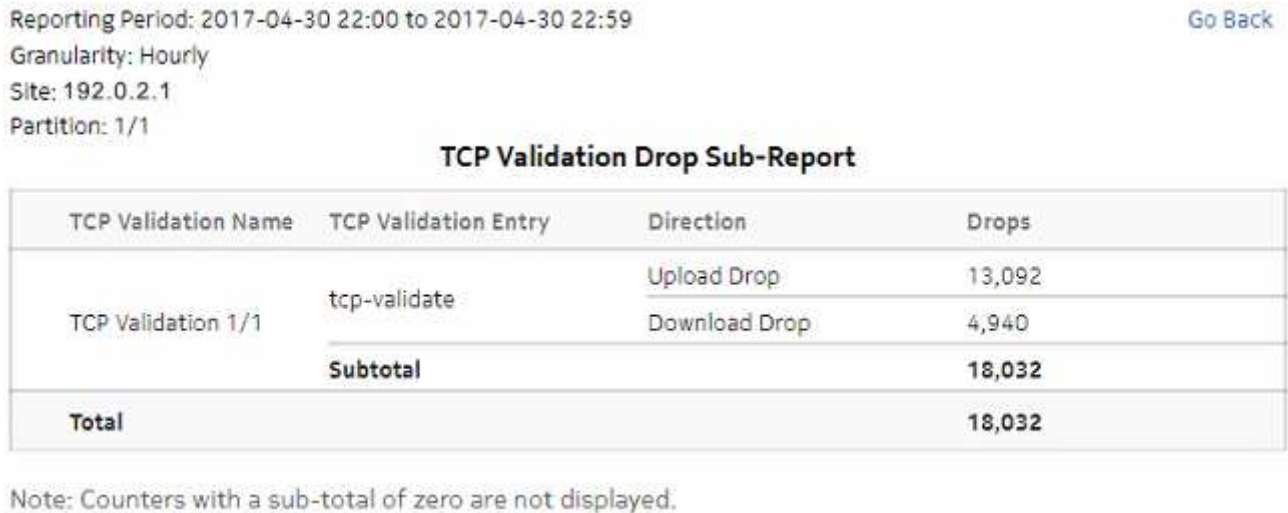


Figure 5-20 Top TCP Validation Drop drill-down



5.4 Top Filter Admit report

5.4.1 Top Filter Admit report overview

The Top Filter Admit report shows which AA session filters admit the most traffic.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that AA session filters are not admitting unexpected traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 5-3 Top Filter Admit report characteristics

Characteristic	Value
Statistics type	AA Accounting add/drop
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 5-3 Top Filter Admit report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Filter Type	Session, GTP, or SCTP
	Group/Partition	Select individual items or click Select All .
	Direction	Upload and Download, Upload, or Download
	Rank	Number of statistics to report
Drill-down support	Yes—Display a table of the session filter admit counts per direction	

5.4.2 Example

The following figures show a report example.

Figure 5-21 Top Filter Admit report

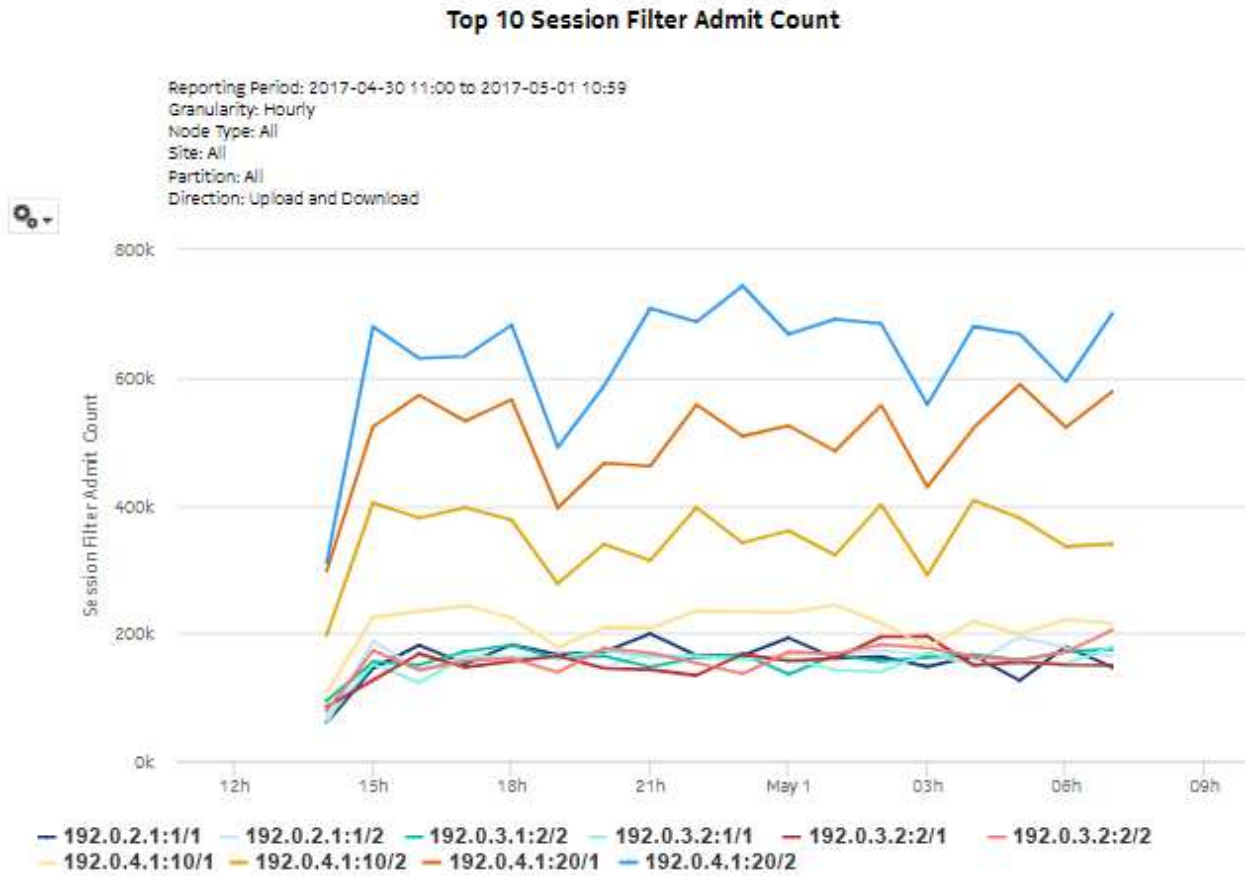


Figure 5-22 Top Filter Admit drill-down

Session Filter Admit Count Breakdown

Reporting Period: 2017-04-30 19:00 to 2017-04-30 19:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1
Direction: Upload and Download

Filter Name	Filter Entry	Direction	Admits
Session Filter 1/1	default-action	Upload Admit	17,231
		Download Admit	15,193
	entry 1	Upload Admit	35,501
		Download Admit	18,968
	entry 2	Upload Admit	20,407
		Download Admit	17,688
	entry 3	Upload Admit	11,678
		Download Admit	30,024
	Subtotal		166,690
Total		166,690	

Note: Filters with zero subtotal admit is not displayed.

5.5 Top Policer Admit report

5.5.1 Top Policer Admit report overview

The Top Policer Admit report shows which AA policers admit the most traffic.

Use cases

Network security monitoring—Use the report to monitor network threats and identify potential attacks.

Policy verification—Use the report to ensure that AA policers are not admitting illegitimate traffic.

Report characteristics

The following table lists the principal report characteristics.

Table 5-4 Top Policer Admit report characteristics

Characteristic	Value	
Statistics type	AA Accounting add/drop	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Node type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	
	Policer Type	
	Rank	Number of statistics to report
Drill-down support	Yes—Display a table of the policer admit counts per direction	

5.5.2 Example

The following figures show a report example.

Figure 5-23 Top Policer Admit report

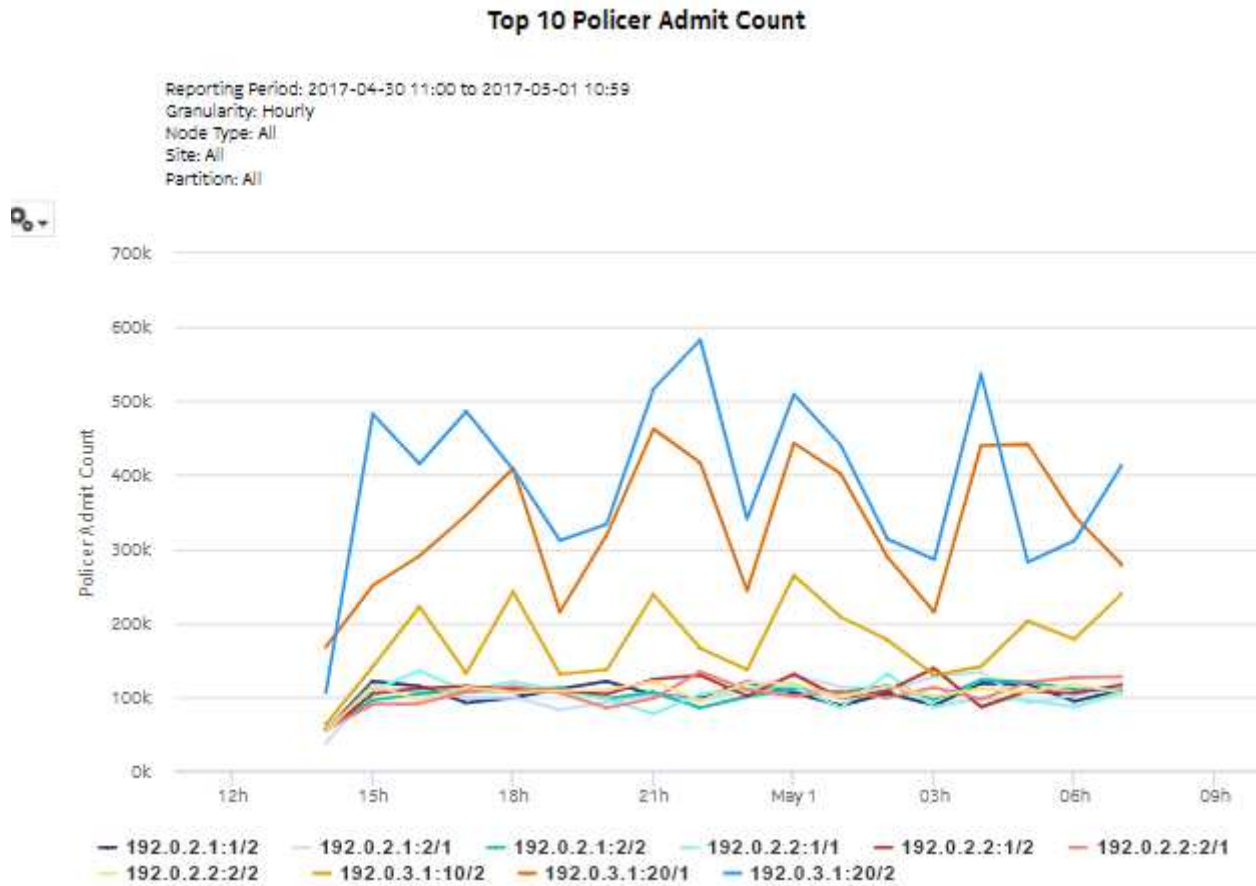


Figure 5-24 Top Policer Admit drill-down

Policer Admit Count Breakdown

Reporting Period: 2017-05-01 00:00 to 2017-05-01 00:59
Granularity: Hourly
Site: 192.0.2.1
Partition: 1/1
Direction: Upload and Download

Policer Type	Policer Entry	Direction	Admits
Subscriber Flow Rate	Policer 1 FRL/Sub	Upload Admit	15,163
	Subtotal		33,182
System Flow Count	Policer 1 FCL/Sys	Upload Admit	13,828
	Subtotal		26,394
System Flow Rate	Policer 1 FRL/Sys	Upload Admit	17,988
	Subtotal		25,957
Subscriber Flow Count	Policer 1 FCL/Sub	Upload Admit	15,630
	Subtotal		20,198
Total			105,731

Note: Policer with zero subtotal admit is not displayed.

6 Location and Congestion reports

6.1 Location and Congestion reports overview

6.1.1 General information

Location and Congestion reports provide information about loading and congestion at Access Network Locations (ANLs).

6.1.2 Use cases

Congestion control—Use the report to detect traffic congestion patterns. Once these patterns are understood, specific DEM congestion policies can be configured on the MS-ISA or VAA, and measured for their effectiveness in subsequent reports.

6.1.3 Drill-down reports

All reports can be run from the main Location and Congestion reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Location and Congestion reports. Each level of indentation indicates a drill down. For example, a Top Congested Access Network Locations Details report is a drill-down from a Top Congested Access Network Location report.

Table 6-1 Available drill-downs for Location and Congestion reports

Top Congested Access Network Location	
	Top Congested Access Network Locations Details
Top Congested Access Network Locations Details	
	Subscriber and Usage Details for Selected Access Network Location
Top Congested Access Network Locations Geographic Distribution	
	Subscriber and Usage Details for Selected Access Network Location
Top Loaded Access Network Locations	
	Top Congested Access Network Locations Details
Top Congested Access Network Locations Details	
	Subscriber and Usage Details for Selected Access Network Location

6.1.4 Custom table for ANL data

Location and Congestion reports are dependent on a custom table of ANL data on the auxiliary database, `analytics_anl_details_table_ct`. This table provides a link between MAC addresses and friendly names. The custom table is created automatically. It can be populated using the `customData.bash` script on the auxiliary database. See the *NSP Administrator Guide* for more information about using the CustomData script.

If Location and Congestion reports are run when the table is not populated, MAC addresses will appear instead of readable ANL names.

A Top Congested Access Network Locations Geographic Distribution report cannot be run if the analytics_anl_details_table_ct is not populated. Other Location and Congestion reports can be run, but they must be run using the ANL ID or Radio ID if applicable. If the ID is not typed correctly the report will have no data.

Custom table structure

Figure 6-1, “Sample analytics_anl_details_table_ct” (p. 131) shows a sample table file for the analytics_anl_details_table_ct table. Table 6-2, “Custom table structure” (p. 132) provides information about the data to include in each column.

Figure 6-1 Sample analytics_anl_details_table_ct

```
type, stateOrProv,city,name,id,subtype,radioVLAN,radioSSID,radioFreq,latitude,
longitude,manufacturer,model,swFw
1, Nova Scotia, Dartmouth, 4 Middle Street, 0001000200030000BCE0000000000000, 0,
0, 0, 0, 0.0, 0.0, 0, 0, 0
2, British Columbia, Victoria, 700 Victoria Street,
1001200230030000000000000000000000, 0, 0, 0, 0, 0.0, 0.0, 0, 0, 0
4, Ontario, Kanata, 600 March Road - AP, 10C12F52B7E7000000000000000000000, 1, 0,
00000000, 0, 100.78789, 10.12312, ApplesWorld, iphonesWorld, 0.0
5, British Columbia, Victoria, 700 Victoria_3g , 100120023003000000000000000000000,
0, 0, 0, 0, 0.0, 0.0, 0, 0, 0
6, Ontario, Kanata, 600 March Road -4g, 10C12F52B7E7000000000000000000000, 0 , 0,
00000000, 0, 100.78789, 10.12312, ApplesWorld, iphonesWorld, 0.0
```

Table 6-2 Custom table structure

Column	Data type	Notes
type	integer	• 0 - Unknown • 1 - 3G lub • 2 - 3G Cell • 3 - 4G Cell • 4 - Wi-Fi access point/radio • 5 - 3G-CELL-ULI Location information comes from ULI: ULI in this case is CGI (Applicable for Mobile domain) • 6- 4G-CELL-ULI Location information comes from ULI: ULI in this case is ECGI (Applicable for Mobile domain)
stateOrProv	variable character	The state or province where the ANL is located
city	variable character	The city where the ANL is located
name	variable character	The friendly name to assign the ANL

Table 6-2 Custom table structure (continued)

Column	Data type	Notes
id	variable character	The access point ID. The ID is 32 hex digits long, and is composed of the following: Access point MAC address (12 digits) + VLAN (4 digits) + 16 zeros (0) If there is no VLAN, enter four zeros (0000).
subtype	integer	For Wi-Fi (type 4), enter 1 for an access point and 0 for a VLAN. For all other types, the default value of 0 is correct.
radioVLAN	integer	VLAN number
radioSSID	variable character	Radio service set identifier
radioFreq	integer	Radio frequency
latitude	numeric	Latitude of the ANL location
longitude	numeric	Longitude of the ANL location
manufacturer	variable character	Device manufacturer, for example, Apple
model	variable character	Device model, for example, iPhone
swFw	variable character	Software firmware number

6.2 Active Subscribers and Congestion for Selected Access Network Location report

6.2.1 Active Subscribers and Congestion for Selected Access Network Location report overview

The Active Subscribers and Congestion for Selected Access Network Locations report shows the number of active subscribers and congested sessions at a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-3 Active Subscribers and Congestion for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion
NSP Flow Collector required	Yes

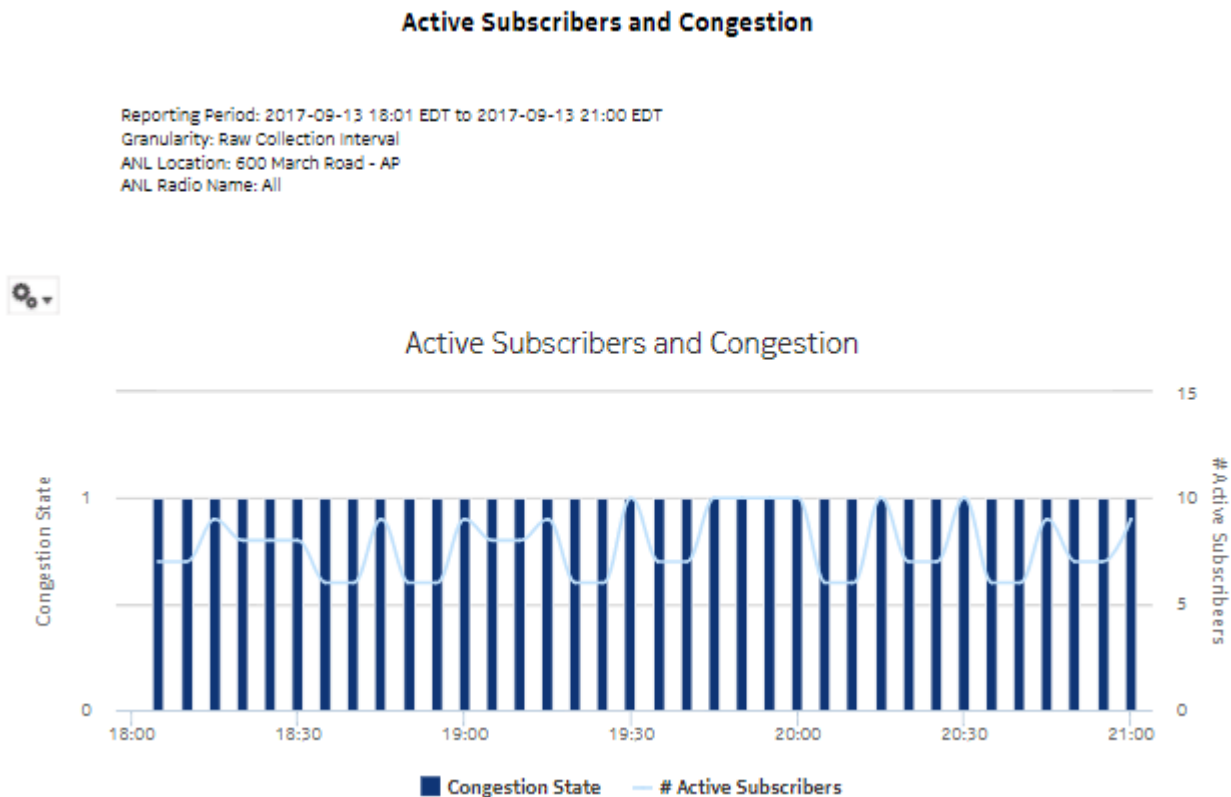
Table 6-3 Active Subscribers and Congestion for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
Drill-down support	No	

6.2.2 Example

The following figure shows a report example.

Figure 6-2 Active Subscribers and Congestion for Selected Access Network Location report



6.3 Application Group Usage for Selected Access Network Location report

6.3.1 Application Group Usage for Selected Access Network Location report overview

The Application Group Usage for Selected Access Network Locations report shows the pattern of application group usage for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-4 Application Group Usage for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

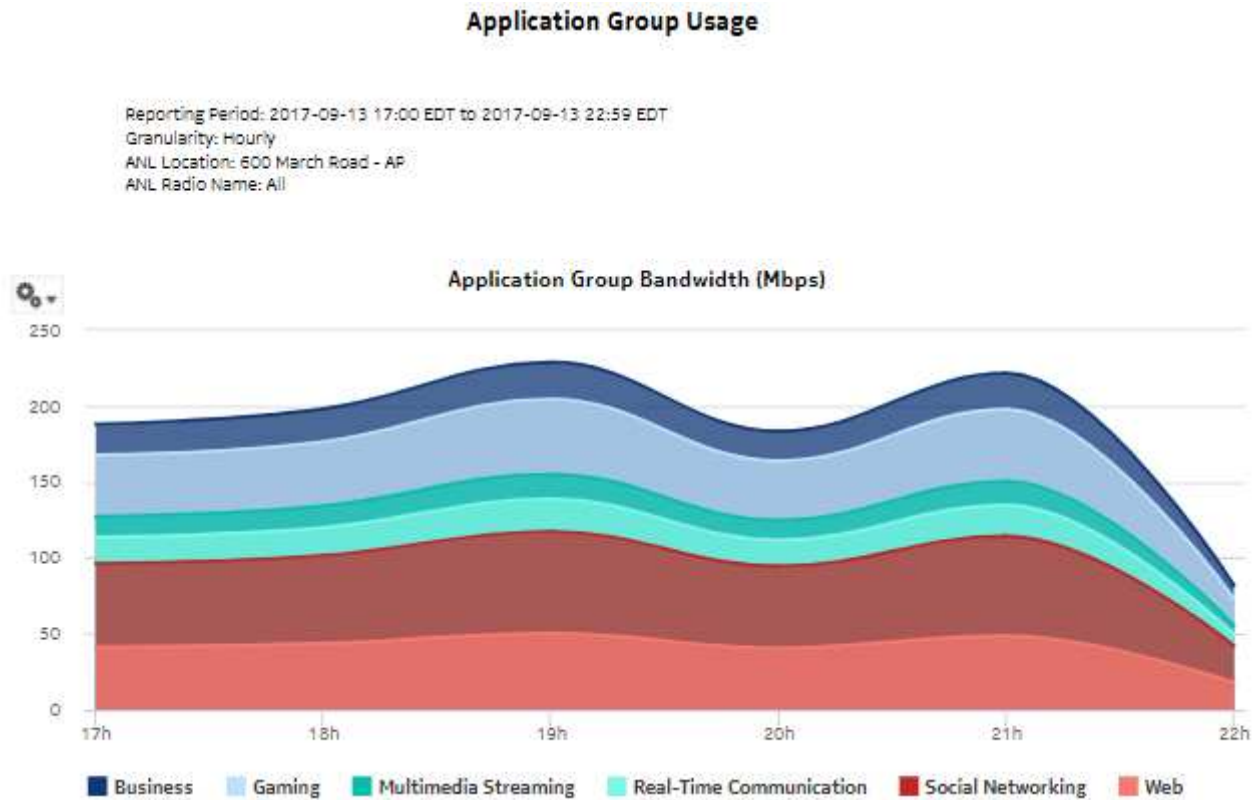
Table 6-4 Application Group Usage for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Group Usage Threshold	Threshold percentage for usage below which the application group will not appear in the report. The default is 2.
Drill-down support	No	

6.3.2 Example

The following figure shows a report example.

Figure 6-3 Application Group Usage for Selected Access Network Location report



6.4 Application Usage by Top Subscribers for Selected Access Network Location report

6.4.1 Application Usage by Top Subscribers for Selected Access Network Location report overview

The Application Usage by Top Subscribers for Selected Access Network Locations report shows the pattern of application usage by the top specified number of subscribers for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-5 Application Usage by Top Subscribers for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

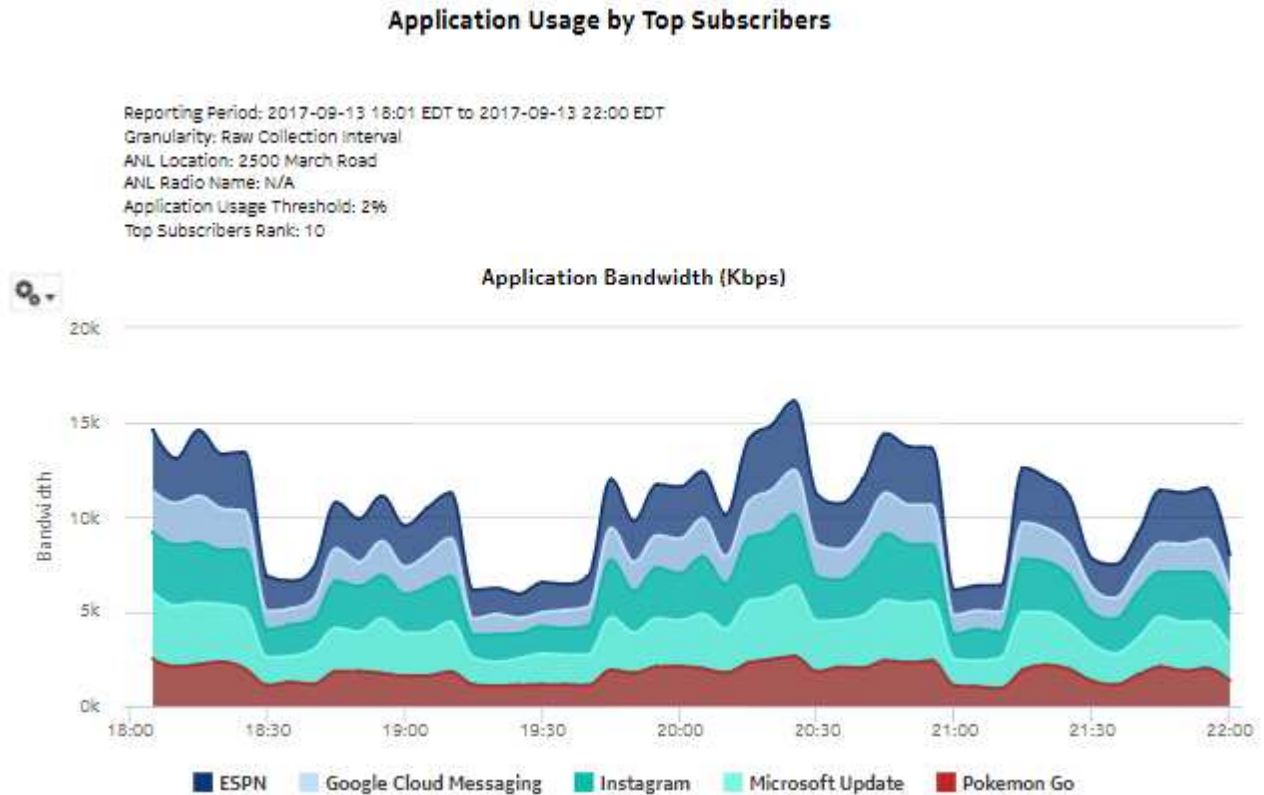
Table 6-5 Application Usage by Top Subscribers for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
	Rank	Number of top subscribers to report.
Drill-down support	No	

6.4.2 Example

The following figure shows a report example.

Figure 6-4 Application Usage by Top Subscribers for Selected Access Network Location report



6.5 Subscriber Congestion Summary report

6.5.1 Subscriber Congestion Summary report overview

The Subscriber Congestion Summary report shows a ranking of subscriber congestion information by application and application group. The default appearance is a timeline chart and a summary table.

The chart shows data on the following axes:

- Number of active subscribers in congestion
- Number of flows in congestion
- Percentage of flows in congestion
- Volume of congested traffic
- Percentage of the traffic volume that is in congestion

The summary table shows the congestion by application for applications with more than the configured threshold percentage of congested traffic. For each application and application group,

the table shows the volume of the congested traffic and the percentage of the total traffic (congested + not congested + unknown) that is in congestion.

Report characteristics

The following table lists the principal report characteristics.

Table 6-6 Subscriber Congestion Summary report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Domain	Wi-Fi (DSM) or Mobile
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type (with NLB support for Mobile Domain)	
	Group/partition	
	Application Group	
	Application	
	Congested Traffic Volume Percentage Threshold (Application Level)	Specify the minimum congestion percentage to report. The default is 1%.
	Congestion Direction	Download, Upload, or Upload and Download
Drill-down support	No	

6.5.2 Example

The following figures show a report example.

Figure 6-5 Subscriber Congestion Summary report

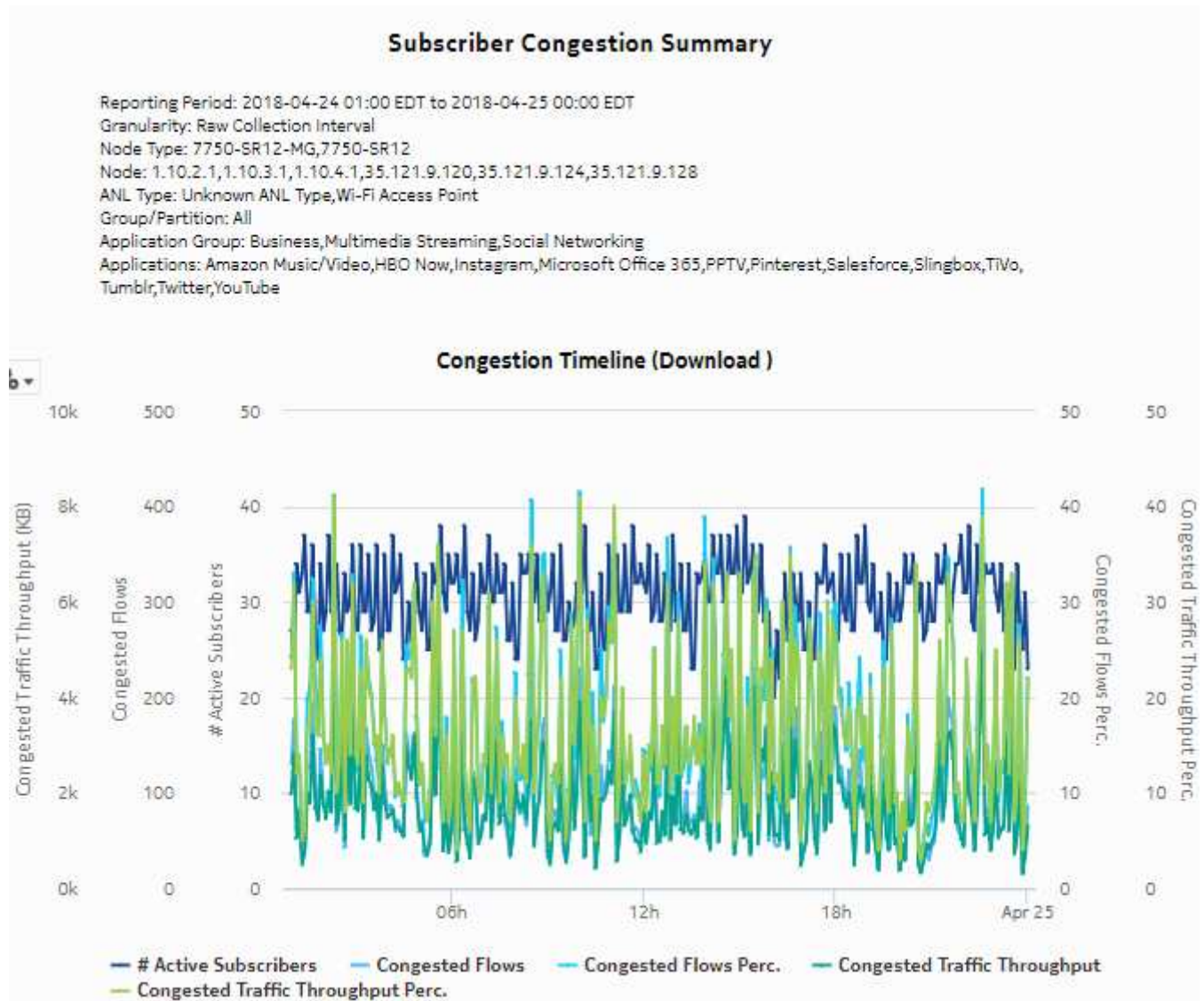


Figure 6-6 Subscriber Congestion Summary report, continued

Applications with more than 1.0% Congested Traffic

Application Group	Application	Congested Application Traffic - Download (MB)	Congested Application Traffic %	Congested Application Group Traffic - Download (MB)	Congested Application Group Traffic %
Business	Salesforce	29.54	19.18		
	Microsoft Office 365	44.38	16.47		
	Total (Business)			73.92	17.46
Social Networking	Instagram	88.69	18.23		
	Pinterest	35.55	17.29		
	Twitter	35.98	16.18		
	Tumblr	29.63	15.84		
	Total (Social Networking)			189.85	17.23
Multimedia Streaming	HBO Now	58.52	17.53		
	Slingbox	36.16	16.62		
	Amazon Music/Video	45.96	16.57		
	YouTube	33.14	15.68		
	TiVo	26.29	15.65		
	PPTV	22.96	10.91		
	Total (Multimedia Streaming)			223.03	15.72
Overall Total		486.80	16.54	486.80	16.54

6.6 Application Usage for Selected Access Network Location report

6.6.1 Application Usage for Selected Access Network Location report overview

The Application Usage for Selected Access Network Locations report shows the pattern of application usage for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-7 Application Usage for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

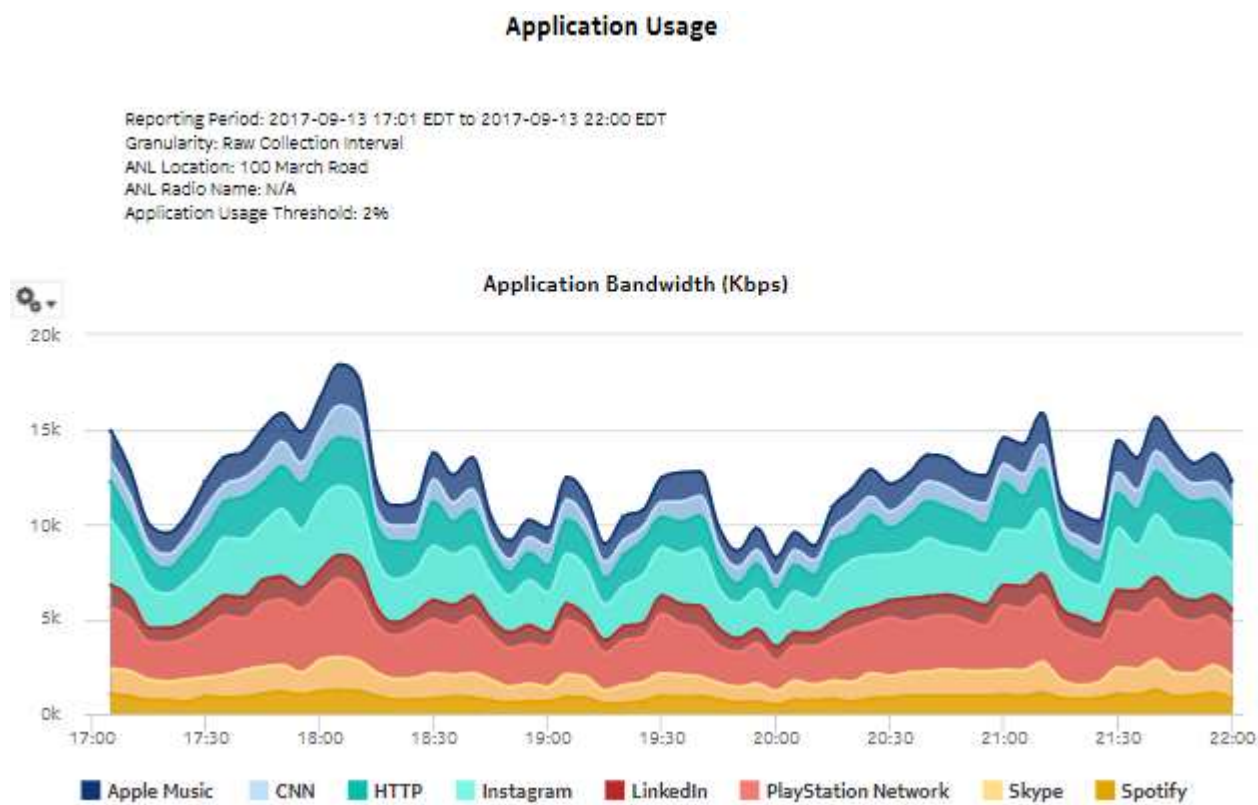
Table 6-7 Application Usage for Selected Access Network Locations report characteristics
(continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
Drill-down support	No	

6.6.2 Example

The following figure shows a report example.

Figure 6-7 Application Usage for Selected Access Network Location report



6.7 Subscriber and Usage Details for Selected Access Network Location report

6.7.1 Subscriber and Usage Details for Selected Access Network Location report overview

The Subscriber and Usage Details for Selected Access Network Locations report shows the pattern of subscriber and usage details for a selected ANL.

Report characteristics

The following table lists the principal report characteristics.

Table 6-8 Subscriber and Usage Details for Selected Access Network Locations report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

Table 6-8 Subscriber and Usage Details for Selected Access Network Locations report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Access Network Location ID, Name (or Name Pattern)	Search using partial names or wildcard (%).
	Access Network Location	
	Radio Name (partial or complete; exact or pattern, applicable only for Wi-Fi)	
	Radio Name	Applicable only for Wi-Fi
	Application Usage Threshold	Threshold percentage for usage below which the application will not appear in the report. The default is 2.
	Rank	Number of subscribers to report.
Drill-down support	No	

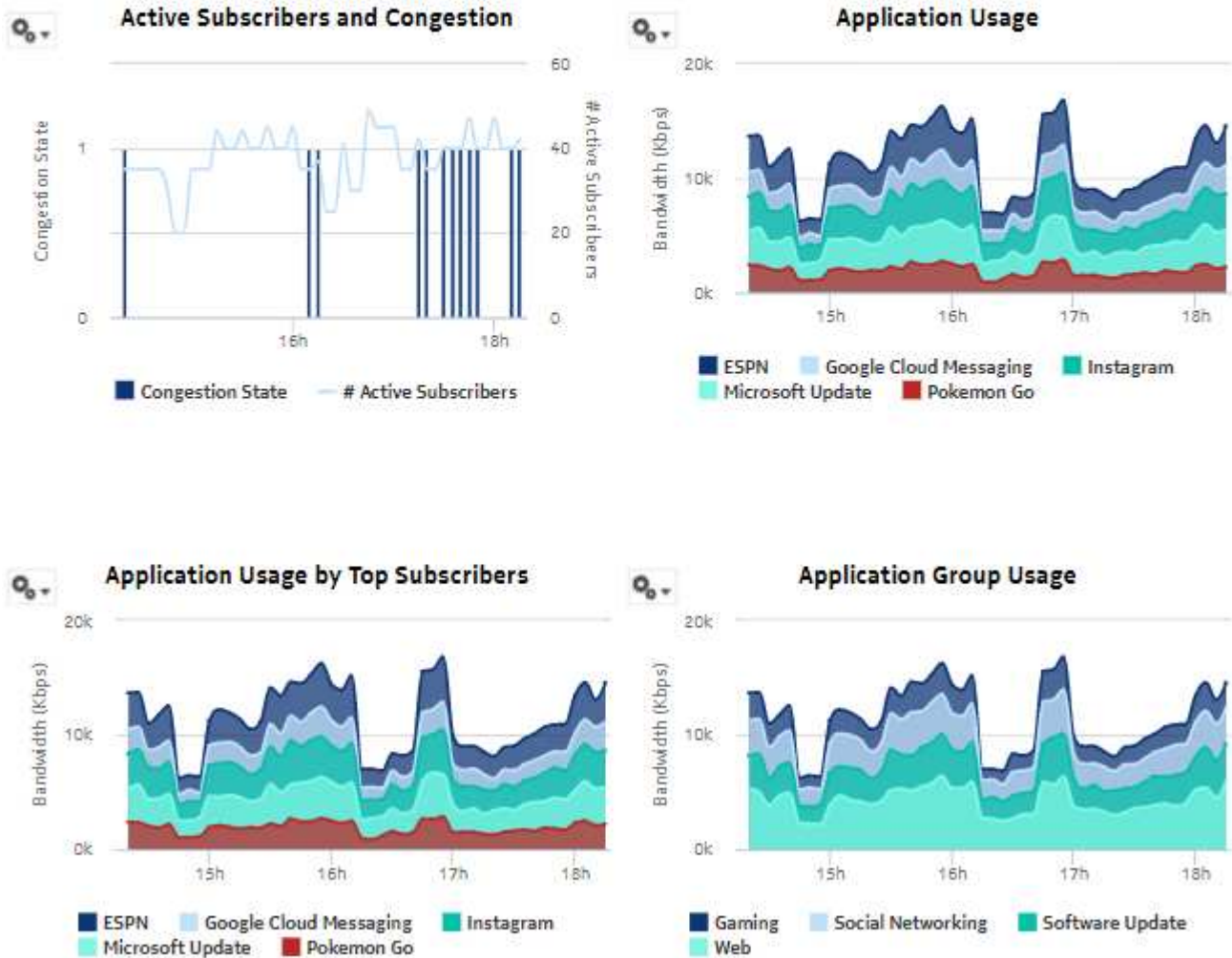
6.7.2 Example

The following figure shows a report example.

Figure 6-8 Subscriber and Usage Details for Selected Access Network Location report

Access Network Location Details

Reporting Period: 2017-09-13 14:16 EDT to 2017-09-13 18:15 EDT
Granularity: Raw Collection Interval
ANL Location: 2500 March Road
ANL Radio Name: N/A
Application Usage Threshold: 2%
Top Subscribers Rank: 10



6.8 Top Congested Access Network Location report

6.8.1 Top Congested Access Network Location report overview

The Top Congested Access Network Locations report shows a ranking of the selected ANLs by impact intensity. The impact intensity value models the impact that congestion may have had on traffic flowing through the ANL for the selected time intervals. A higher value represents a higher potential impact, hence lower QoE for traffic at the location. The default appearance is a heat map: the vertical axis is the range of impact intensity bands, the horizontal axis is the time line, and the cell contents show the number of ANLs in a specific intensity band at a specific time.

Report characteristics

The following table lists the principal report characteristics.

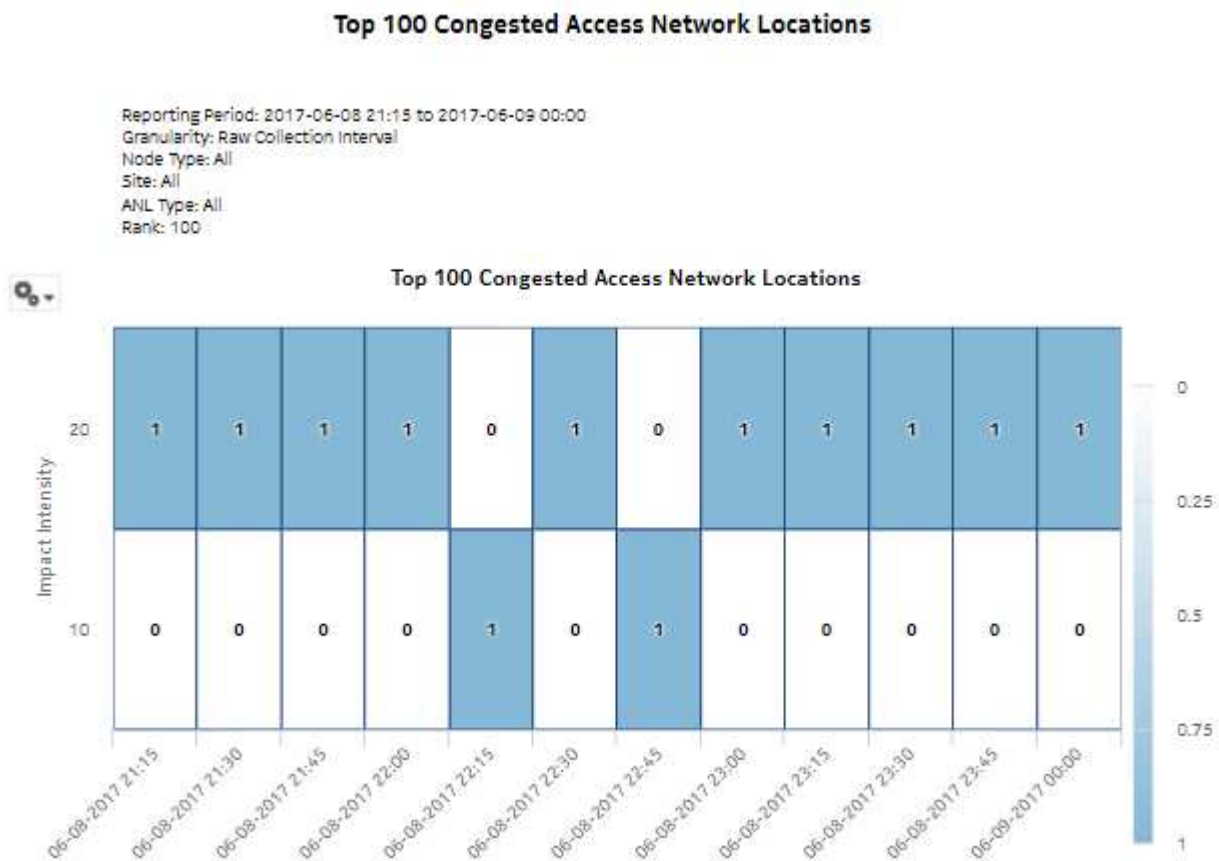
Table 6-9 Top Congested Access Network Locations report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m). The 12 most recent intervals will be analyzed.
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type	
	Rank	Number of items to report
Drill-down support	Yes—Open Top Congested Access Network Locations Details for the ANLs in the selected cell.	

6.8.2 Example

The following figure shows a report example.

Figure 6-9 Top Congested Access Network Location report



6.9 Top Congested Access Network Locations Details report

6.9.1 Top Congested Access Network Locations Details report overview

The Top Congested Access Network Locations Details report shows a table of selected ANL impact intensity information. The table shows the number and percentage of flows in a specific impact intensity band.

Report characteristics

The following table lists the principal report characteristics.

Table 6-10 Top Congested Access Network Locations Details report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type	
	Rank	Number of items to report
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or Radio-VLAN (in the case of the Wi-Fi [DSM] domain) The Report range input for the Subscriber and Usage Details report is the default for the chosen granularity. All other inputs are preserved from the parent report. You can change the report range.	

6.9.2 Example

The following figures show a report example.

Figure 6-10 Top Congested Access Network Location Details report

Top 100 Congested Access Network Locations

Reporting Period: 2017-06-08 21:15 to 2017-06-08 21:15
Granularity: Raw Collection Interval
Node Type: All
Site: All
ANL Type: All
Rank: 100
Congestion Impact Range: [Low 10%, High 20%]

Top 100 Congested Access Network Locations

Rank	Access Network Location	# Sessions Impacted	Total # Sessions	% of Impacted
1	My Preferred Location	1,130	9,496	11.89%
Top 100 ANLs Subtotal		1,130	9,496	11.89%

6.10 Top Congested Access Network Locations Geographic Distribution report

6.10.1 Top Congested Access Network Location Geographic Distribution report overview

The Top Congested Access Network Locations Geographic Distribution report shows a table ranking the selected ANLs by impact intensity, showing the geographic locations of each ANL. The impact intensity value models the impact that congestion may have had on traffic flowing through the ANL for the selected time intervals. A higher value represents a higher potential impact, hence lower QoE for traffic at the location.

The table can be sorted ascending or descending by rank.

Congestion propensity

Congestion propensity is defined as the percentage of time an ANL is congested for a selected period of interest, for example, the past three days between 6 and 11 PM local time. The period of interest for congestion propensity can be the same as the report range or different.

Report characteristics

The following table lists the principal report characteristics.

Table 6-11 Top Congested Access Network Locations Geographic Distribution report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	Domain	Mobile or Wi-Fi (DSM)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type	
	Rank	Number of items to report
	Access Network Location State/Province	Search using partial names or wildcard (%). Select individual items or click Select All .
	Access Network Location City	
	Show only Congested Locations	If this check box is selected, only the ANLs that are congested in the last interval of activity are displayed in the report output.
	Congestion Propensity Threshold	Enter a number between 1 and 100 to filter results based on congestion propensity.
	Impact Intensity Threshold	Enter a number between 1 and 100 to filter results based on impact insensity.
	Report Range for Congestion Propensity	Length of time to evaluate congestion propensity.
	Days of Week for Congestion Propensity	Specify the intervals of interest in the Report Range for Congestion Propensity. Select individual items or click Select All .
	Hours of Day for Congestion Propensity	

Table 6-11 Top Congested Access Network Locations Geographic Distribution report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or, Radio-VLAN (in the case of the Wi-Fi [DSM] domain)

6.10.2 Example

The following figure shows a report example.

Figure 6-11 Top Congested Access Network Locations Geographic Distribution report

Top 100 Access Network Locations - Geographic Distribution

Reporting Period: 2017-09-10 18:00 EDT to 2017-09-12 17:59 EDT
Granularity: Hourly
Node Type: All
Site: All
ANL Type: All
ANL Loc Details: State/Prov: [Nova Scotia, Ontario] City: All
Thresholds (%): Congestion Propensity: 0; Impact Intensity: 0
Propensity - Days of Week: All
Propensity - Hours of Day: 18:00,19:00,20:00,21:00
Propensity Obsv Period - Past: 3 Days

Top 100 Access Network Locations - Geographic Distribution

Rank	State/Province	City	ANL Name	Congested?	Congestion Propensity	Impact Intensity
1	Ontario	Kanata	2500 March Road	Yes	100.00%	19.58%
2	Ontario	Kanata	150 March Road	Yes	100.00%	19.32%
3	Ontario	Kanata	1110 March Road	Yes	75.00%	18.24%
4	Ontario	Kanata	250 March Road	Yes	75.00%	17.85%
5	Ontario	Kanata	350 March Road	Yes	100.00%	17.24%
6	Ontario	Kanata	450 March Road	Yes	75.00%	12.64%
7	Ontario	Kanata	300 March Road	Yes	100.00%	9.95%
8	Ontario	Kanata	100 March Road	Yes	75.00%	9.79%
9	Nova Scotia	Dartmouth	4 Middle Street	Yes	100.00%	9.71%
10	Ontario	Kanata	3500 March Road	Yes	100.00%	9.51%
11	Ontario	Kanata	4500 March Road	Yes	100.00%	9.41%
12	Ontario	Kanata	1500 March Road	Yes	100.00%	8.60%
13	Ontario	Kanata	200 March Road	Yes	100.00%	8.24%

Note: Congested? indicates whether ANL was congested in the last interval of activity or not.

6.11 Top Loaded Access Network Locations report

6.11.1 Top Loaded Access Network Locations report overview

The Top Loaded Access Network Locations report shows a ranking of the selected Access Network Locations by volume (upload, download, or total). The default appearance is a heat map: the vertical axis is the traffic volume, the horizontal axis is the time line, and the cell contents show the number of ANLs in the volume range at a specific time.

Report characteristics

The following table lists the principal report characteristics.

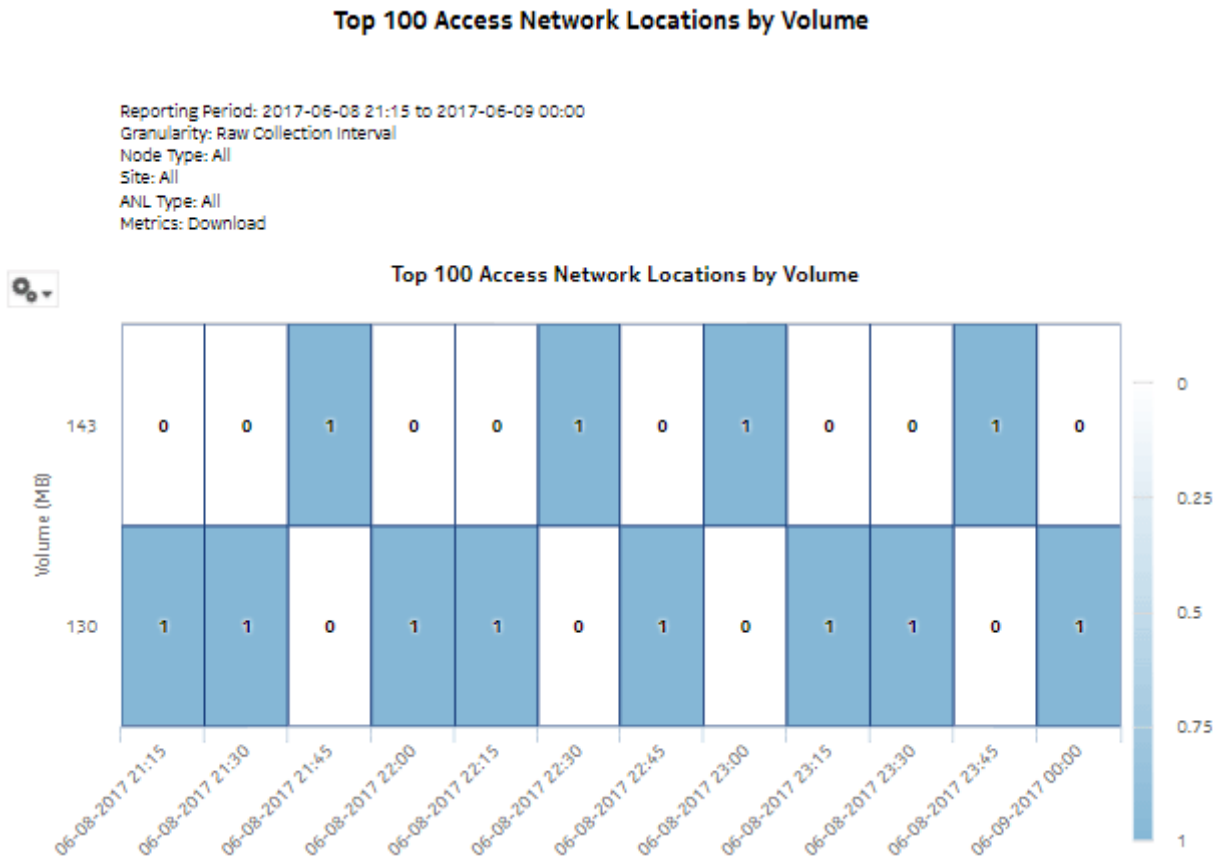
Table 6-12 Top Loaded Access Network Locations report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Flow Congestion	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m). The 12 most recent intervals will be analyzed.
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type	
	Metrics	Download, Upload, or Total
	Rank	Number of items to report
Drill-down support	Yes—Open Top Loaded Access Network Locations Details for the ANLs in the selected cell.	

6.11.2 Example

The following figure shows a report example.

Figure 6-12 Top Loaded Access Network Locations report



6.12 Top Loaded Access Network Locations Details report

6.12.1 Top Loaded Access Network Locations Details report overview

The Top Loaded Access Network Locations report shows traffic details for a list of selected Access Network Locations.

Report characteristics

The following table lists the principal report characteristics.

Table 6-13 Top Loaded Access Network Locations Details report characteristics

Characteristic	Value
Statistics type	AA Cflowd Flow Congestion

Table 6-13 Top Loaded Access Network Locations Details report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Domain	Mobile or Wi-Fi (DSM)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Access Network Location Type	
	Metrics	Download, Upload, or Total
	Rank	Number of items to report
Drill-down support	Yes—Open Subscriber and Usage Details for Selected Access Network Location report for the selected ANL or Radio-VLAN (in the case of the Wi-Fi [DSM] domain). The Report range input for the Subscriber and Usage Details report will be the default for the chosen granularity. All other inputs will be preserved from the parent report. You can change the report range if needed.	

6.12.2 Example

The following figures show a report example.

Figure 6-13 Top Loaded Access Network Locations Details report

Top 100 Loaded Access Network Locations

Reporting Period: 2017-06-08 21:15 to 2017-06-08 21:15
Granularity: Raw Collection Interval
Node Type: All
Site: All
ANL Type: All
Metrics: Download
Rank: 100
Volume Range: [Low 122683393, High 136314880]

Top 100 Loaded Access Network Locations

Rank	Access Network Location	Download (MB)	% of All ANLs (Download)	Upload (MB)	Total (MB)
1	My Preferred Location	124	100.00%	154	278
Top ANLs Subtotal		124	100.00%	154	278

7 Fixed Wireless Access subscribers reports

7.1 Fixed Wireless Access subscribers reports overview

7.1.1 General information

Fixed Wireless Access subscribers reports provide information about application and application group usage by fixed wireless access subscribers.

Note: While the reports are named Mobile, they are, in actuality, Fixed Wireless Access.

Drill-down reports

All reports can be run from the main Mobile Subscriber reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Mobile Subscriber reports. Each level of indentation indicates a drill down. For example, Application Group Usage Pattern with Selected Mobile Subscriber is a drill-down report from a Top Application Groups with Selected Mobile Subscriber report.

Table 7-1 Available drill-downs for Mobile Subscriber reports

Top Application Groups with Selected Mobile Subscriber	
	Application Group Usage Pattern with Selected Mobile Subscriber
Top Applications with Selected Mobile Subscriber	
	Application Usage Pattern with Selected Mobile Subscriber
Top Mobile Subscribers by Application Group Usage	
	Top Application Groups with Selected Mobile Subscriber
Top Mobile Subscribers by Application Usage	
	Top Applications with Selected Mobile Subscriber

7.2 # Active Mobile Subscribers and Usage for Selected Application Groups report

7.2.1 # Active Mobile Subscribers and Usage for Selected Application Group report overview

The # Active Mobile Subscribers and Usage for Selected Application Group report shows the number of active mobile subscribers and usage details for one or more application groups. Additionally, the report shows the average consumption per subscriber for the selected application group.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 7-2 # Active Mobile Subscribers and Usage for Selected Application Group characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets, or flows
Drill-down support	No	

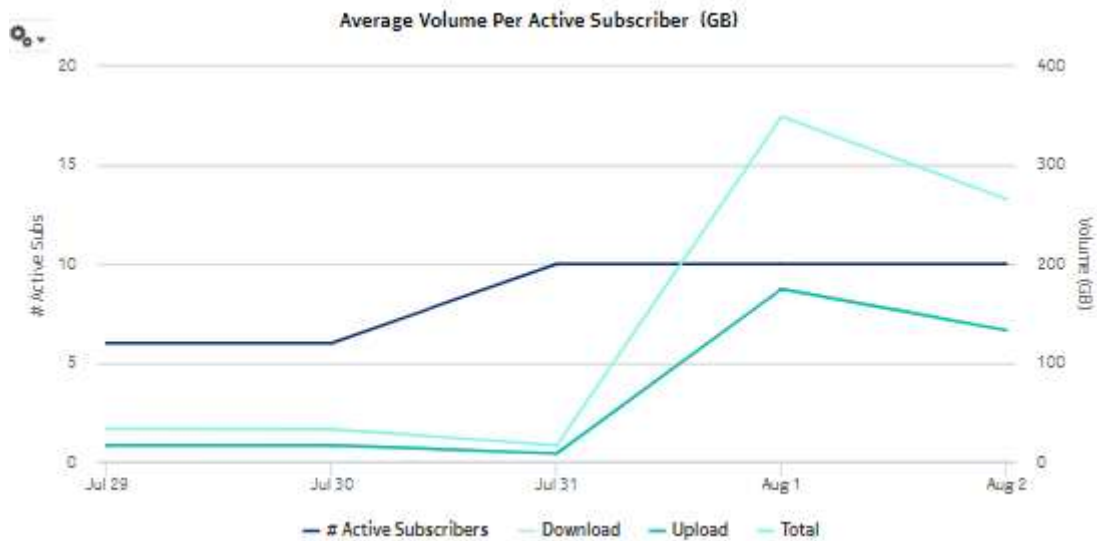
7.2.2 Example

The following figures show a report example.

Figure 7-1 # Active Mobile Subscribers and Usage for Selected Application Groups report



Figure 7-2 # Active Mobile Subscribers and Usage for Selected Application Groups report, continued



7.3 # Active Mobile Subscribers and Usage for Selected Applications report

7.3.1 # Active Mobile Subscribers and Usage for Selected Application report overview

The # Active Mobile Subscribers and Usage for Selected Application report shows the number of active mobile subscribers and usage details for one or more specified applications. Additionally, the report shows the average consumption per subscriber for the selected applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 7-3 # Active Mobile Subscribers and Usage for Selected Application report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application
NSP Flow Collector required	Yes

Table 7-3 # Active Mobile Subscribers and Usage for Selected Application report characteristics
(continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets, or flows
Drill-down support	No	

7.3.2 Example

The following figures show a report example.

Figure 7-3 # Active Mobile Subscribers and Usage for Selected Application report

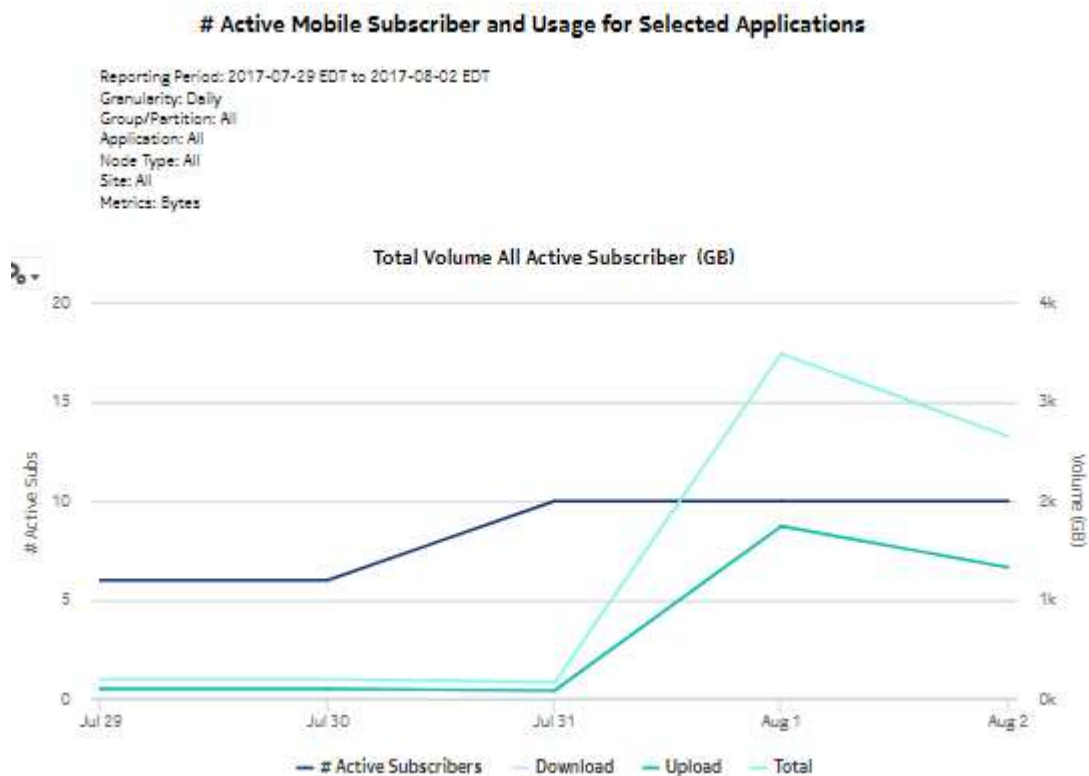
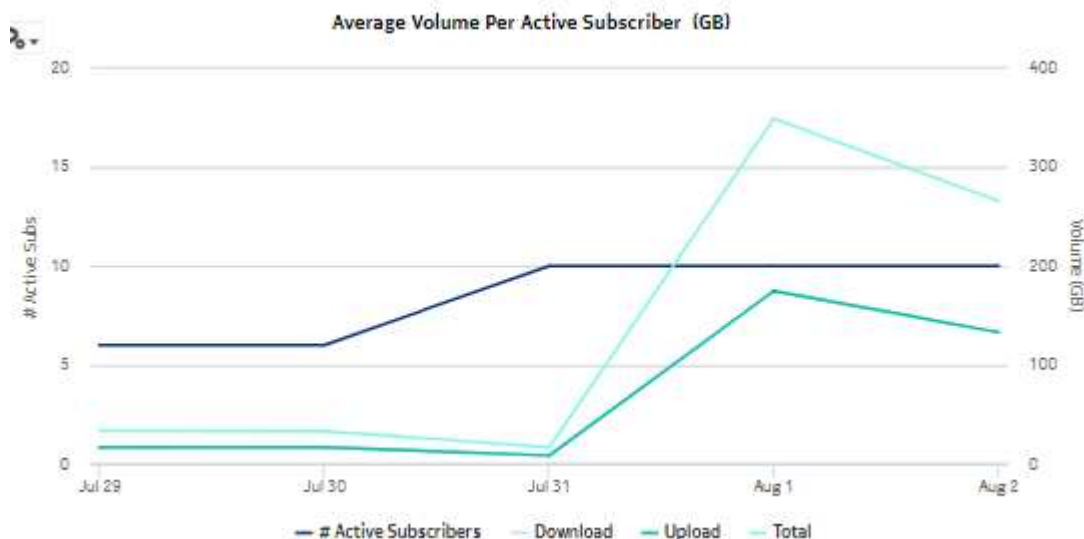


Figure 7-4 # Active Mobile Subscribers and Usage for Selected Application report, continued



7.4 Application Group Usage Pattern with Selected Mobile Subscriber report

7.4.1 Application Group Usage Pattern with Selected Mobile Subscriber report overview

The Application Group Usage Pattern with Selected Mobile Subscriber report shows the application group usage pattern for a specified mobile subscriber.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific subscriber.

Report characteristics

The following table lists the principal report characteristics.

Table 7-4 Application Group Usage Pattern with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click Select All .
	Group/Partition	
	Application Group	
	Mobile Subscriber Name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
Drill-down support	No	

7.4.2 Example

The following figures show a report example.

Figure 7-5 Application Group Usage Pattern with Selected Mobile Subscriber report

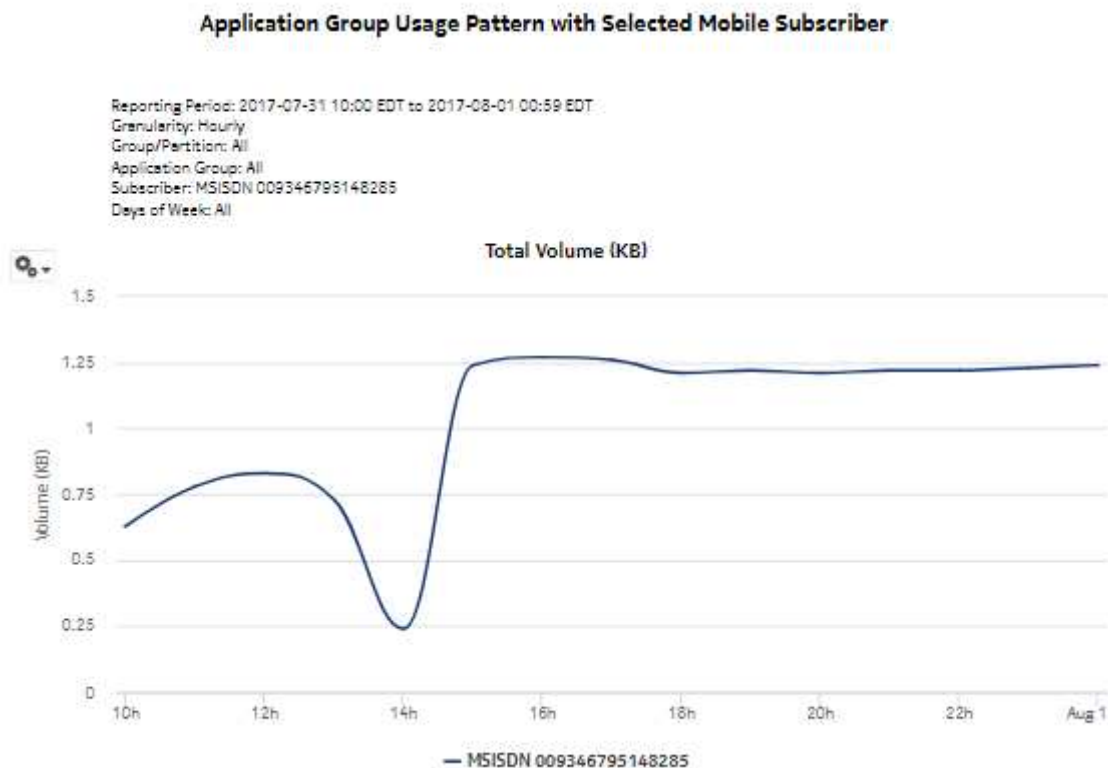
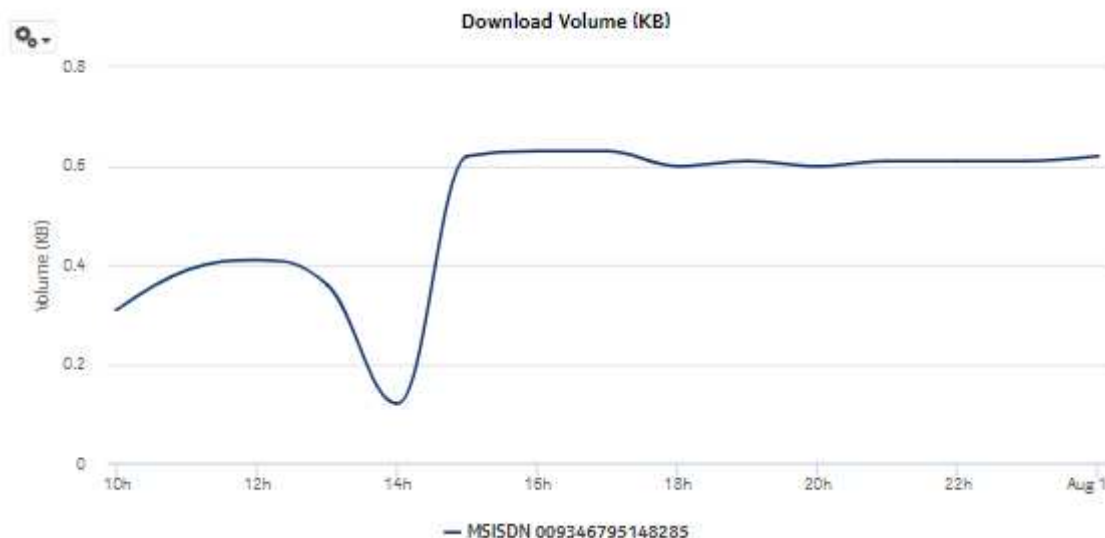


Figure 7-6 Application Group Usage Pattern with Selected Mobile Subscriber report, continued



7.5 Application Usage Pattern with Selected Mobile Subscriber report

7.5.1 Application Usage Pattern with Selected Subscriber report overview

The Application Usage Pattern with Selected Mobile Subscriber report the traffic distribution across a specified set of applications for a specified subscriber on a specified set of ISA-AA groups and partitions.

Use cases

Policy pre-planning—Use the report to do the following:

- identify applications that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 7-5 Application Usage Pattern with Selected Mobile Subscriber report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application

Table 7-5 Application Usage Pattern with Selected Mobile Subscriber report characteristics
(continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click Select All .
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Mobile Subscriber Name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
Drill-down support	No	

7.5.2 Example

The following figures show a report example.

Figure 7-7 Application Usage Pattern with Selected Mobile Subscriber report—total volume

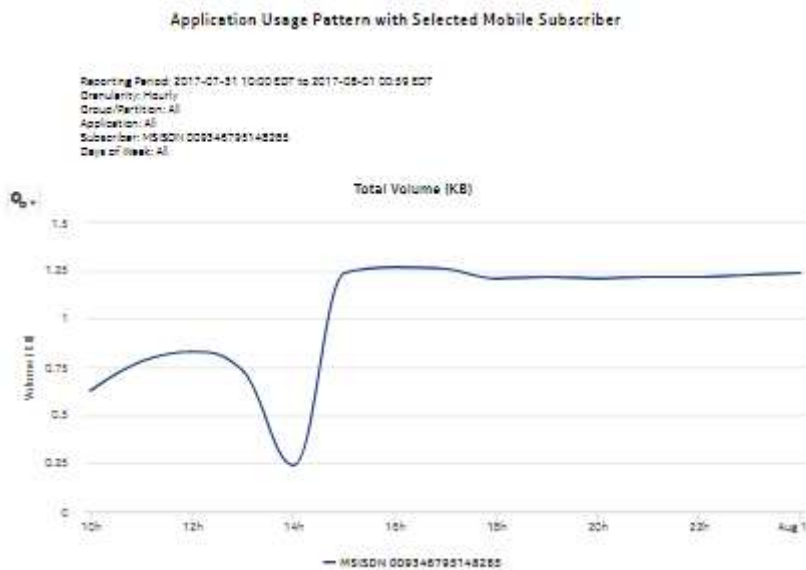


Figure 7-8 Application Usage Pattern with Selected Mobile Subscriber report—download volume

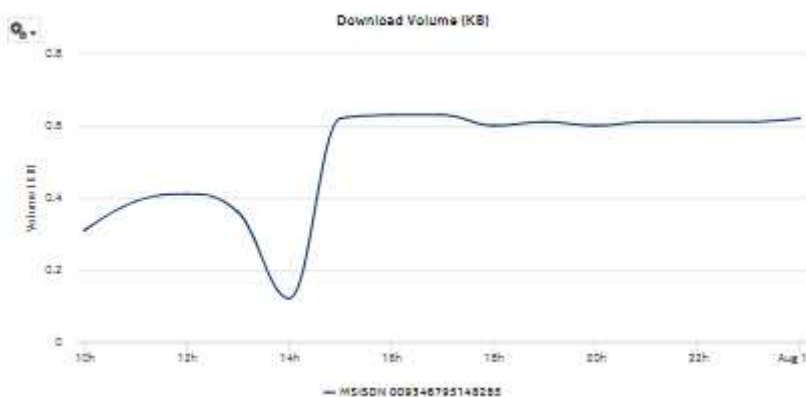


Figure 7-9 Application Usage Pattern with Selected Mobile Subscriber report—upload volume



7.6 Mobile Subscriber Percentile vs Traffic Contribution report

7.6.1 Mobile Subscriber Percentile vs Traffic Contribution report overview

The Mobile Subscriber Percentile vs Traffic Contribution report shows the subscriber traffic contribution to bandwidth consumption by percentile, the usage within each percentile, and the cumulative contribution to the overall total usage.

Use cases

Top mobile subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage; use in conjunction with the following reports to identify the top subscribers and establish fair use policies, targeted campaigns, or new services:

- Top Mobile Subscribers by Application Usage
- Top Mobile Subscribers by Application Group Usage

Report characteristics

The following table lists the principal report characteristics.

Table 7-6 Mobile Subscriber Percentile vs Traffic Contribution report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application group
NSP Flow Collector required	Yes

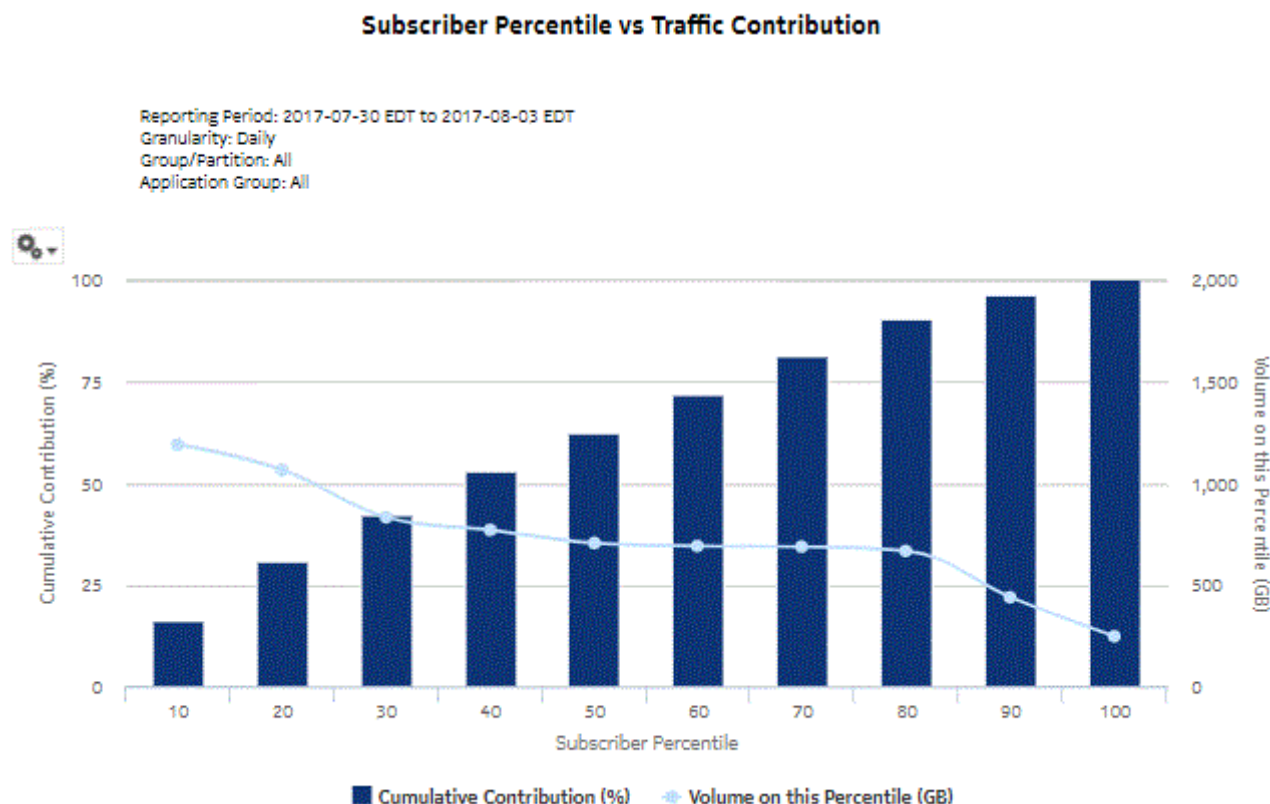
Table 7-6 Mobile Subscriber Percentile vs Traffic Contribution report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Application	
	Percentile Range	1, 5, 10, 20, or 25
Drill-down support	No	

7.6.2 Example

The following figure shows a report example.

Figure 7-10 Mobile Subscriber Percentile vs Traffic Contribution report



7.7 Top Application Groups with Selected Mobile Subscriber report

7.7.1 Top Application Groups with Selected Mobile Subscriber report overview

The Top Application Groups with Selected Mobile Subscriber report shows the top specified number of application groups by usage for a specified subscriber.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 7-7 Top Application Groups with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Mobile Subscriber name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Mobile Subscriber to display a graph of the bandwidth consumption for the selected subscriber over time. Note: Drilling down from the Others segment opens the Application Group Usage Pattern with Selected Mobile Subscriber report for all mobile subscribers, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

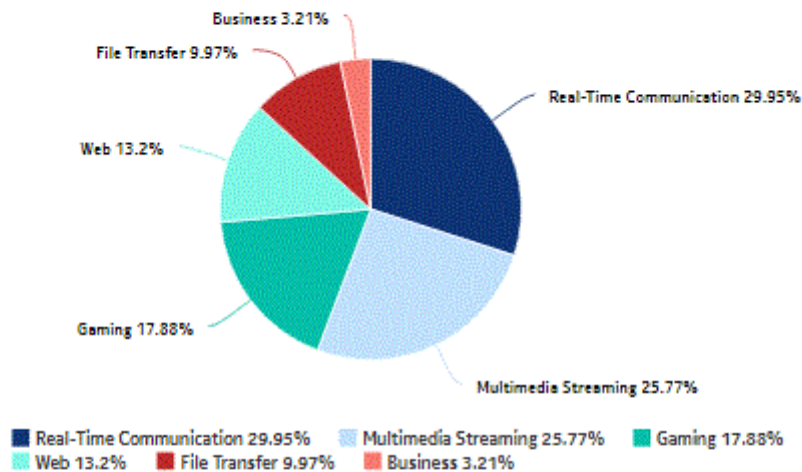
7.7.2 Example

The following figures show a report example.

Figure 7-11 Top Application Groups with Selected Mobile Subscriber report

Top 10 Application Groups with Selected Mobile Subscriber

Reporting Period: 2017-07-31 10:00 EDT to 2017-08-01 00:59 EDT
Granularity: Hourly
Mobile Subscriber: MSISDN 009346795148285
Rank: 10



Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application
1	Real-Time Communication	4.66	29.95%
2	Multimedia Streaming	4.01	25.77%
3	Gaming	2.78	17.88%
4	Web	2.05	13.20%
5	File Transfer	1.55	9.97%
6	Business	.50	3.21%
Top 10 Application Groups Subtotal		15.59	99.99%

Figure 7-12 Top Application Groups with Selected Mobile Subscriber (continued)

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	2.33	29.92%
2	Multimedia Streaming	2.01	25.80%
3	Gaming	1.39	17.86%
4	Web	1.03	13.20%
5	File Transfer	.78	9.98%
6	Business	.25	3.20%
Top 10 Application Groups Subtotal		7.79	100.00%

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	2.34	29.97%
2	Multimedia Streaming	2.01	25.74%
3	Gaming	1.40	17.89%
4	Web	1.03	13.20%
5	File Transfer	.78	9.95%
6	Business	.25	3.21%
Top 10 Application Groups Subtotal		7.80	100.00%

7.8 Top Applications with Selected Mobile Subscriber report

7.8.1 Top Applications with Selected Mobile Subscriber report overview

The Top Applications with Selected Mobile Subscriber report shows the top specified number of applications by usage for a specified subscriber.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 7-8 Top Applications with Selected Mobile Subscriber report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application	
NSP Flow Collector required	Yes	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Mobile Subscriber name	Enter the exact name including the prefix, for example, IMSI 310150123456789, IMEI 490154203237518, or MSISDN 13109976224.
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Mobile Subscriber to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Mobile Subscriber report for all applications, not just the ones in the Others category. Drilling down from other groups opens the report for the selected application.	

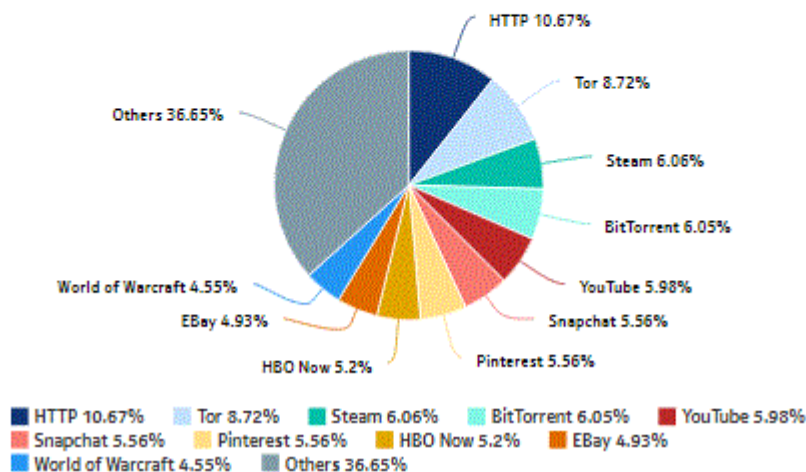
7.8.2 Example

The following figures show a report example.

Figure 7-13 Top Applications with Selected Mobile Subscriber report

Top 10 Applications with Selected Mobile Subscriber

Reporting Period: 2017-07-30 EDT to 2017-08-03 EDT
Granularity: Daily
Mobile Subscriber: MSISDN 009346795148285
Rank: 10



Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	HTTP	113.76	10.67%
2	Tor	92.98	8.72%
3	Steam	64.57	6.06%
4	BitTorrent	64.48	6.05%
5	YouTube	63.78	5.98%
6	Snapchat	59.33	5.56%
7	Pinterest	59.32	5.56%
8	HBO Now	55.46	5.20%
9	eBay	52.61	4.93%
10	World of Warcraft	48.49	4.55%
Top 10 Applications Subtotal		674.84	63.34%

Figure 7-14 Top Applications with Selected Mobile Subscriber (continued)

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	HTTP	56.86	10.67%
2	Tor	46.53	8.73%
3	BitTorrent	32.29	6.06%
4	Steam	32.29	6.06%
5	YouTube	31.86	5.98%
6	Snapchat	29.67	5.56%
7	Pinterest	29.64	5.56%
8	HBO Now	27.78	5.21%
9	EBay	26.30	4.93%
10	World of Warcraft	24.24	4.55%
Top 10 Applications Subtotal		337.44	63.35%

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	HTTP	56.90	10.68%
2	Tor	46.46	8.72%
3	Steam	32.29	6.06%
4	BitTorrent	32.20	6.04%
5	YouTube	31.93	5.99%
6	Pinterest	29.69	5.57%
7	Snapchat	29.67	5.56%
8	HBO Now	27.69	5.19%
9	EBay	26.32	4.94%
10	World of Warcraft	24.26	4.55%
Top 10 Applications Subtotal		337.40	63.33%

7.9 Top Mobile Subscribers by Application Group Usage report

7.9.1 Top Mobile Subscribers by Application Group Usage report overview

The Top Mobile Subscribers by Application Group Usage report shows the top specified number of subscribers that use the specified application groups.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

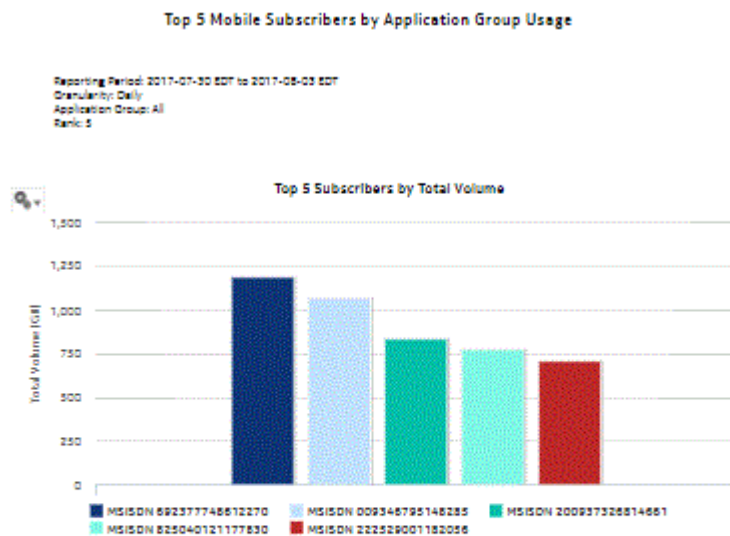
Table 7-9 Top Mobile Subscribers by Application Group Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application group	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Mobile Subscriber to display a graph of the top application groups for the selected subscriber.	

7.9.2 Example

The following figure shows a report example.

Figure 7-15 Top Mobile Subscribers by Application Group Usage report



Top 5 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	1,190.79	16.30%
2	MSISDN 009346795146285	1,065.36	14.58%
3	MSISDN 200937326814661	833.25	11.41%
4	MSISDN 825040121177830	771.16	10.55%
5	MSISDN 222529001182056	706.79	9.67%
Top 5 Subscribers Subtotal		4,567.35	62.54%

Top 5 Subscribers - Download Volume (GB)

Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.45	16.30%
2	MSISDN 009346795146285	532.63	14.58%
3	MSISDN 200937326814661	416.59	11.41%
4	MSISDN 825040121177830	385.53	10.55%
5	MSISDN 222529001182056	353.38	9.67%
Top 5 Subscribers Subtotal		2,283.58	62.54%

Top 5 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.34	16.30%
2	MSISDN 009346795146285	532.73	14.59%
3	MSISDN 200937326814661	416.66	11.41%
4	MSISDN 825040121177830	385.64	10.56%
5	MSISDN 222529001182056	353.42	9.67%
Top 5 Subscribers Subtotal		2,283.79	62.54%

7.10 Top Mobile Subscribers by Application Usage report

7.10.1 Top Mobile Subscribers by Application Usage report overview

The Top Mobile Subscribers by Application Usage report shows the top specified number of subscribers that use the specified applications.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 7-10 Top Mobile Subscribers by Application Usage report characteristics

Characteristic	Value	
Statistics type	AA Cflowd volume application	
NSP Flow Collector required	Yes	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Mobile Subscriber to display a graph of the top applications for the selected subscriber.	

7.10.2 Example

The following figures show a report example.

Figure 7-16 Top Mobile Subscribers by Application Usage report

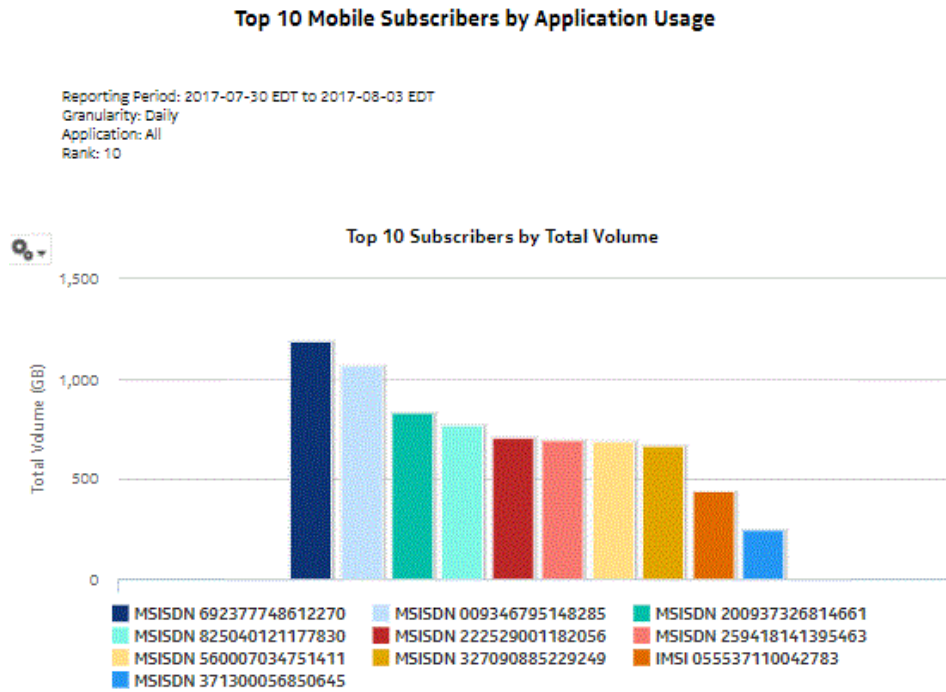


Figure 7-17 Top Mobile Subscribers by Application Usage - total volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	1,190.79	16.30%
2	MSISDN 009346795148285	1,065.36	14.58%
3	MSISDN 200937326814661	833.25	11.41%
4	MSISDN 825040121177830	771.16	10.56%
5	MSISDN 222529001182056	706.79	9.67%
6	MSISDN 259418141395463	692.24	9.47%
7	MSISDN 560007034751411	688.78	9.43%
8	MSISDN 327090885229249	667.65	9.14%
9	IMSI 055537110042783	439.23	6.01%
10	MSISDN 371300056850645	247.00	3.38%
Top 10 Subscribers Subtotal		7,302.30	100.00%

Figure 7-18 Top Mobile Subscribers by Application Usage - download volume

Top 10 Subscribers - Download Volume (GB)			
Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.45	16.30%
2	MSISDN 009346795148285	532.63	14.58%
3	MSISDN 200937326814661	416.59	11.41%
4	MSISDN 825040121177830	385.53	10.55%
5	MSISDN 222529001182056	353.38	9.67%
6	MSISDN 259418141395463	346.15	9.48%
7	MSISDN 560007034751411	344.36	9.43%
8	MSISDN 327090885229249	333.86	9.14%
9	IMSI 055537110042783	219.59	6.01%
10	MSISDN 371300056850645	123.52	3.38%
Top 10 Subscribers Subtotal		3,651.07	100.00%

Figure 7-19 Top Mobile Subscribers by Application Usage - upload volume

Top 10 Subscribers - Upload Volume (GB)			
Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	MSISDN 692377748612270	595.34	16.30%
2	MSISDN 009346795148285	532.73	14.59%
3	MSISDN 200937326814661	416.66	11.41%
4	MSISDN 825040121177830	385.64	10.56%
5	MSISDN 222529001182056	353.42	9.67%
6	MSISDN 259418141395463	346.09	9.47%
7	MSISDN 560007034751411	344.42	9.43%
8	MSISDN 327090885229249	333.80	9.14%
9	IMSI 055537110042783	219.64	6.01%
10	MSISDN 371300056850645	123.49	3.38%
Top 10 Subscribers Subtotal		3,651.23	100.00%

8 Nodes reports

8.1 Daily and Monthly Usage per Application report

8.1.1 Daily and Monthly Usage per Application report overview

The Daily and Monthly Usage per Application report shows the router-level usage for applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns on a router for planning future capacity requirements.

Market forecasting—Use the report to determine which applications are in high demand in order to offer specialized plans.

Report characteristics

The following table lists the principal report characteristics.

Table 8-1 Daily and Monthly Usage per Application report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-1 Daily and Monthly Usage per Application report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Node	Select individual items or click Select All .
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Application	
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.1.2 Example

The following figures show a report example.

Figure 8-1 Daily and Monthly Usage per Application report - total volume

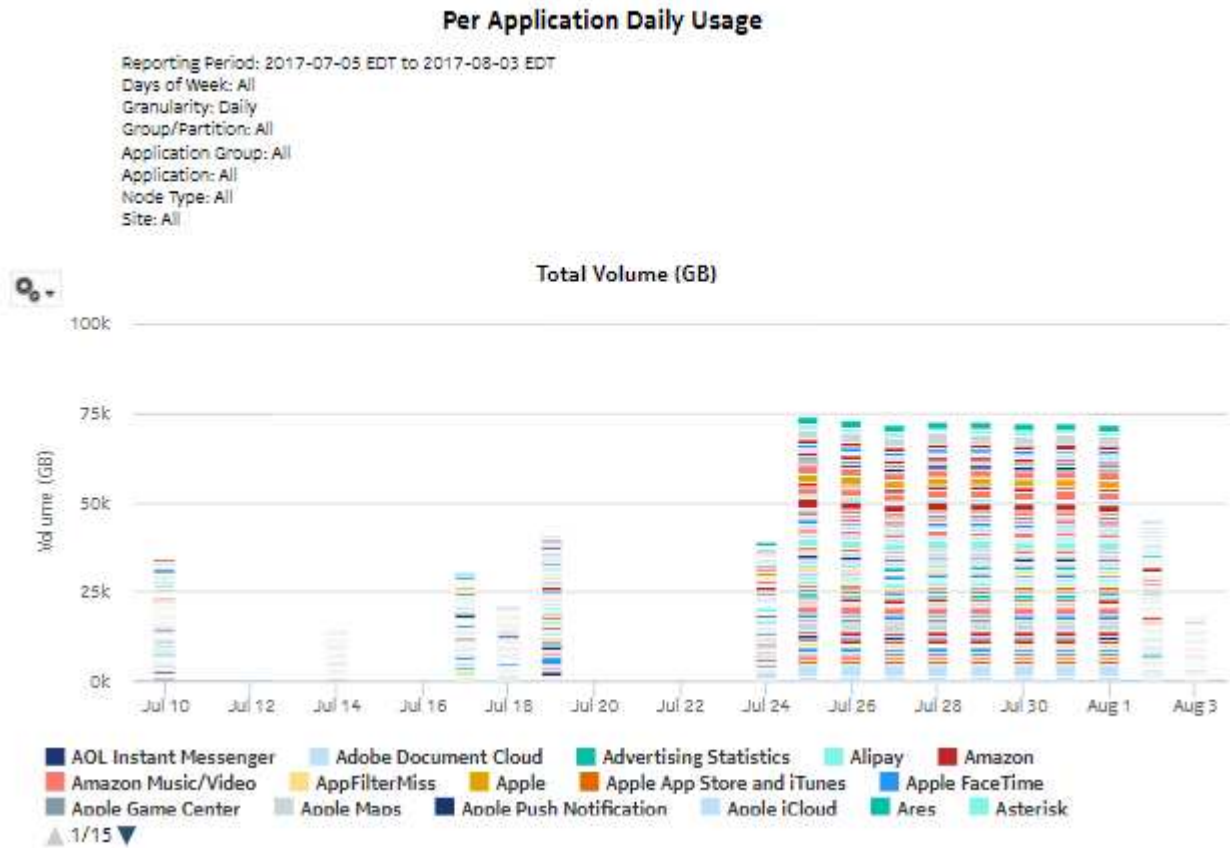


Figure 8-2 Daily and Monthly Usage per Application report - download volume

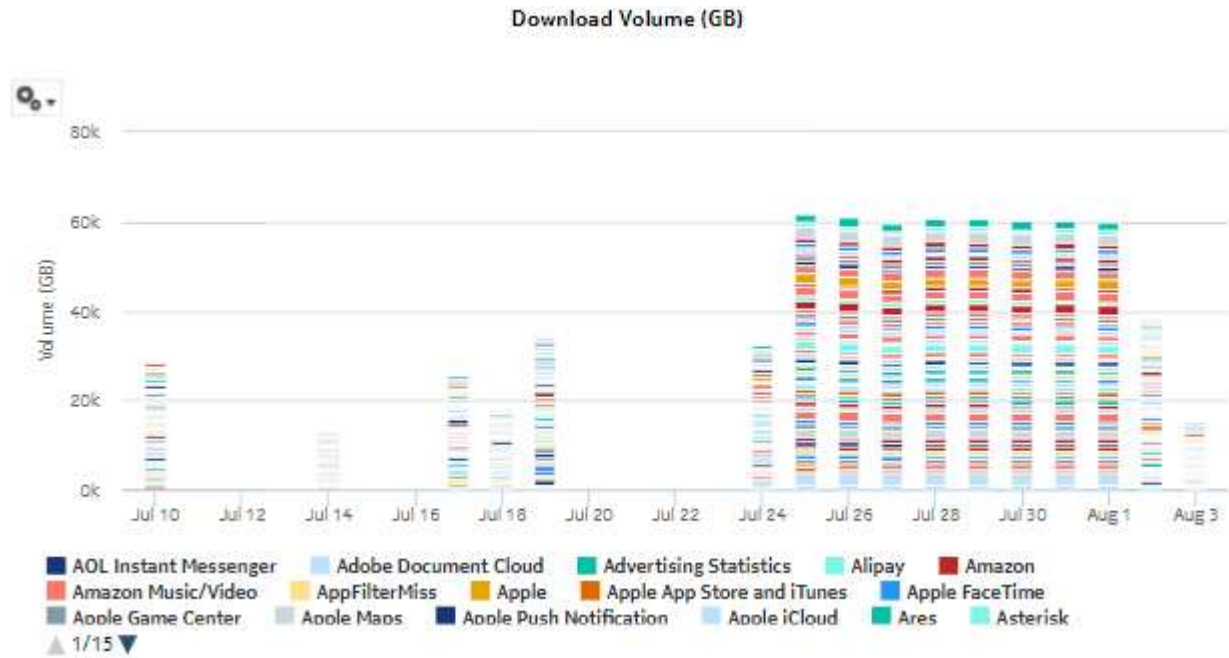
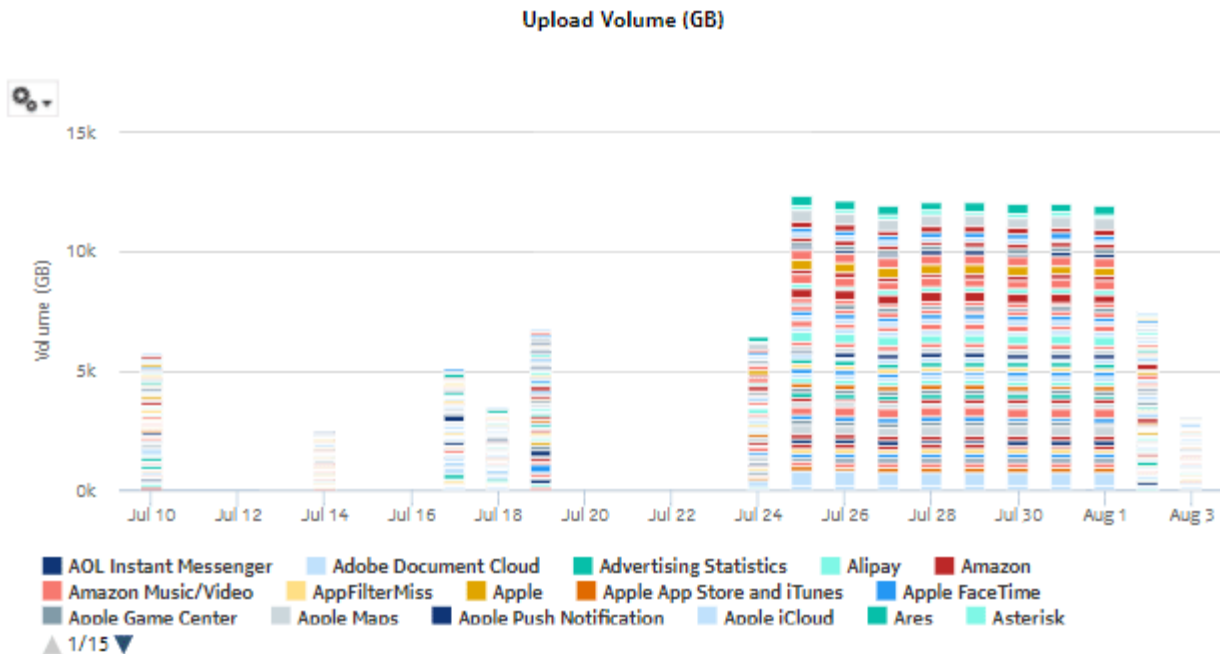


Figure 8-3 Daily and Monthly Usage per Application report - upload volume



8.2 Daily and Monthly Usage per Application Group report

8.2.1 Daily and Monthly Usage per Application Group report overview

The Daily and Monthly Usage per Application Group report shows the router-level usage for application groups.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns on a router for planning future capacity requirements.

Market forecasting—Use the report to determine which application groups are in high demand in order to offer specialized plans.

Report characteristics

The following table lists the principal report characteristics.

Table 8-2 Daily and Monthly Usage per Application Group report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-2 Daily and Monthly Usage per Application Group report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual days or click Select All .
	Node Type	Search using partial names or wildcard (%).
	Node	Select individual items or click Select All .
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.2.2 Example

The following figures show a report example.

Figure 8-4 Daily and Monthly Usage per Application Group report—total volume

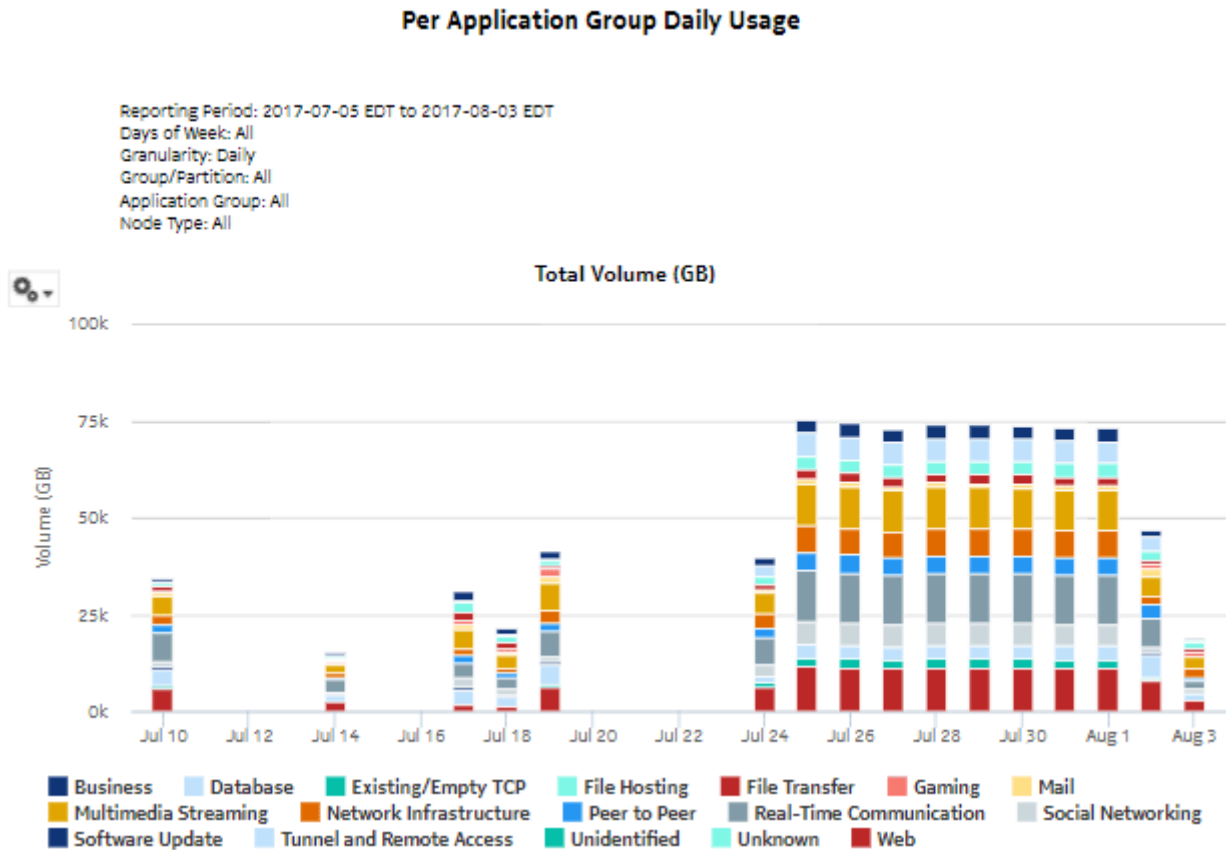


Figure 8-5 Daily and Monthly Usage per Application Group report—download volume

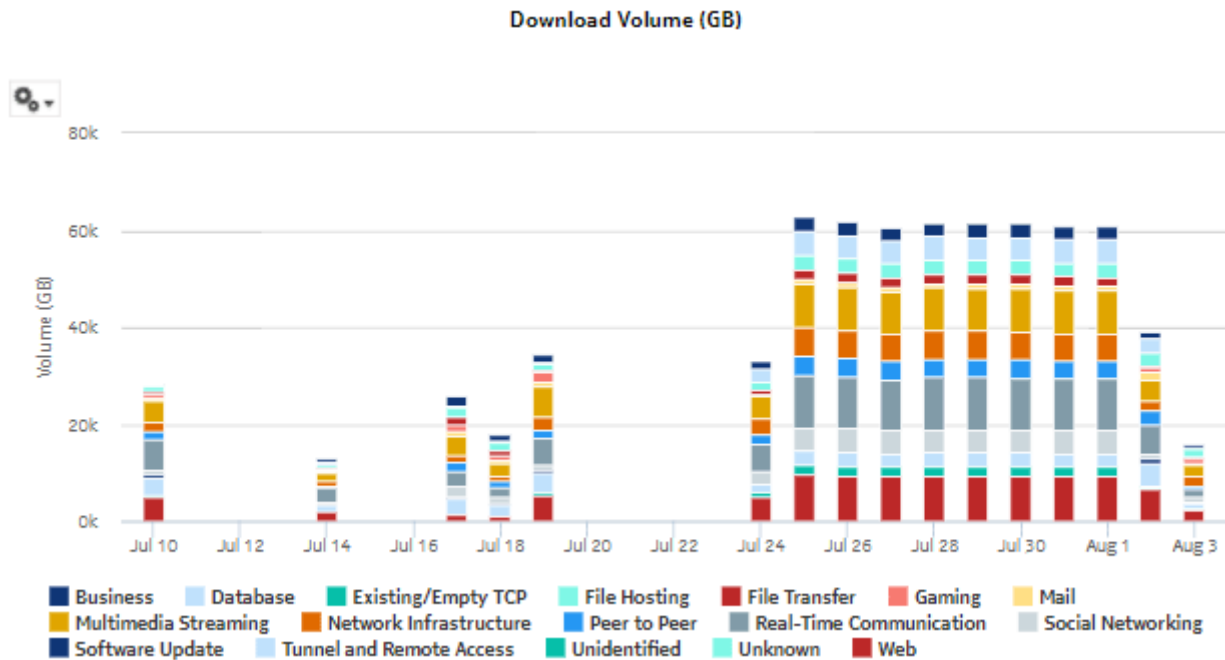
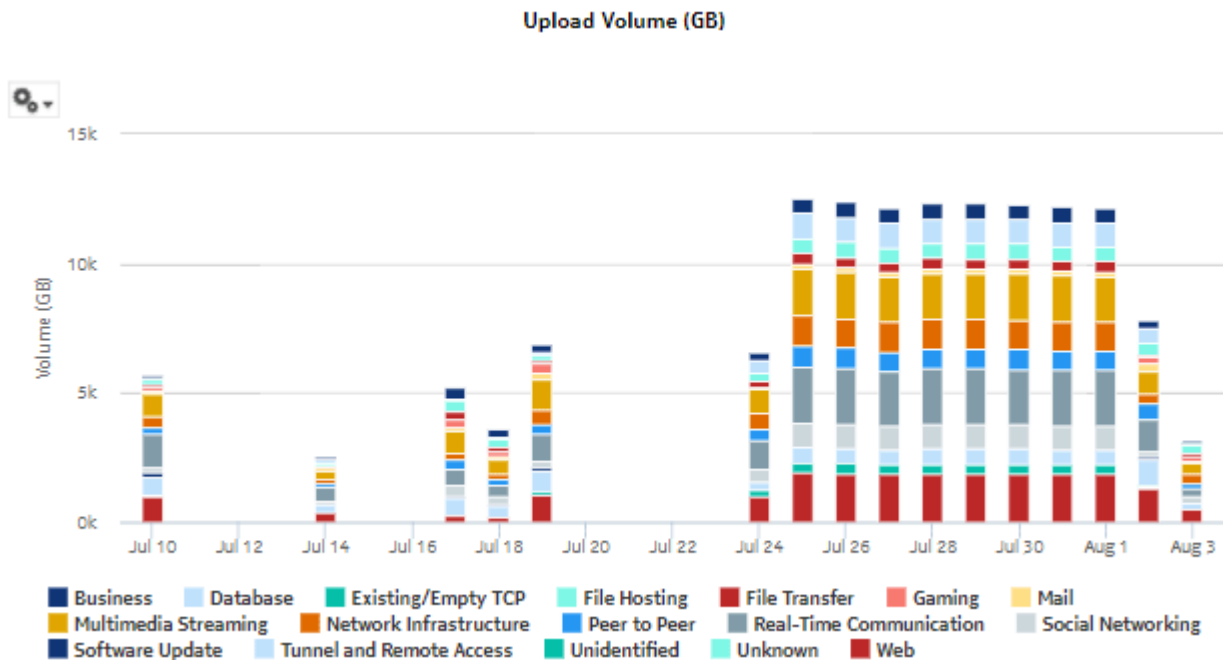


Figure 8-6 Daily and Monthly Usage per Application Group report—upload volume



8.3 IP Family Usage report

8.3.1 IP Family Usage Report overview

The IP Family Usage report shows the bandwidth usage for a specified set of protocols and applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements; for example, monitor how quickly IPv6 traffic is growing in the network.

Report characteristics

The following table lists the principal report characteristics.

Table 8-3 IP Family Usage report characteristics

Characteristic	Value
Statistics type	AA Cflowd volume application AA Accounting Configuration – AA Partition. Enable the Collect Traffic Statistics parameter on the AA Accounting Configuration form for the AA Partition accounting policy.
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-3 IP Family Usage report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w) or months (months, m) Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes or packets
	Traffic Direction	Upload, download, or both
Drill-down support	No	

8.3.2 Example

The following figures show a report example. The figures have been altered for size.

Figure 8-7 IP Family Usage Report

IP Family Usage Distribution

Reporting Period: 2017-07-30 EDT to 2017-08-03 EDT
Granularity: Daily
Group/Partition: All
Node Type: All
Site: All
Metrics: Bytes

IP Family Usage per Protocol (GB)

Protocol	V6inV6Gtp	IPv6	IPv4	DS-Lite	6RD	Total (GB)	%
TCP	155424.11	155364.60	155351.68	155554.89	155536.29	1399301.29	33.35%
UDP	155276.77	155673.71	155644.55	155079.63	155399.07	1398757.50	33.34%
Other	155293.12	155209.84	154935.29	155160.00	155531.55	1397354.34	33.31%
Total (GB)	465994.00	466248.15	465931.52	465794.52	466466.91	4195413.13	100.00%

Figure 8-8 IP Family Usage Report, #subscribers per family

Subscribers for each IP Family for Residential / Wi-Fi (ESM)

IP Family	# Subscribers
6RD	120
DS-Lite	120
IPv4	120
IPv6	120
V4inV6Gtp	120
Teredo	120
V6inV4Gtp	120
V6inV6Gtp	120
V4inV4Gtp	120

Figure 8-9 IP Family Usage Report, continued

IP Family Usage per Application - Residential / Wi-Fi (ESM) (GB)

Application	V4inV4Gtp	D5-Lite	IPv6	V6inV6Gtp	V6inV4Gtp	V4inV6Gtp	IPv4	Total (GB)	%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Google Play Store	0.00	0.00	0.00	0.00	4.04	0.00	0.00	4.04	0.06%
Microsoft Bing	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
PlayStation Now	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.70	0.01%
Pokemon Go	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00%
Facebook	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	0.00%
TiVo	0.00	0.00	8.08	0.00	0.00	0.00	0.00	8.08	0.12%
Microsoft Bing	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Netflix	0.00	0.00	0.00	0.00	3.80	0.00	0.00	3.80	0.06%
Flickr	0.00	0.00	13.58	0.00	0.00	0.00	0.00	13.58	0.20%
FTP	0.00	0.00	0.00	0.00	0.00	0.00	3.06	3.06	0.05%
Pinterest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.04	0.54%
Dropbox	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00%
PlayStation Now	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.70	0.01%
Gmail	0.00	0.00	0.00	16.45	0.00	0.00	0.00	16.45	0.24%
Microsoft Mail	0.00	0.00	17.13	0.00	0.00	0.00	0.00	17.13	0.25%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Netflix	0.00	0.00	0.00	0.00	3.80	0.00	0.00	3.80	0.06%
Steam	0.00	0.00	0.00	0.00	0.00	41.14	0.00	41.14	0.61%
Apple Maps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00%
Microsoft Office 365	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.61	0.40%
BitTorrent	0.00	31.55	0.00	0.00	0.00	0.00	0.00	31.55	0.47%
Twitter	0.00	0.00	0.00	28.45	0.00	0.00	0.00	28.45	0.42%

8.4 OTT Video Streaming Report

8.4.1 OTT Video Streaming Report overview

The OTT Video Streaming Report provides video quality of experience information to ensure subscriber service level agreements are being met. The report shows the different bit rate measurements for application video usage data and the number of active sessions. The report indicates the number of sessions in different bit rate intervals and categorizes their streaming quality.



Note: The OTT video applications must be selected from the Application drop-down menu in the prompt section of the report.



Note: This report requires special study statistics collection by an NSP Flow Collector for each OTT video application. See the pathway to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent an OTT video application, the application will appear in the report but the information provided will be invalid. If the user chooses an OTT video application that is not configured for special studies collection, the application will not appear in the report.

Use cases

Video QoE assurance—Identify potential issues affecting user experience.

SLA monitoring—Identify potential impact to service level agreements.

Report characteristics

The following table lists the principal report characteristics.

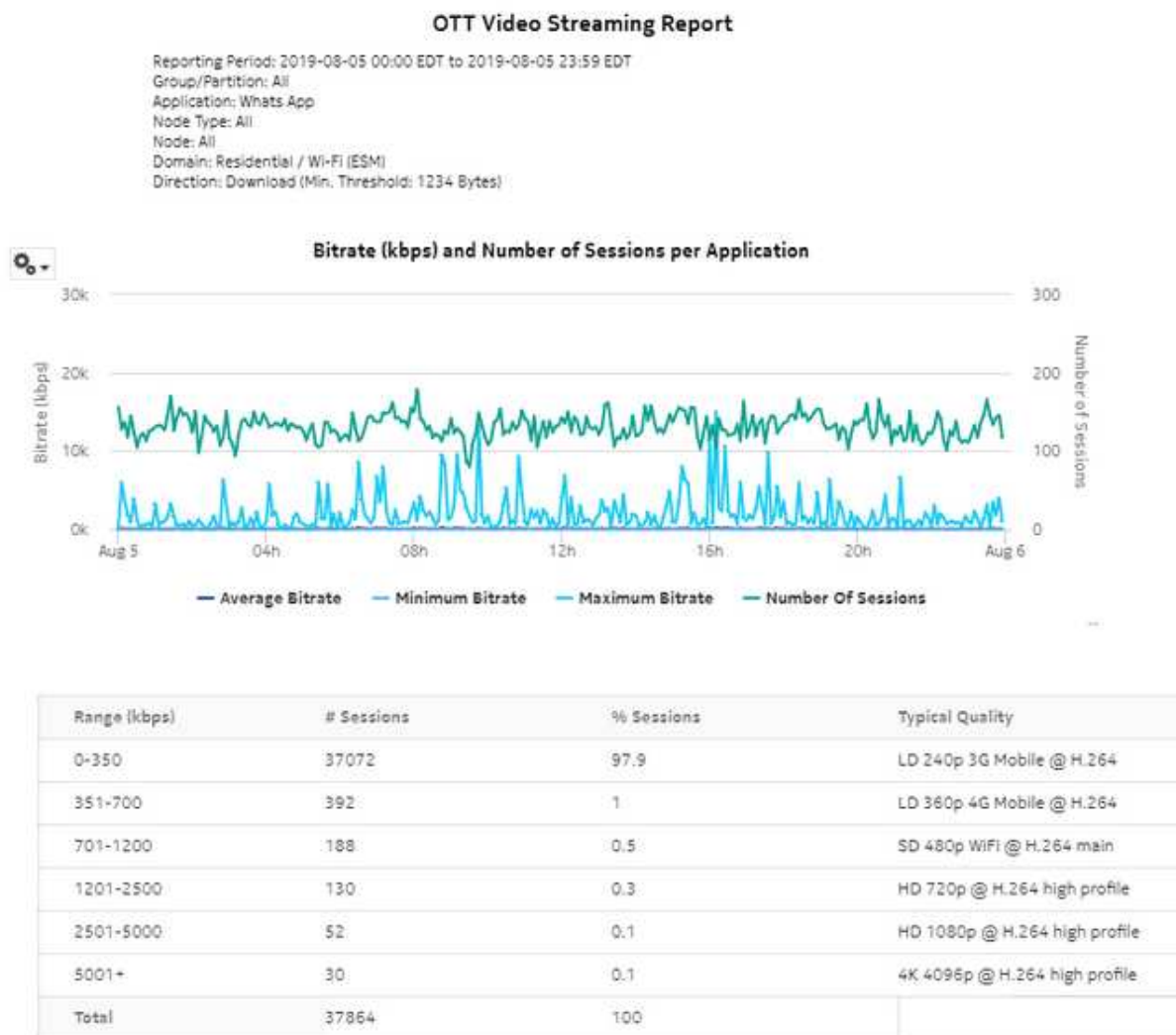
Table 8-4 OTT Video Streaming Report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%).
	Node	Select individual items or click Select All .
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Direction	Upload or download
	Minimum Threshold (in Bytes)	—
Drill-down support	No	

8.4.2 Example

The following figure shows a report example.

Figure 8-10 OTT Video Streaming Report



8.5 OTT VoIP Call Report

8.5.1 OTT VoIP Call Report overview

The OTT VoIP Call Report shows the number of OTT VoIP calls, by VoIP application, and the average call duration.



Note: The OTT VOIP applications must be selected from the Application drop-down menu in the prompt section of the report.



Note: This report requires special study statistics collection by an NSP Flow Collector for each

OTT VOIP application. See the pathway to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information. If the user chooses an application that does not represent an OTT VoIP application, the application will appear in the report but the information provided will be invalid. If the user chooses an OTT VoIP application that is not configured for special studies collection, the application will not appear in the report.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

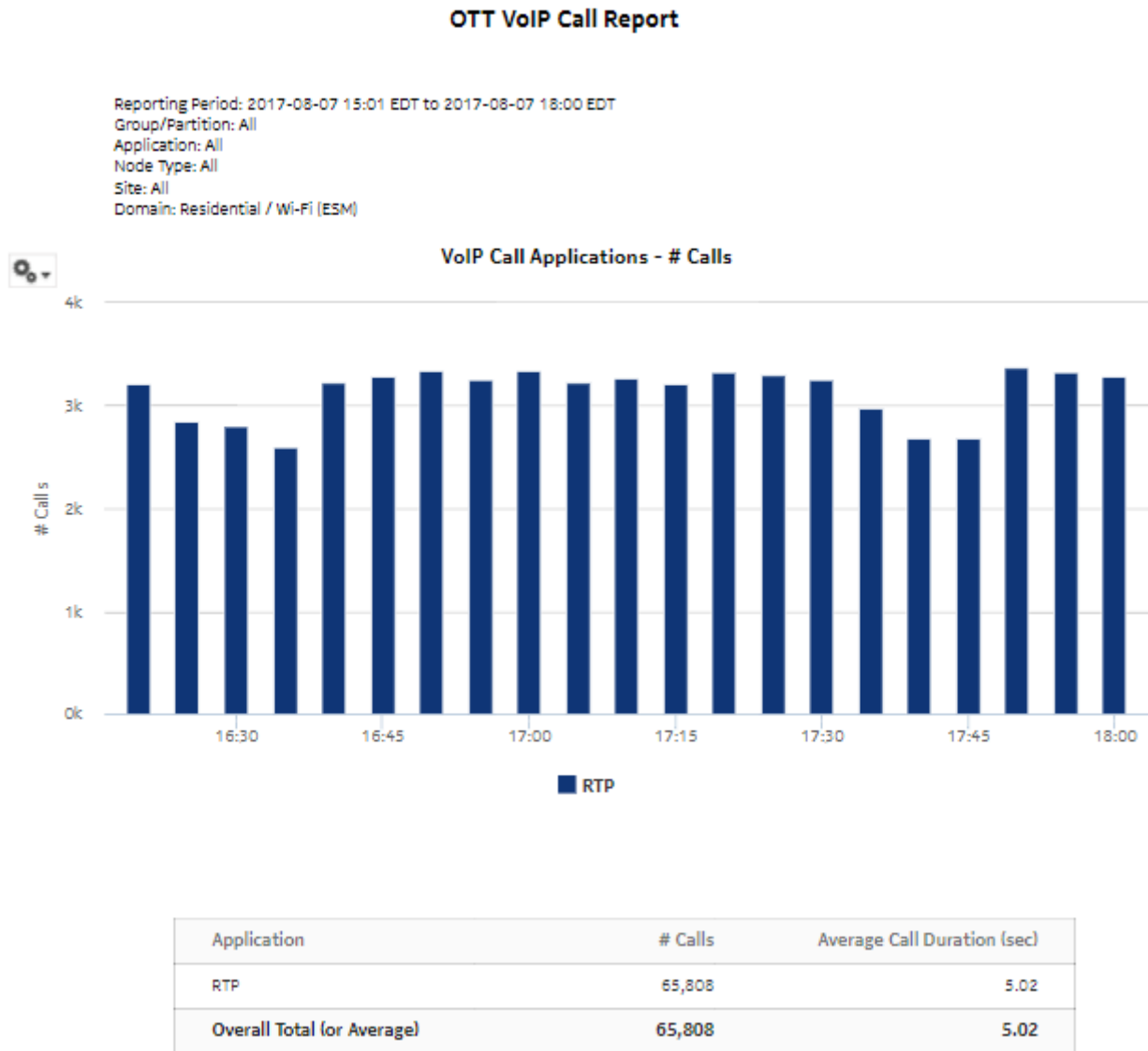
Table 8-5 OTT VoIP Call Report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes or packets
	Traffic Direction	Upload, download, or both
Drill-down support	No	

8.5.2 Example

The following figure shows a report example.

Figure 8-11 OTT VoIP Call Report



8.6 Raw and Hourly Bandwidth per Application report

8.6.1 Raw and Hourly Bandwidth per Application report overview

The Raw and Hourly Bandwidth per Application report shows the raw and hourly bandwidth consumed by a specified set of applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-6 Raw and Hourly Bandwidth per Application report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click Select All .
	Hours of Day	
	Node Type	
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Application	
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.6.2 Example

The following figures show a report example.

Figure 8-12 Raw and Hourly Bandwidth per Application report—total bandwidth

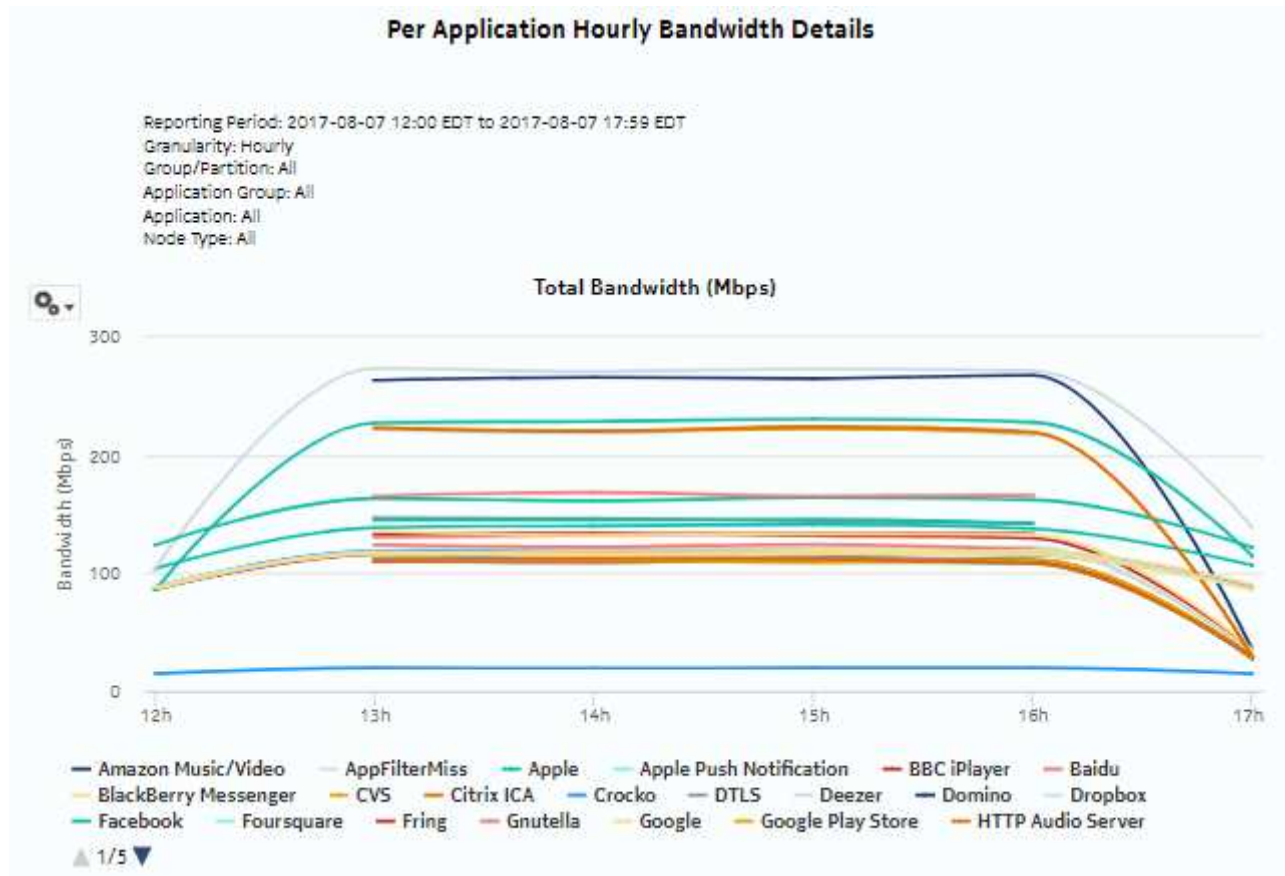


Figure 8-13 Raw and Hourly Bandwidth per Application report—download bandwidth

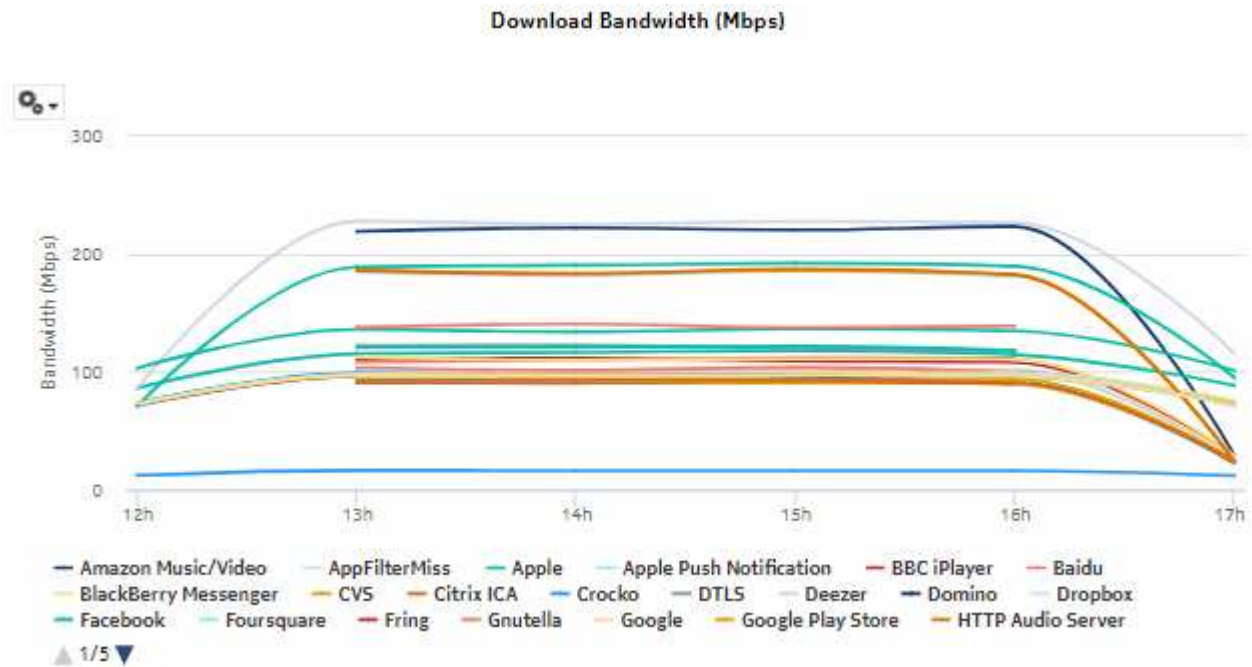
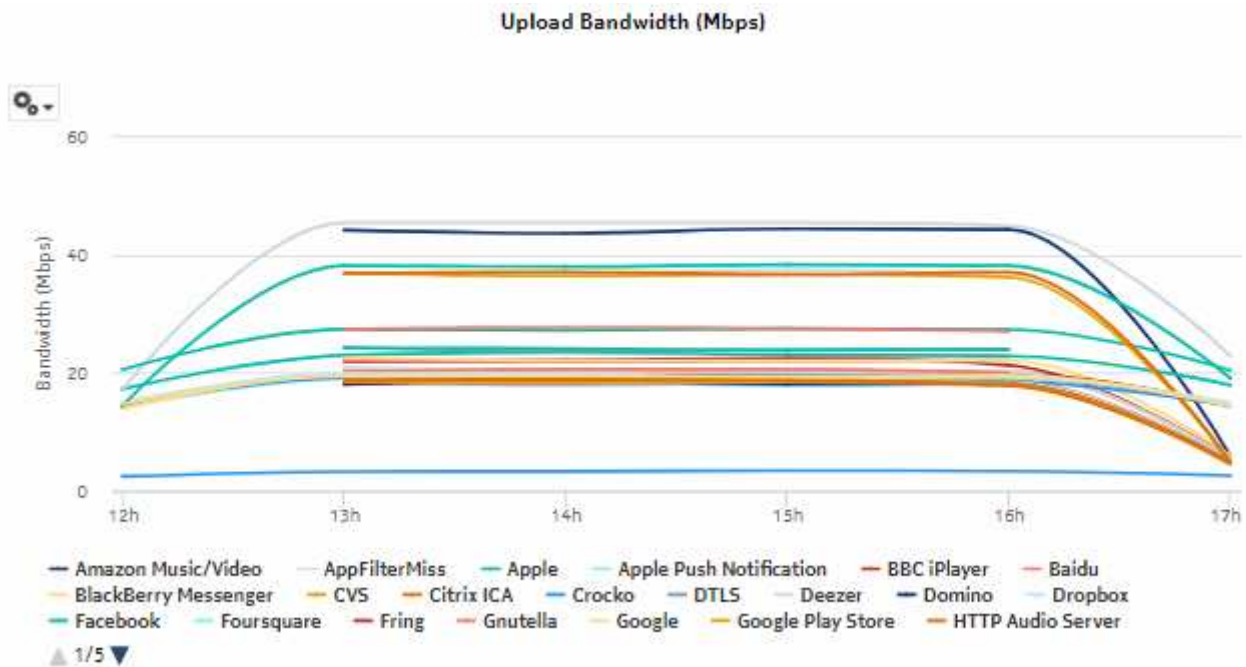


Figure 8-14 Raw and Hourly Bandwidth per Application report—upload bandwidth



8.7 Raw and Hourly Bandwidth per Application Group report

8.7.1 Raw and Hourly Bandwidth per Application Group report overview

The Raw and Hourly Bandwidth per Application Group report shows the raw and hourly bandwidth consumed by a specified set of application groups.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-7 Raw and Hourly Bandwidth per Application Group report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 8-7 Raw and Hourly Bandwidth per Application Group report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Search using partial names or wildcard (%). Select individual items or click Select All .
	Hours of Day	
	Node Type	
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets, or flows
Drill-down support	No	

8.7.2 Example

The following figures show a report example.

Figure 8-15 Raw and Hourly Bandwidth per Application Group report - total bandwidth

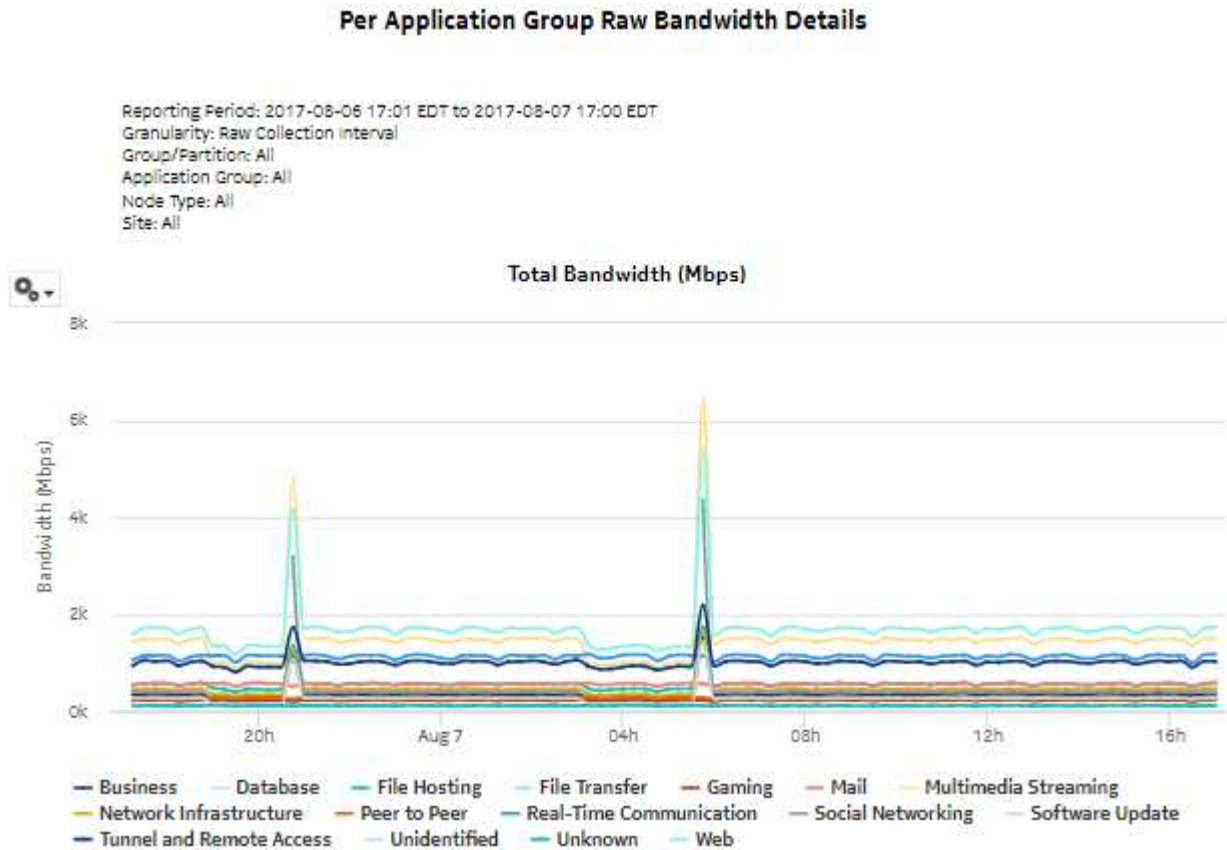


Figure 8-16 Raw and Hourly Bandwidth per Application Group report - download bandwidth

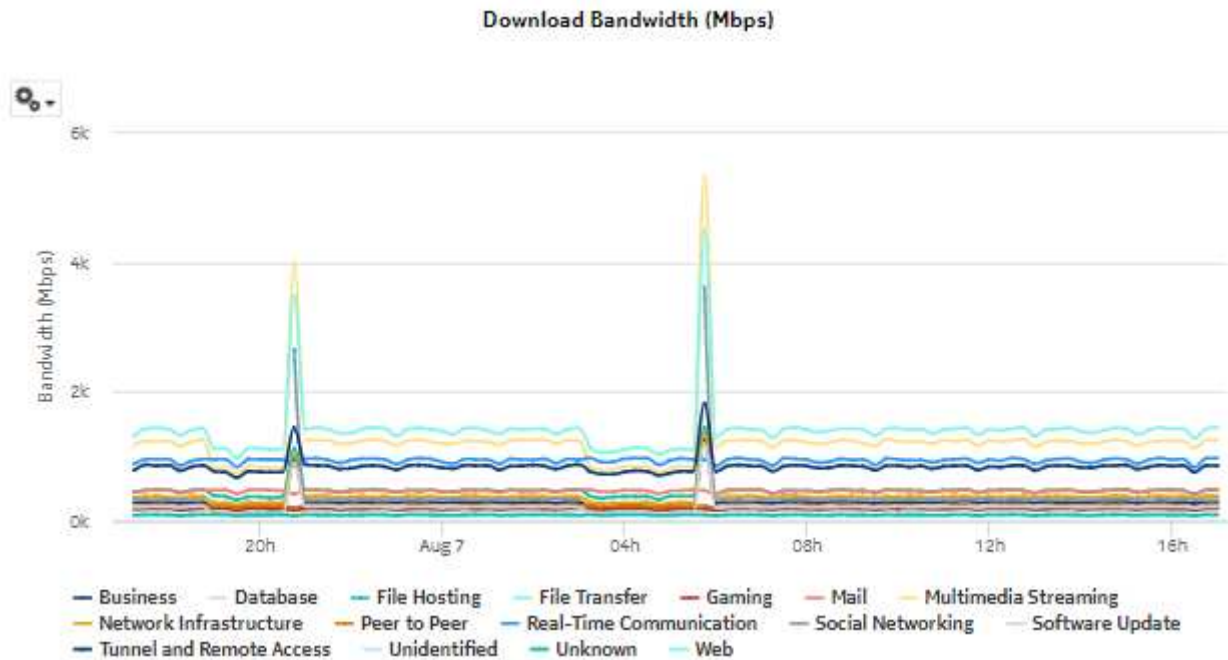
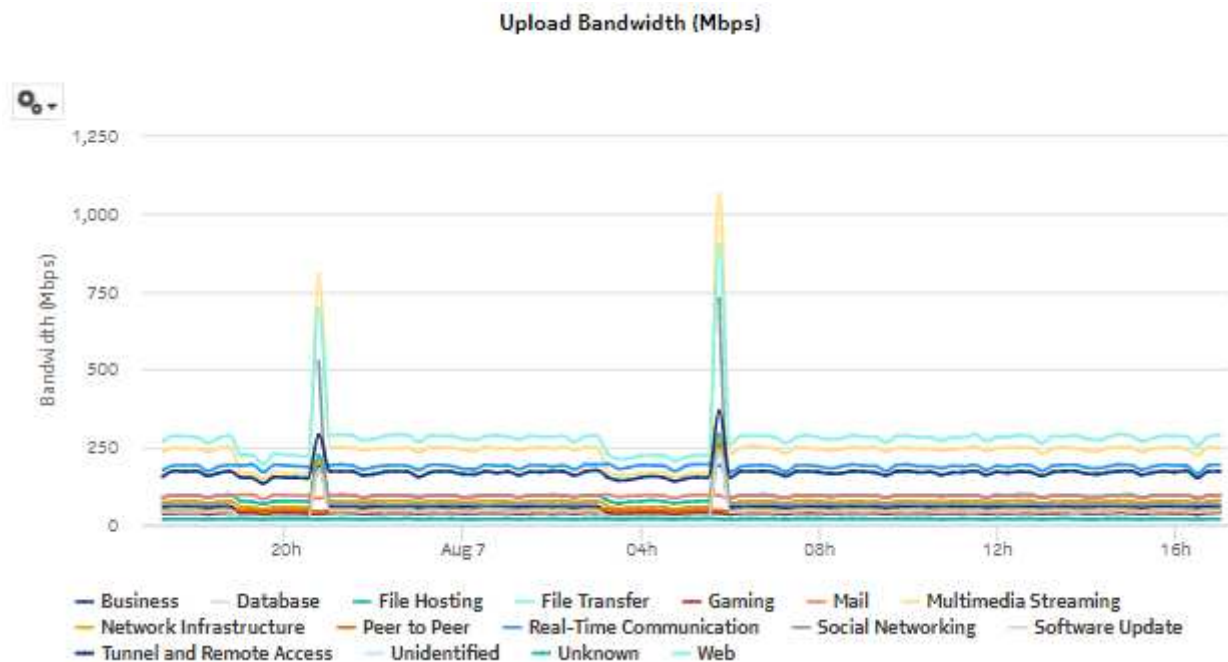


Figure 8-17 Raw and Hourly Bandwidth per Application Group report - upload bandwidth



8.8 Router Level Usage Summary report

8.8.1 Router Level Usage Summary report overview

The Router Level Usage Summary report shows a router-level summary of the traffic rate and volume for a specified time period.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 8-8 Router Level Usage Summary report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application group	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%).
	Node	Select individual items or click Select All .
Drill-down support	No	

8.8.2 Example

The following figures show a report example.

Figure 8-18 Router Level Usage Summary report—bandwidth per router

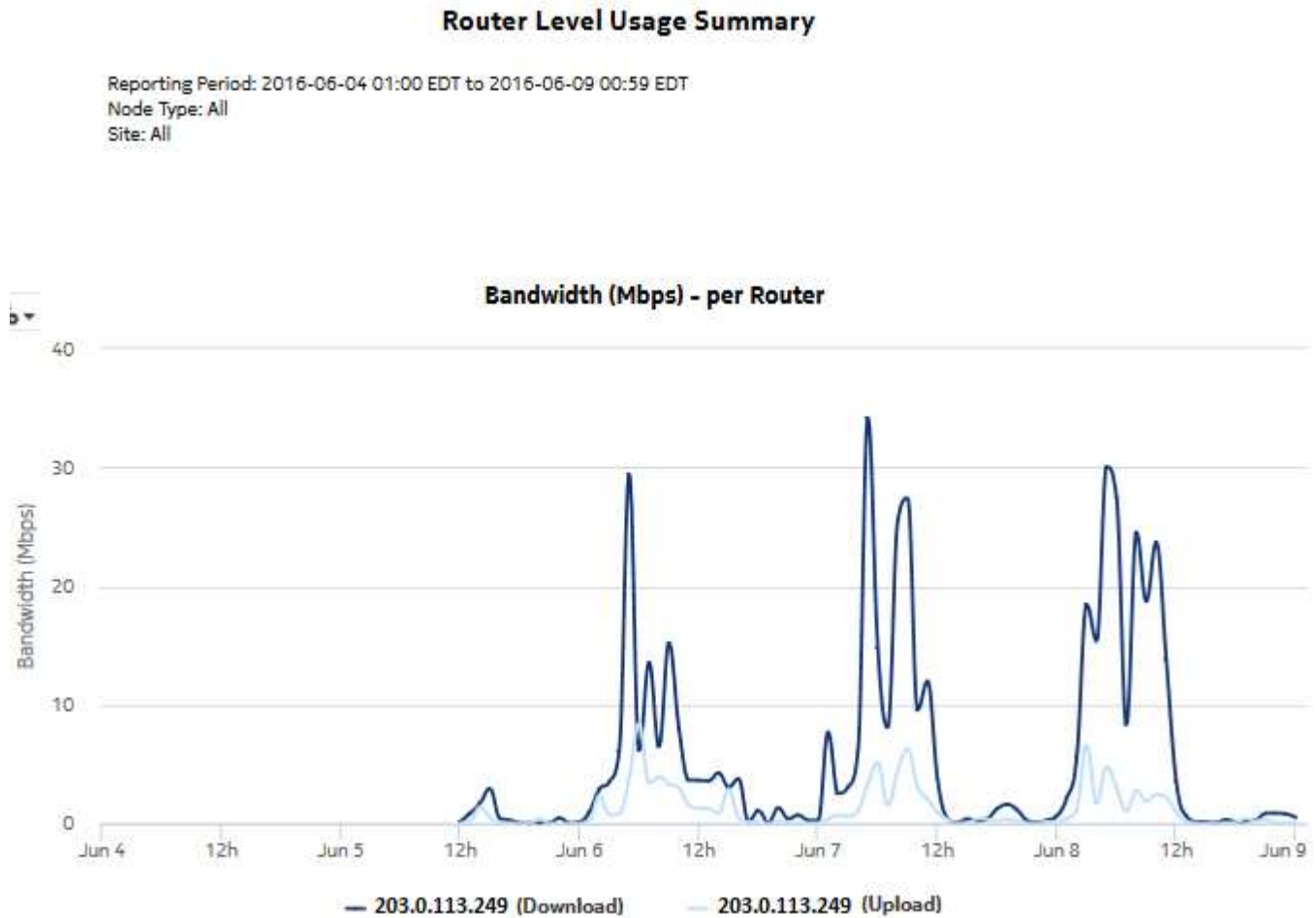


Figure 8-19 Router Level Usage Summary report—total volume

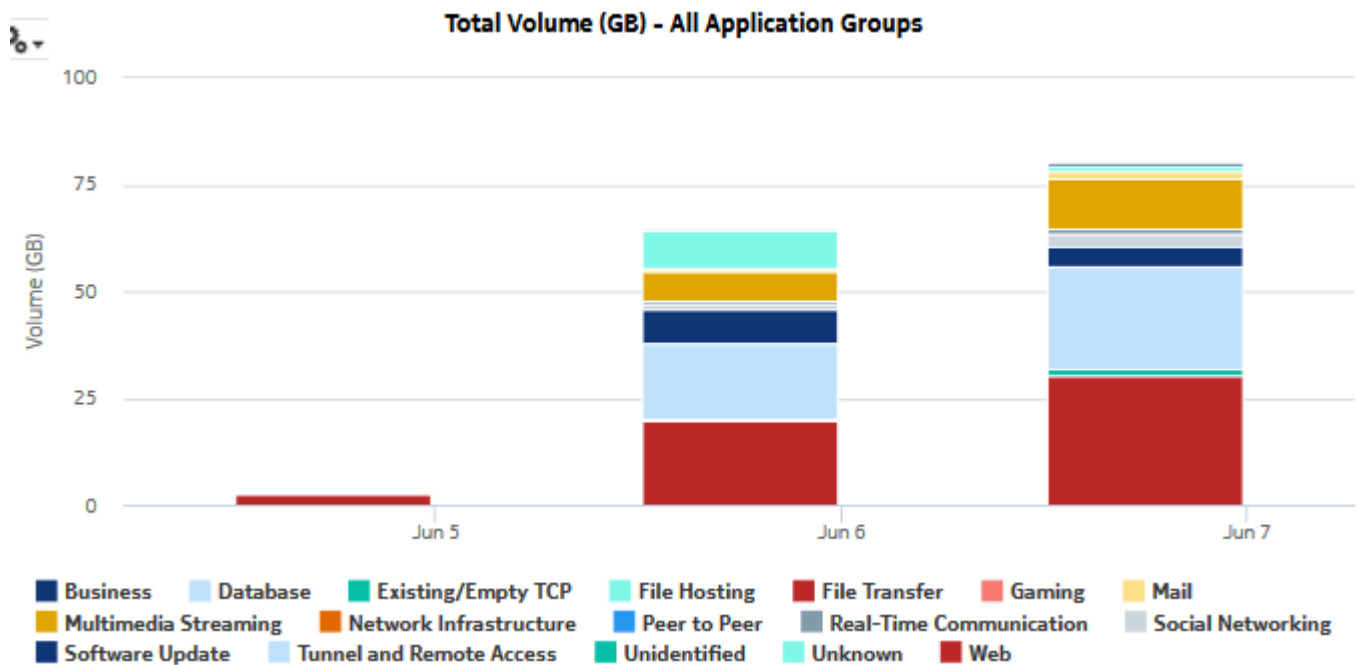


Figure 8-20 Router Level Usage Summary report—download volume

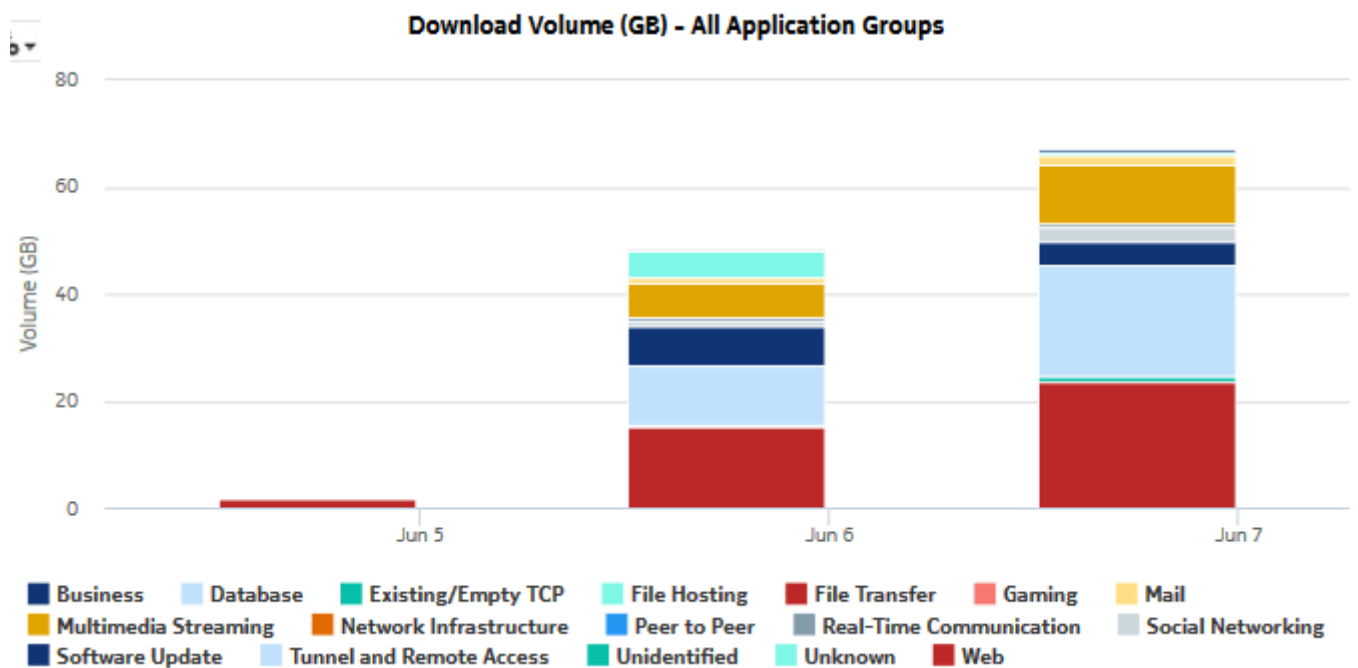
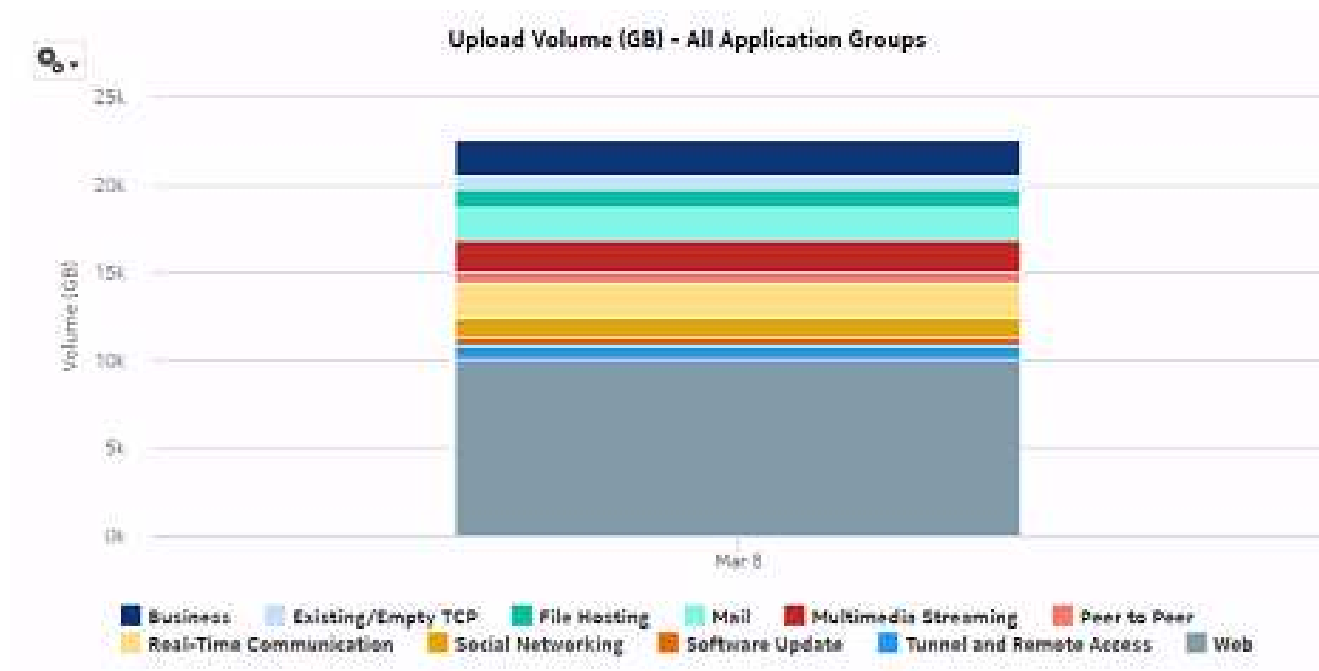


Figure 8-21 Router Level Usage Summary report - upload volume



8.9 Router Level Usage Summary with Baseline report

8.9.1 Router Level Usage Summary with Baseline report overview

The Router Level Usage Summary with Baseline report shows a router-level summary of the traffic rate and volume for a specified time period. The current results are displayed along with baseline values. See [1.1.5 “Baselining in Analytics reports” \(p. 20\)](#) for more information about how baselines are defined.

The default display is a series of line graphs showing throughput, and a series of bar charts showing volume.

For the first three line graphs, showing bandwidth per router, the baseline for one selected router is shown. For the charts showing volume by application group, one baseline per application group is shown. A small number of application groups improves report legibility.

Use cases

Capacity planning—Use the report to examine deviations from past traffic and usage patterns to identify anomalies that may require intervention.

Report characteristics

The following table lists the principal report characteristics.

Table 8-9 Router Level Usage Summary with Baseline report characteristics

Characteristic	Value	
Statistics type	AA Accounting per partition application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw data)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Application Group	
	Enable Baseline	Select the check box to include baseline data in the report.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report Range	Length of time to calculate the baseline, in minutes, hours, days, or months A longer baseline range will improve baseline accuracy.
	Baseline Definition	Select a definition to calculate the baseline. For example, "hour of day" means that current data is compared against the baseline calculated from the historical data from the same hour within the baseline time frame.
	Baseline Node for Throughput	Select one NE to use as an example for baseline data in throughput graphs.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 8-9 Router Level Usage Summary with Baseline report characteristics (continued)

Characteristic	Value
Drill-down support	No

8.9.2 Example

The following figures show a report example.

Figure 8-22 Router Level Usage Summary with Baseline report—total bandwidth per router

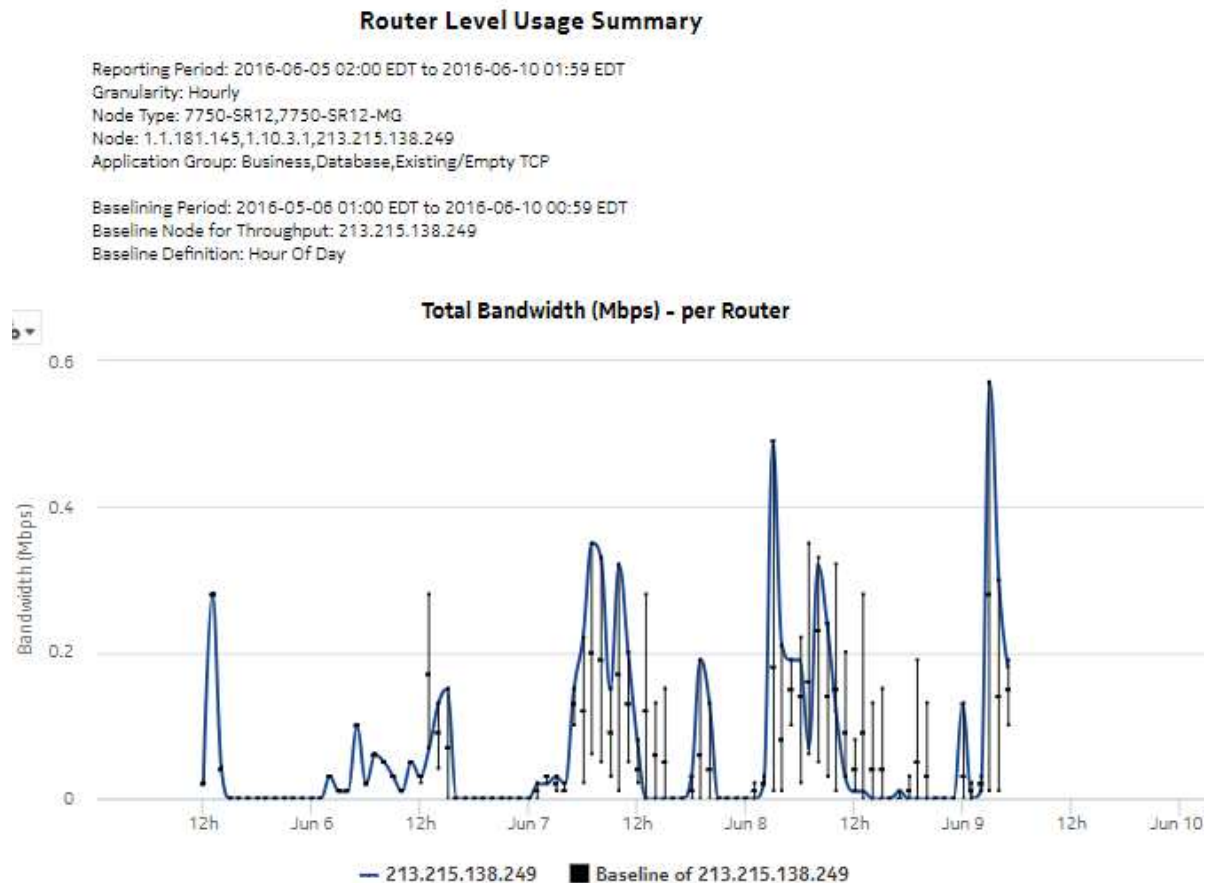


Figure 8-23 Router Level Usage Summary with Baseline report—download bandwidth per router

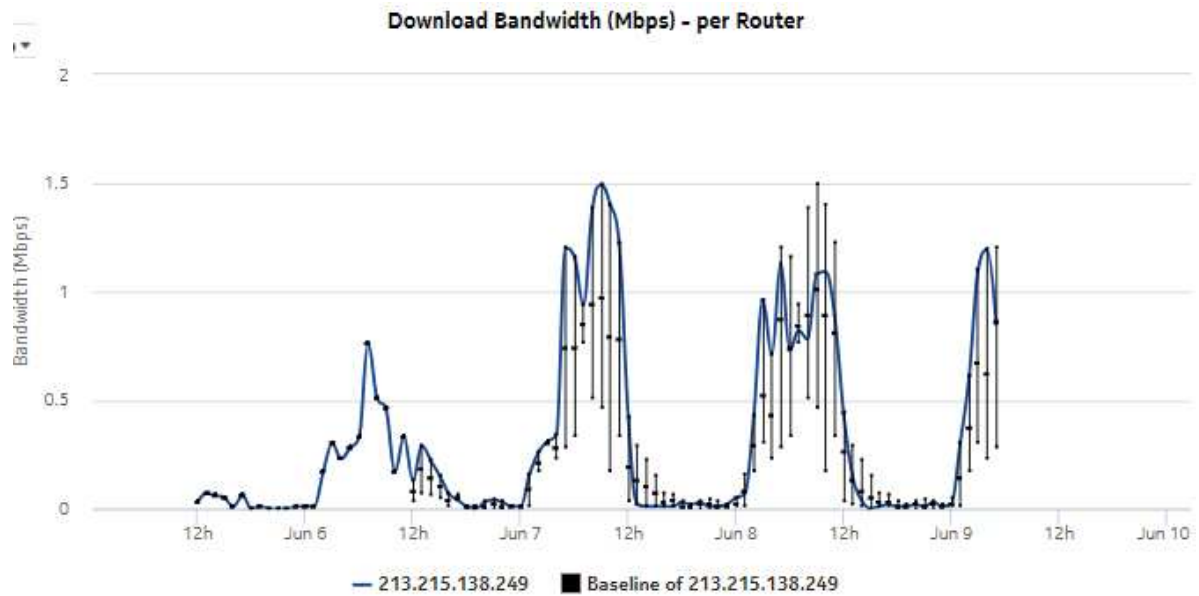


Figure 8-24 Router Level Usage Summary with Baseline report—upload bandwidth per router

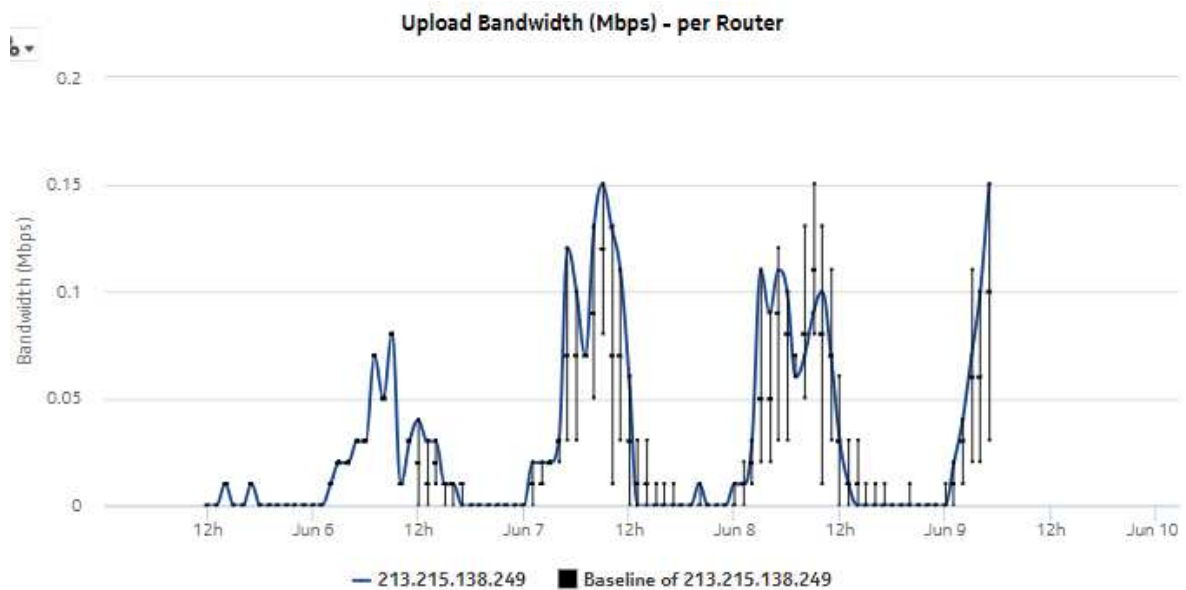


Figure 8-25 Router Level Usage Summary with Baseline report—total volume, all application groups

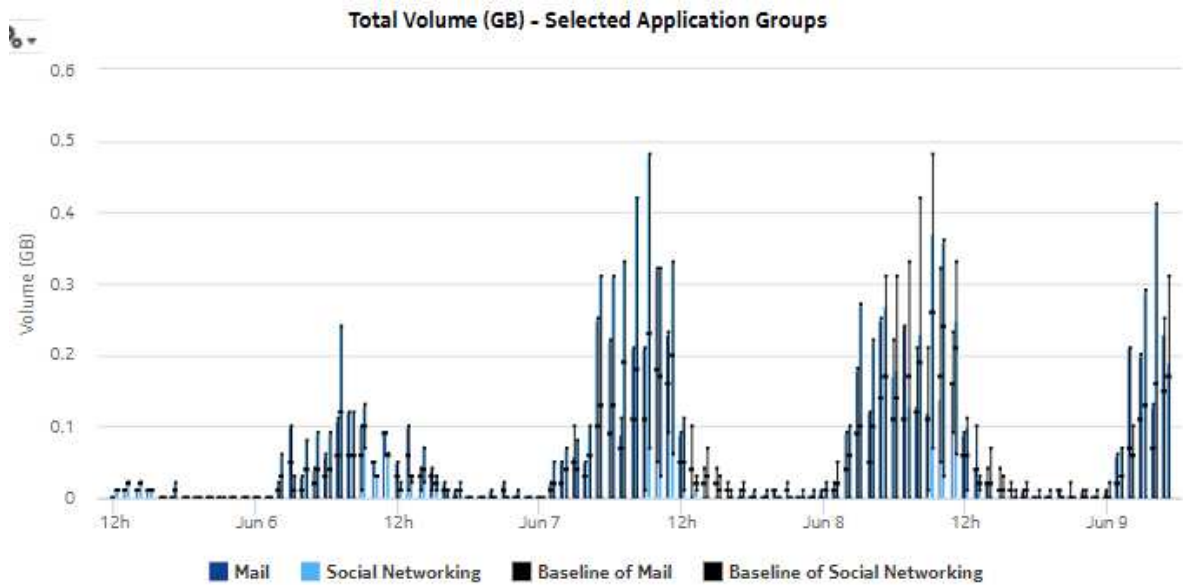


Figure 8-26 Router Level Usage Summary with Baseline report—download volume, all application groups

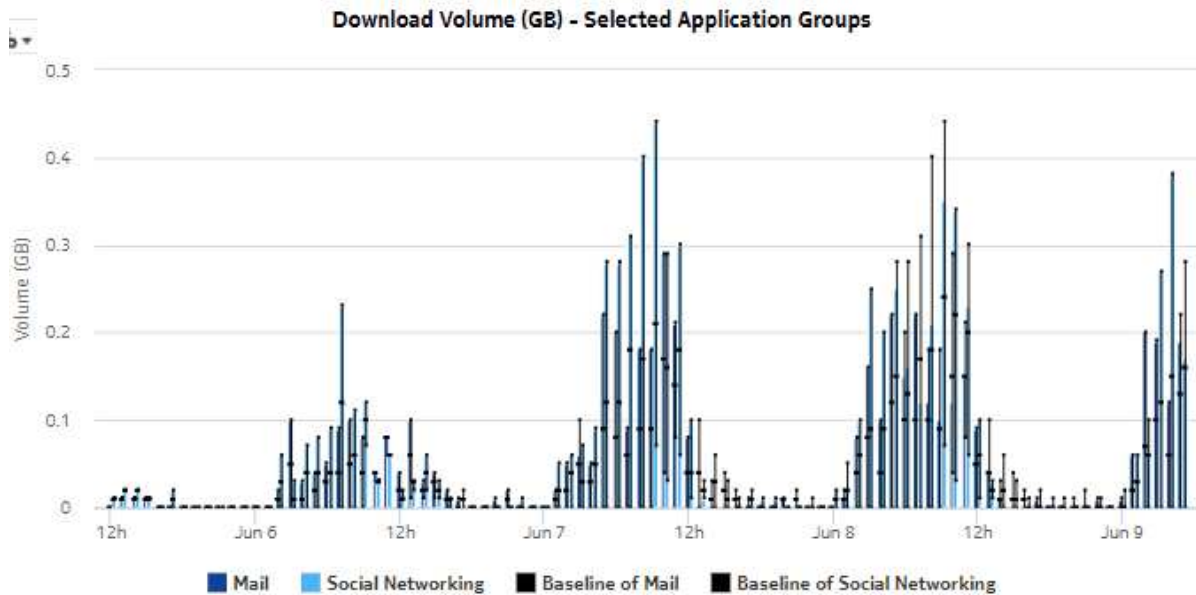
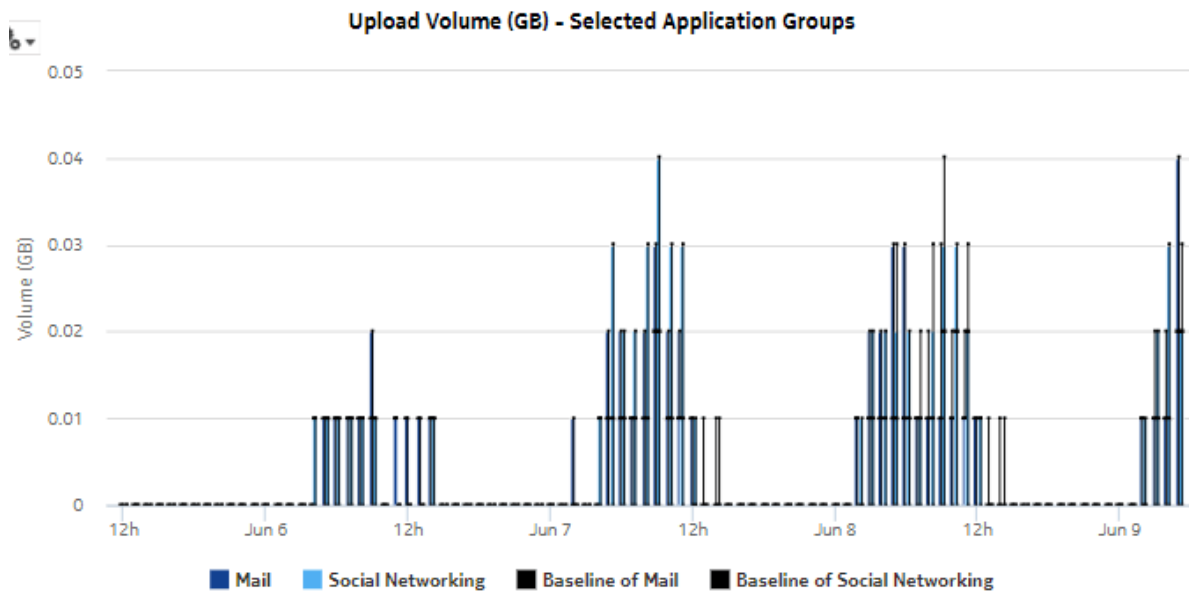


Figure 8-27 Router Level Usage Summary with Baseline report—upload volume, all application groups



8.10 Top Application Groups by Usage report

8.10.1 Top Application Groups by Usage report overview

The Top Application Groups by Usage report shows the router-level distribution of traffic among a top specified number of application groups.

Use cases

Application pattern identification—Use the report to determine which application groups consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 8-10 Top Application Groups by Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application group
NSP Flow Collector required	No

Table 8-10 Top Application Groups by Usage report characteristics (continued)

Characteristic	Value	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Selectable metrics or counters	—	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Rank	Number of items to report
Drill-down support	Yes—Display the Top Applications by Usage graph of the top applications for the selected application group. Note: Drilling down from the Others segment opens the Top Applications by Usage report for all applications, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

8.10.2 Example

The following figures show a report example.

Figure 8-28 Top Application Groups by Usage report

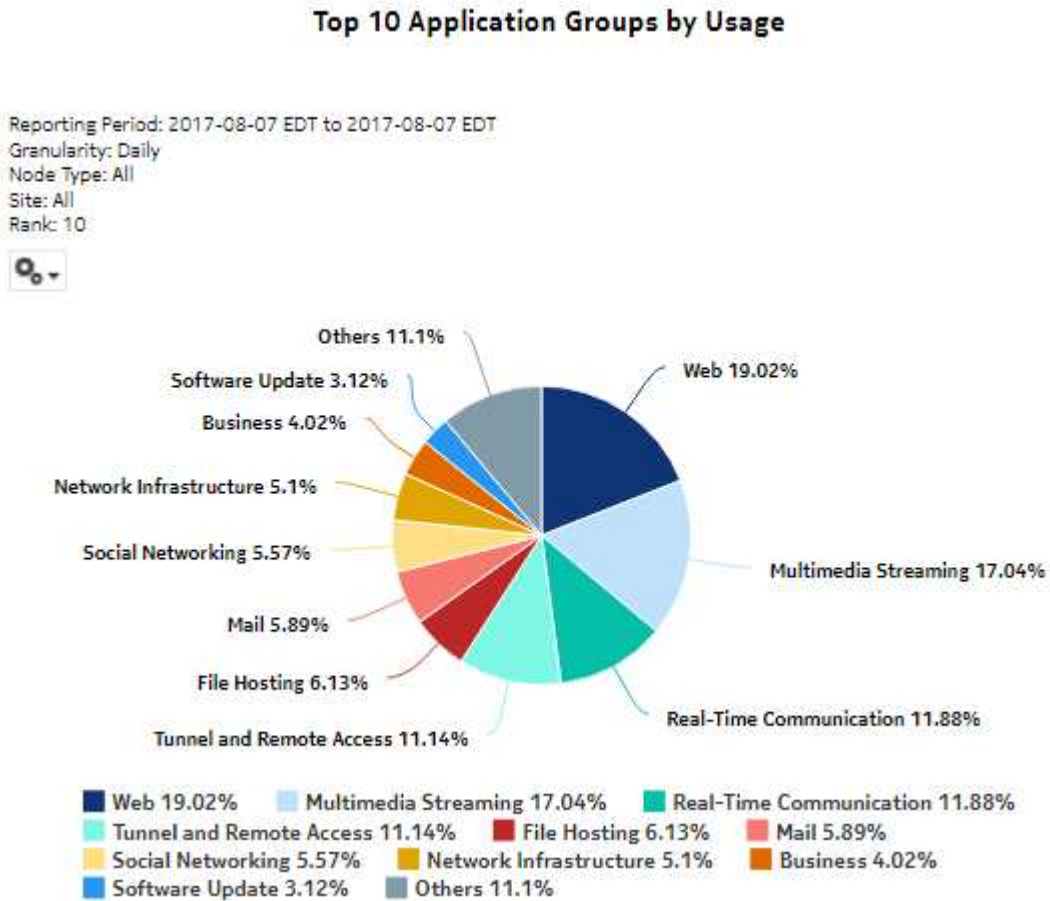


Figure 8-29 Top Application Groups by Usage - total volume

Top 10 Application Groups - Total Volume (GB)			
Rank	Application Group	Total Volume (GB)	% of All Application
1	Web	3,121.29	19.02%
2	Multimedia Streaming	2,795.72	17.04%
3	Real-Time Communication	1,949.20	11.88%
4	Tunnel and Remote Access	1,828.01	11.14%
5	File Hosting	1,005.37	6.13%
6	Mail	966.19	5.89%
7	Social Networking	913.83	5.57%
8	Network Infrastructure	837.10	5.10%
9	Business	659.13	4.02%
10	Software Update	511.78	3.12%
Top 10 Application Groups Subtotal		14,587.62	88.91%

Figure 8-30 Top Application Groups by Usage - download volume

Top 10 Application Groups - Download Volume (GB)			
Rank	Application Group	Download Volume (GB)	% of All Application Groups
1	Web	51,310.56	43.59%
2	Mail	10,882.24	9.24%
3	Business	10,320.76	8.77%
4	Real-Time Communication	9,575.72	8.13%
5	Multimedia Streaming	9,274.02	7.88%
6	Social Networking	5,873.44	4.99%
7	File Hosting	5,834.21	4.96%
8	Existing/Empty TCP	4,542.01	3.86%
9	Tunnel and Remote Access	4,481.89	3.81%
10	Peer to Peer	3,154.68	2.68%
Top 10 Application Groups Subtotal		115,249.53	97.91%

Figure 8-31 Top Application Groups by Usage - upload volume

Top 10 Application Groups - Upload Volume (GB)			
Rank	Application Group	Upload Volume (GB)	% of All Application
1	Web	520.52	19.04%
2	Multimedia Streaming	465.50	17.03%
3	Real-Time Communication	324.56	11.87%
4	Tunnel and Remote Access	305.01	11.16%
5	File Hosting	168.43	6.16%
6	Mail	159.68	5.84%
7	Social Networking	152.48	5.58%
8	Network Infrastructure	139.34	5.10%
9	Business	110.10	4.03%
10	Software Update	84.84	3.10%
Top 10 Application Groups Subtotal		2,430.46	88.91%

8.11 Top Applications by Usage report

8.11.1 Top Applications by Usage report overview

The Top Application by Usage report shows the router-level distribution of traffic among a top specified number of applications.

Use cases

Application pattern identification—Use the report to determine which applications consume disproportionate network resources, and at which times of the day.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 8-11 Top Applications by Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting per partition application

Table 8-11 Top Applications by Usage report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Application Group	
	Rank	Number of items to report
Drill-down support	No	

8.11.2 Example

The following figures show a report example.

Figure 8-32 Top Applications by Usage report

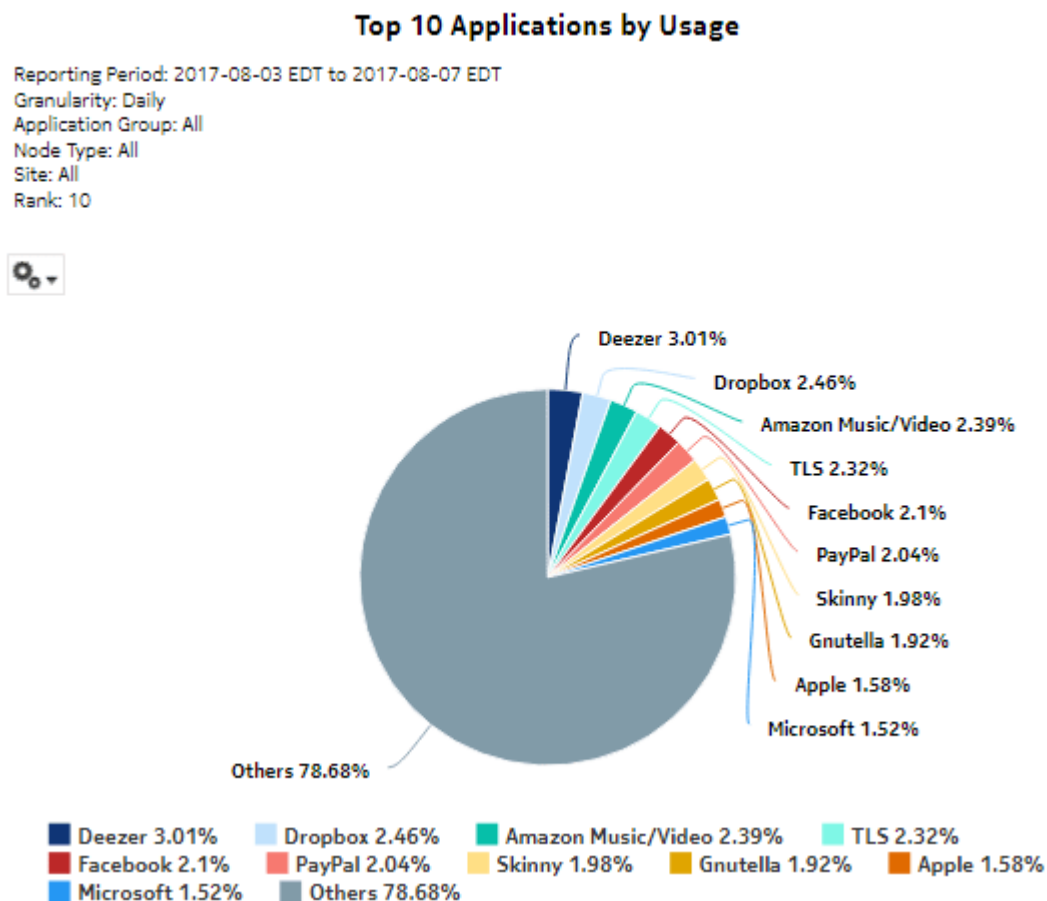


Figure 8-33 Top Applications by Usage—Total Volume

Top 10 Applications - Total Volume (GB)			
Rank	Application	Total Volume (GB)	% of All Applications
1	Deezer	3,320.81	3.01%
2	Dropbox	2,715.74	2.46%
3	Amazon Music/Video	2,641.37	2.39%
4	TLS	2,567.35	2.32%
5	Facebook	2,317.96	2.10%
6	PayPal	2,250.03	2.04%
7	Skinny	2,190.11	1.98%
8	Gnutella	2,122.59	1.92%
9	Apple	1,748.61	1.58%
10	Microsoft	1,683.11	1.52%
Top 10 Applications Subtotal		23,557.68	21.32%

Figure 8-34 Top Applications by Usage—Download Volume

Top 10 Applications - Download Volume (GB)			
Rank	Application	Download Volume (GB)	% of All Applications
1	Deezer	2,766.17	3.00%
2	Dropbox	2,262.53	2.46%
3	Amazon Music/Video	2,202.37	2.39%
4	TLS	2,138.55	2.32%
5	Facebook	1,931.70	2.10%
6	PayPal	1,875.30	2.04%
7	Skinny	1,825.01	1.98%
8	Gnutella	1,768.46	1.92%
9	Apple	1,457.83	1.58%
10	Microsoft	1,402.92	1.52%
Top 10 Applications Subtotal		19,630.84	21.31%

Figure 8-35 Top Applications by Usage—Upload Volume

Top 10 Applications - Upload Volume (GB)			
Rank	Application	Upload Volume (GB)	% of All Applications
1	Deezer	554.64	3.01%
2	Dropbox	453.21	2.46%
3	Amazon Music/Video	439.00	2.38%
4	TLS	428.80	2.33%
5	Facebook	386.26	2.10%
6	PayPal	374.73	2.03%
7	Skinny	365.11	1.98%
8	Gnutella	354.13	1.92%
9	Apple	290.78	1.58%
10	Microsoft	280.20	1.52%
Top 10 Applications Subtotal		3,926.86	21.31%

9 Performance reports

9.1 Performance reports overview

9.1.1 General information

Performance reports provide information about network performance and quality.

Drill-down reports

All reports can be run from the main Performance reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Performance reports. Each level of indentation indicates a drill down. For example, DNS Performance RTT Details and DNS Performance Session Details are drill-down reports from a DNS Performance Summary report.

Table 9-1 Available drill-downs for Performance reports

DNS Performance Summary	
	DNS Performance RTT Details DNS Performance Session Details
TCP Performance Report for Selected Application Group	
	TCP Performance Report - Worst Performing Applications

9.2 DNS Performance RTT Details report

9.2.1 DNS Performance RTT Details report overview

The DNS Performance RTT Details report shows the network quality in terms of DNS responsiveness for the selected DNS servers.

Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report.

Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the pathway to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to identify potential DNS server issues by DNS server type, or potential network issues that affect one or more DNS server types.

Report characteristics

The following table lists the principal report characteristics.

Table 9-2 DNS Performance RTT Details report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	No	

9.2.2 Example

The following figures show a report example.

Figure 9-1 DNS Performance RTT Details report

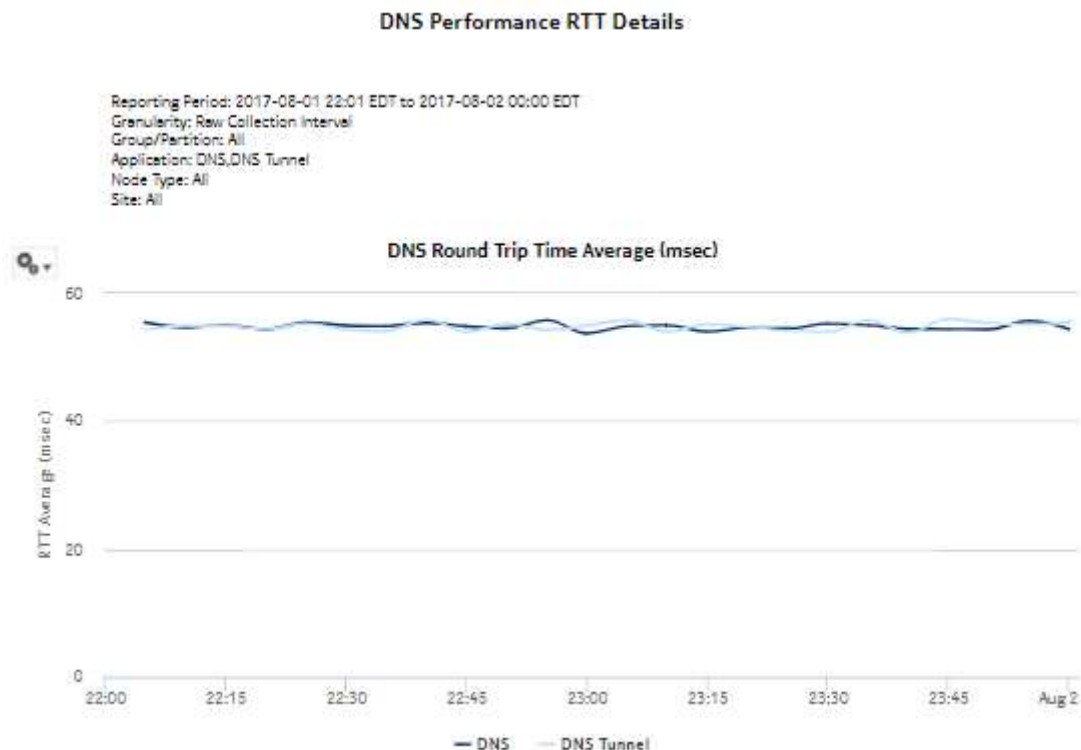
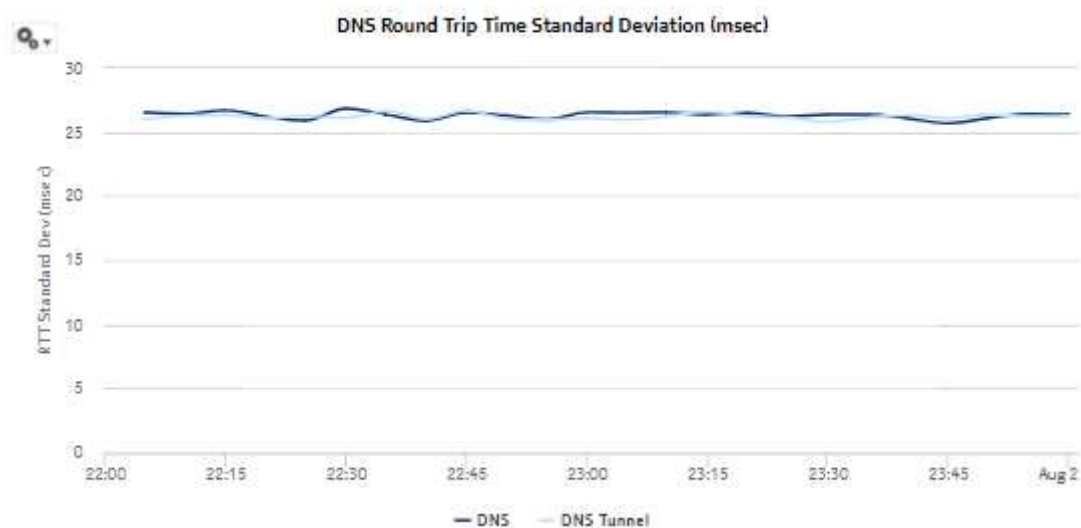


Figure 9-2 DNS Performance RTT Details report, continued



9.3 DNS Performance Session Details report

9.3.1 DNS Performance Session Details report overview

The DNS Performance Session Details report shows the number of DNS sessions for a specified set of applications.

i Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report

i Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the pathway to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to identify potential DNS server issues by DNS server type, or potential network issues that affect one or more DNS server types.

Report characteristics

The following table lists the principal report characteristics.

Table 9-3 DNS Performance Session Details report characteristics

Characteristic	Value
Statistics type	AA Cflowd comprehensive special study
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business
Selectable metrics or counters	—
Aggregation types	None (raw data) Hourly

Table 9-3 DNS Performance Session Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	No	

9.3.2 Example

The following figures show a report example.

Figure 9-3 DNS Performance Session Details report

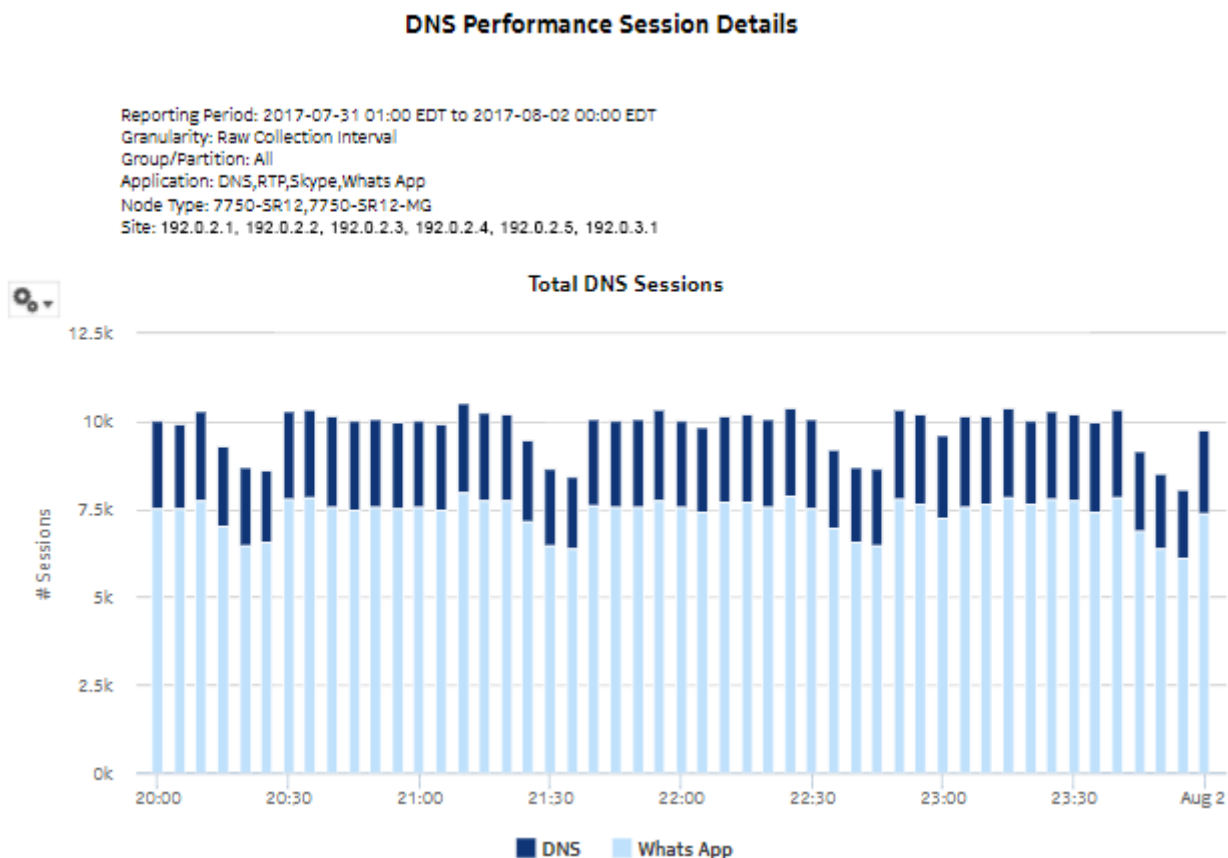


Figure 9-4 DNS Performance Session Details report—Successful DNS Sessions

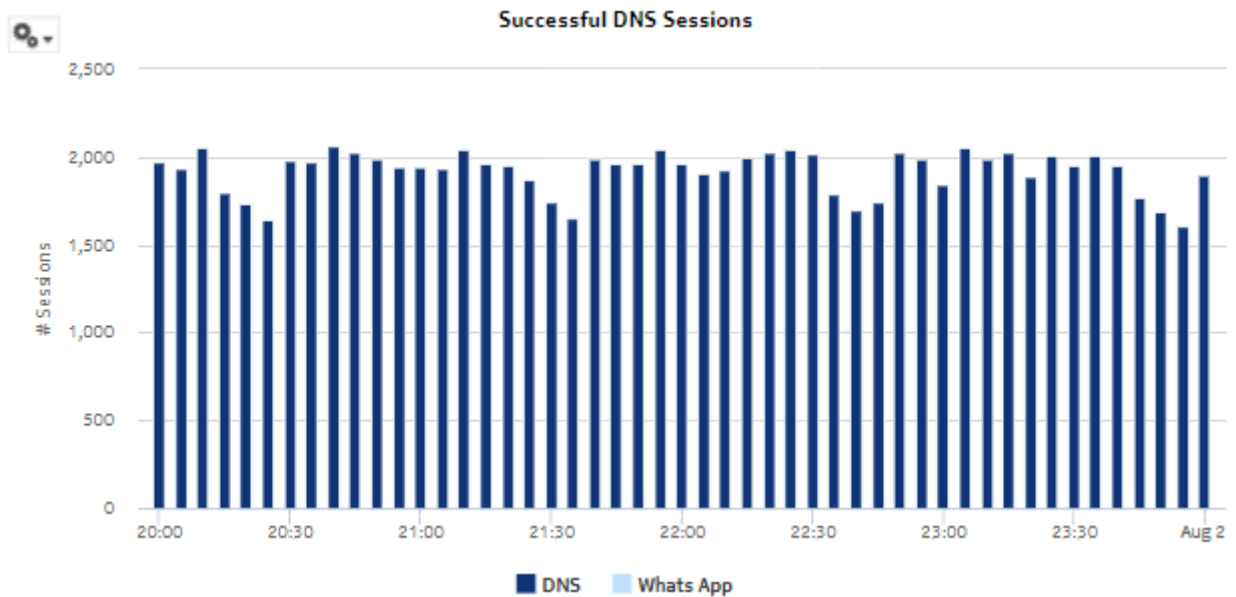


Figure 9-5 DNS Performance Session Details report—Failed DNS Sessions

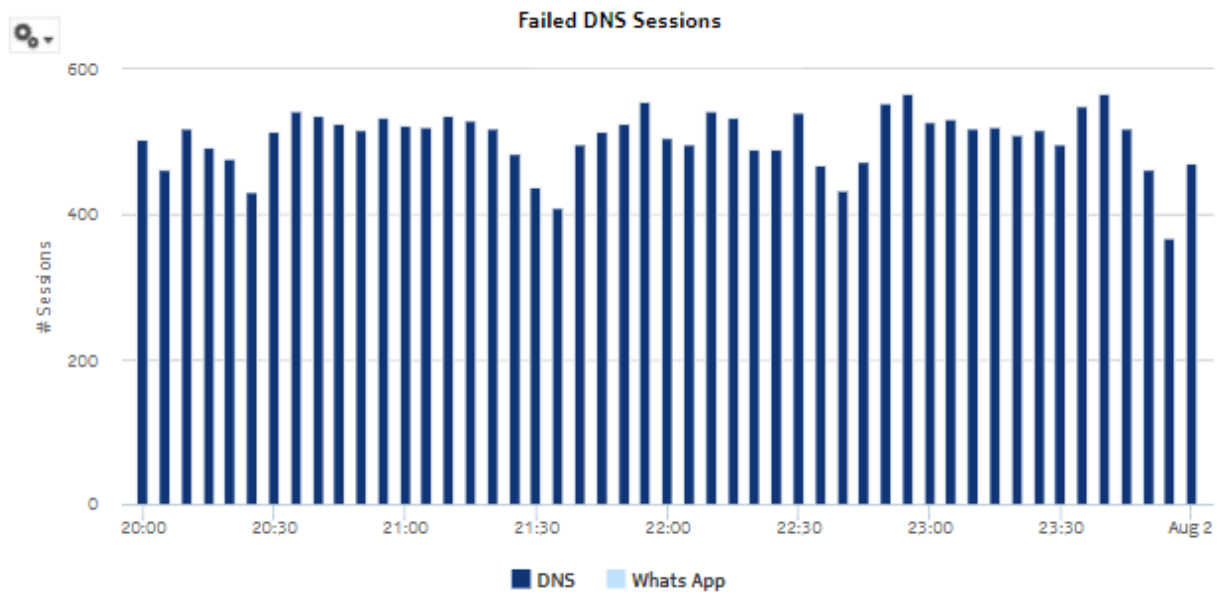
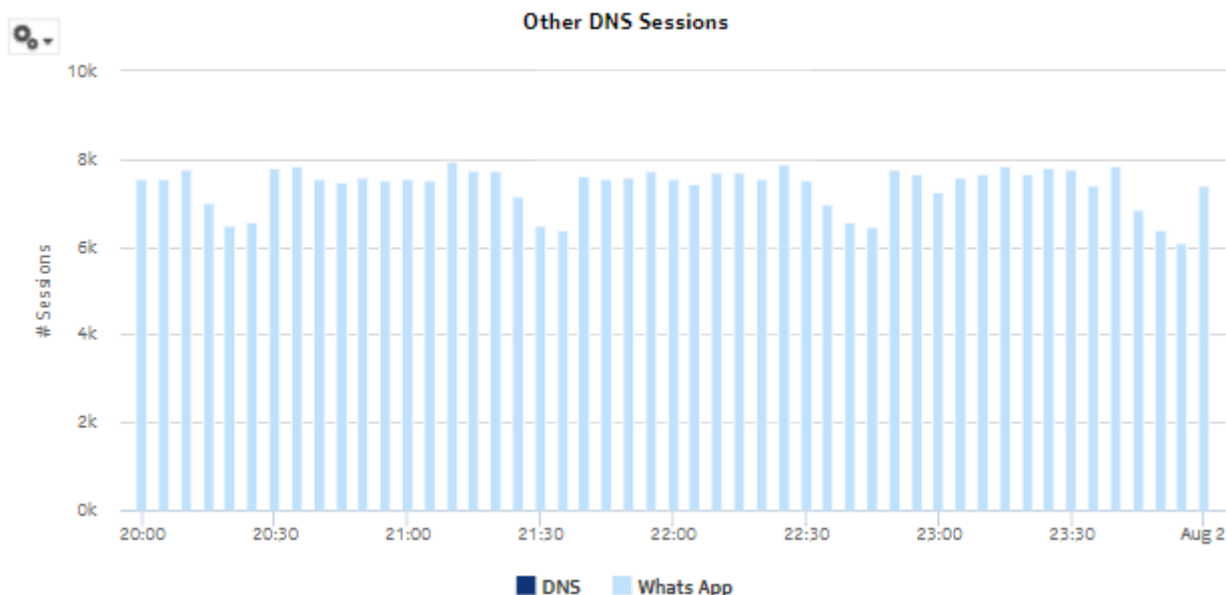


Figure 9-6 DNS Performance Session Details report—Other DNS Sessions



9.4 DNS Performance Summary report

9.4.1 DNS Performance Summary report overview

The DNS Performance Summary report shows a summary of DNS performance for a specified set of applications using RTT values and session counts.



Note: The DNS servers are modeled as applications and must be selected from the Application drop-down menu in the prompt section of the report.



Note: This report requires special study statistics collection by an NSP Flow Collector for each modeled DNS server application. See the pathway to configure AA Cflowd special-study statistics collection in the *NSP NFM-P Statistics Management Guide* for configuration information.

If the user chooses an application that does not represent a DNS application, the application will appear in the report but the information provided will be invalid. If the user chooses a DNS application that is not configured for special studies collection, the application will not appear in the report.

Use cases

User quality of experience—Use the report to anticipate user QoE issues by monitoring DNS performance to identify potential network issues.

Report characteristics

The following table lists the principal report characteristics.

Table 9-4 DNS Performance Summary report characteristics

Characteristic	Value	
Statistics type	AA Cflowd comprehensive special study	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data)
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%).
	Node	Select individual items or click Select All .
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	Yes—See DNS Performance RTT Details and DNS Performance Session Details	

9.4.2 Example

The following figures show a report example.

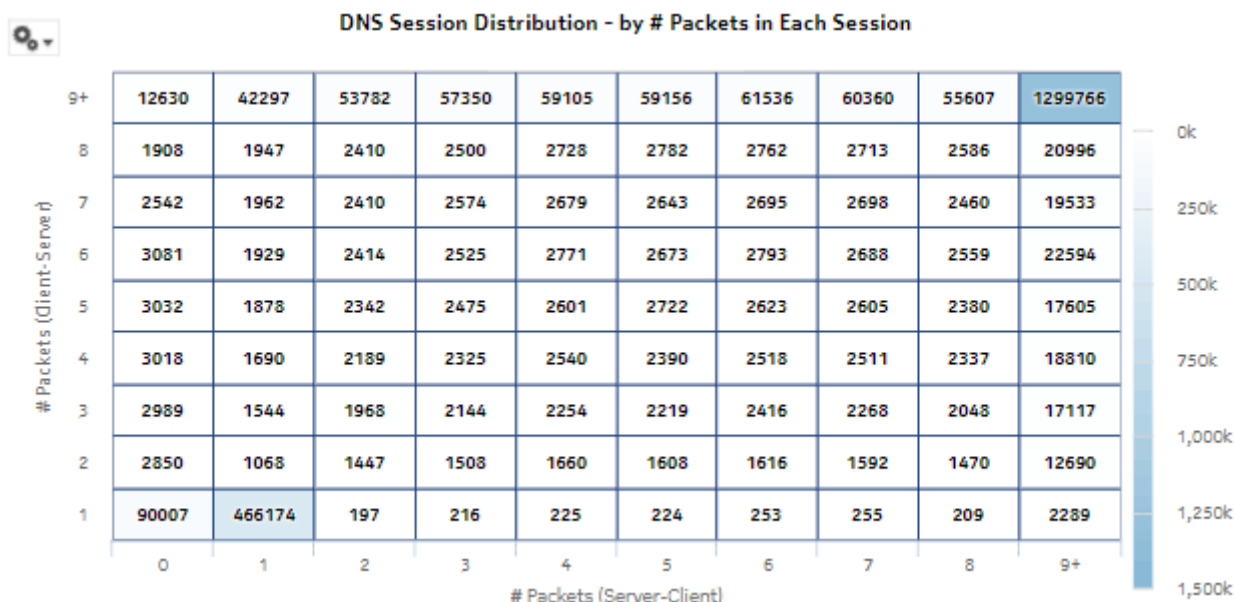
Figure 9-7 DNS Performance Summary report

DNS Performance Summary		
Reporting Period: 2017-08-05 15:00 EDT to 2017-08-10 14:40 EDT Group/Partition: All Application: DNS,RTP,Skype Node Type: All Site: All Domain: Residential / Wi-Fi (ESM)		
DNS Session Round Trip Time (RTT)		
DNS Server	RTT Average (msec)	RTT Standard Dev (msec)
DNS	55.01	26.26
RTP	4,875.44	2,848.53
Skype	6,203.42	2,968.74

Figure 9-8 DNS Performance Summary—DNS Session Count

DNS Session Count								
DNS Server	# Sessions	% Utilization	# Successful	% Successful	# Failed	% Failed	# Others	% Others
DNS	588,070	22.63%	466,013	79.24%	122,057	20.76%	0	.00%
RTP	1,562,728	60.15%	149	.01%	0	.00%	1,562,579	99.99%
Skype	447,462	17.22%	12	.00%	0	.00%	447,450	100.00%
Total	2,598,260	100.00%	466,174	17.94%	122,057	4.7%	2,010,029	77.36%

Figure 9-9 DNS Session Distribution—by # Packets in Each Session



The vertical axis of the DNS Session Distribution heat map shows the number of DNS requests made from the client to the server. The horizontal axis shows the number of responses sent from the server to the client.

Each cell shows the number of sessions observed that had X requests from the client to the server, and Y responses from the server to the client. For example, a 1 indicates one DNS request to the server and a matching response from the server to the client.

The following points may be useful for troubleshooting:

- The heat map shows the most number of sessions in the [1,1] cell, or along the diagonal. This indicates that the same 5-tuple is being re-used for multiple requests from the client.
- The first column shows requests from the client for which no response was received from the server. This could indicate a failure with one or more DNS server instances, or a communications issue between the client and server. A large number in any of these cells should be investigated.
- Cells above the diagonal are for cases where the client is sending more requests than it is receiving responses. Small deltas here are normal, but large deltas may represent a rogue client or a DoS attack on the DNS servers.
- Cells below the diagonal indicate cases where the client is receiving more responses than the number of issued requests. This is a rare, anomalous condition. Large values in these cells may represent compromised DNS servers or one experiencing a software malfunction.

9.5 ISA Average Load Report

9.5.1 ISA Average Load Report overview

The ISA Average Load Report shows average throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 9-5 ISA Average Load Report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	ISA Card	
	Metrics	• Average traffic rate • Average packet rate • Average active flows • Average flow setup rate • Average active subscribers

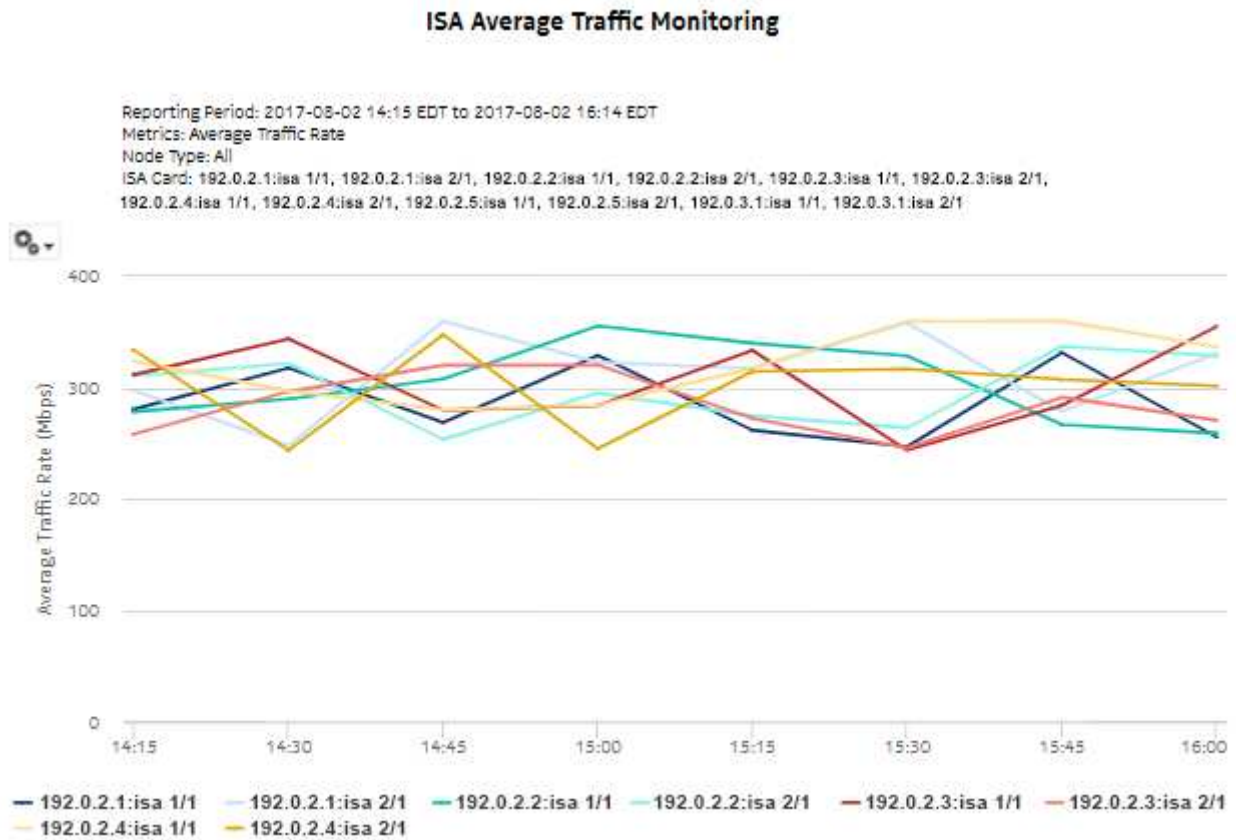
Table 9-5 ISA Average Load Report characteristics (continued)

Characteristic	Value
Drill-down support	No

9.5.2 Example

The following figure shows a report example.

Figure 9-10 ISA Average Load Report



9.6 ISA Peak Load report

9.6.1 ISA Peak Load report overview

The ISA Peak Load Report shows the peak throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

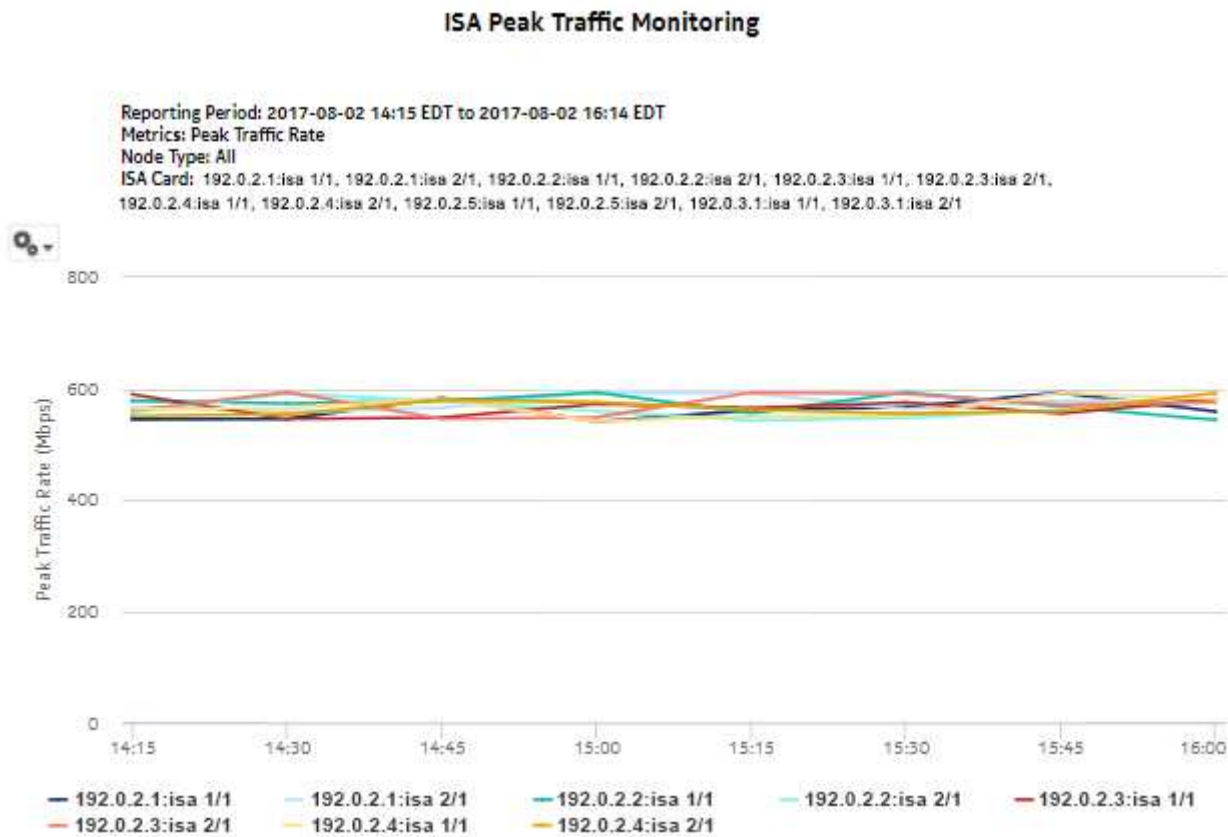
Table 9-6 ISA Peak Load report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	ISA Card	
	Metrics	• Peak traffic rate • Peak packet rate • Peak active flows • Peak flow setup rate • Peak active subscribers with flows
Drill-down support	No	

9.6.2 Example

The following figure shows a report example.

Figure 9-11 ISA Peak Load Report



9.7 ISA Per Active Subscriber Traffic report

9.7.1 ISA Per Active Subscriber Traffic report overview

The ISA Per Active Subscriber Traffic report shows the throughput and usage information for a specified set of ISA-AA.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

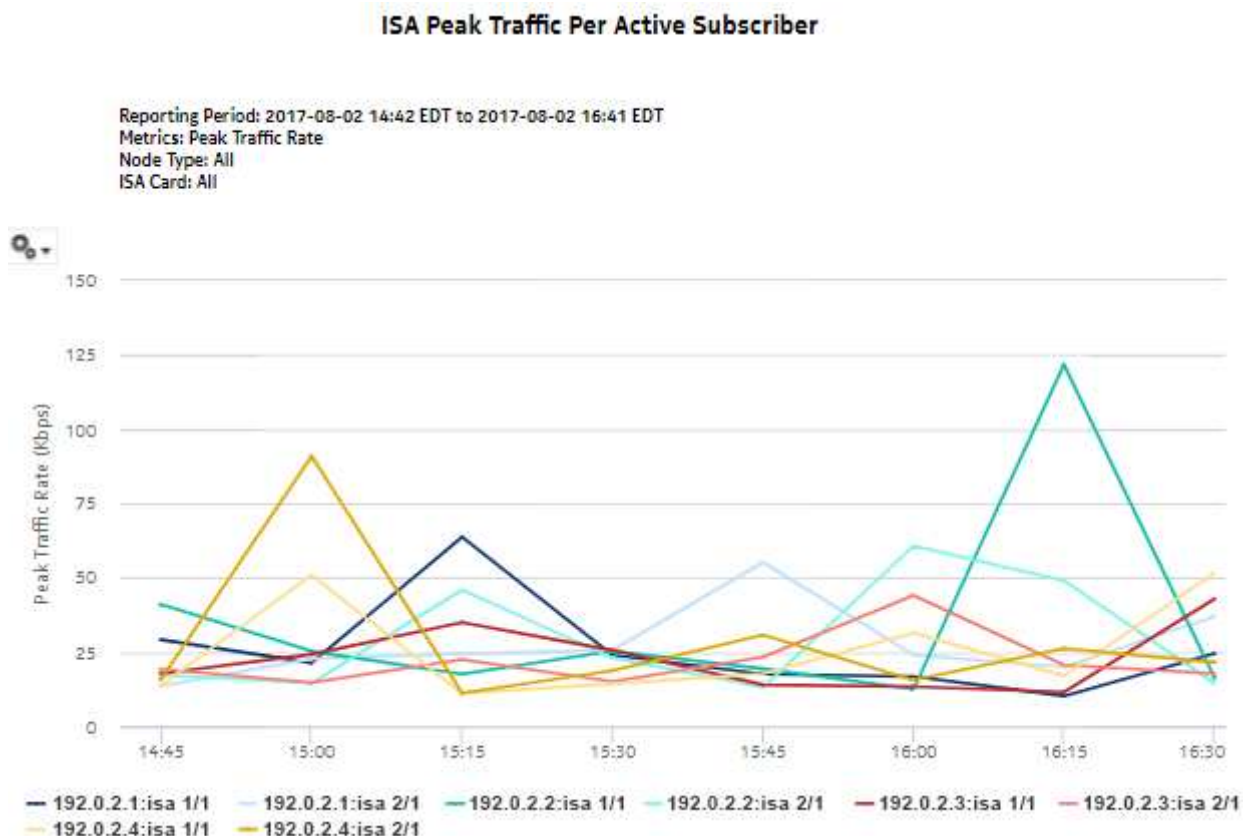
Table 9-7 ISA Per Active Subscriber Traffic report characteristics

Characteristic	Value	
Statistics type	AA Accounting network performance	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	ISA Card	
	Metrics	• Peak traffic rate • Peak packet rate • Peak active flows • Peak flow setup rate • Peak active subscribers with flows
Drill-down support	No	

9.7.2 Example

The following figure shows a report example.

Figure 9-12 ISA Per Active Subscriber Traffic report



9.8 ISA Performance Dashboard

9.8.1 Dashboard overview

The ISA Performance Dashboard shows the following ISA-AA information:

- Overloaded ISAs
- Top Loaded ISAs

Use cases

Network resource planning—Use the dashboard to identify excessive ISA-AA usage.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-8 ISA Performance Dashboard characteristics

Characteristic	Value	
Statistics type	Application Distribution - All Routers—AA Accounting per partition application	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Site and ISA Card(s)	
	Rank	Number of items to report
	Flow Threshold	—
	Flow Rate Threshold	
	Traffic Rate Threshold (Mbps)	
	Packet Rate Threshold (pps)	
Drill-down support	Yes—Click on a table entry to display the data in chart form	

9.8.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-13 ISA Performance dashboard—Overloaded ISAs dashlet

Overloaded ISAs

Reporting Period: 2017-08-09 15:00 EDT to 2017-08-10 14:59 EDT
Granularity: Hourly
Node Type: All
ISA Card: All

Datapath CPU Alert	Flow Scale	Flow Rate	Bit Rate	Packet Rate
192.0.1.1:isa 1/1	192.0.1.1:isa 1/1	192.0.1.1:isa 2/1	192.0.1.1:isa 1/1	192.0.1.1:isa 1/1
192.0.1.1:isa 2/1	192.0.1.1:isa 2/1	192.0.2.5:isa 2/1	192.0.2.2:isa 1/1	192.0.1.1:isa 1/1
192.0.2.2:isa 1/1	192.0.2.2:isa 1/1	192.0.1.1:isa 1/1	192.0.1.1:isa 2/1	192.0.2.2:isa 1/1
192.0.2.2:isa 2/1	192.0.2.2:isa 2/1	192.0.2.4:isa 2/1	192.0.2.4:isa 1/1	192.0.2.2:isa 2/1
192.0.2.3:isa 2/1	192.0.2.3:isa 2/1	192.0.2.3:isa 2/1	192.0.2.5:isa 2/1	192.0.2.5:isa 2/1

Figure 9-14 ISA Performance dashboard—Top Loaded ISAs dashlet

Top Loaded ISAs

Reporting Period: 2017-08-09 15:00 EDT to 2017-08-10 14:59 EDT
Granularity: Hourly
Node Type: All
ISA Card: All

Peak CPU	Avg CPU	Peak Flows	Avg Flows	Peak Bit Rate	Avg Bit Rate
192.0.2.5:isa 1/1	192.0.2.3:isa 1/1	192.0.2.3:isa 2/1	192.0.2.4:isa 2/1	192.0.2.2:isa 2/1	192.0.2.4:isa 1/1
192.0.2.4:isa 2/1	192.0.2.2:isa 2/1	192.0.2.4:isa 2/1	192.0.2.4:isa 1/1	192.0.2.4:isa 1/1	192.0.2.2:isa 1/1
192.0.3.1:isa 2/1	192.0.2.4:isa 1/1	192.0.2.2:isa 1/1	192.0.3.1:isa 2/1	192.0.2.5:isa 1/1	192.0.2.5:isa 2/1
192.0.2.2:isa 1/1	192.0.3.1:isa 1/1	192.0.3.1:isa 1/1	192.0.2.2:isa 2/1	192.0.2.5:isa 2/1	192.0.2.3:isa 1/1
192.0.2.3:isa 2/1	192.0.3.1:isa 2/1	192.0.2.2:isa 2/1	192.0.2.2:isa 1/1	192.0.2.3:isa 2/1	192.0.2.2:isa 2/1

Figure 9-15 ISA Performance dashboard—Overloaded ISAs drill-down

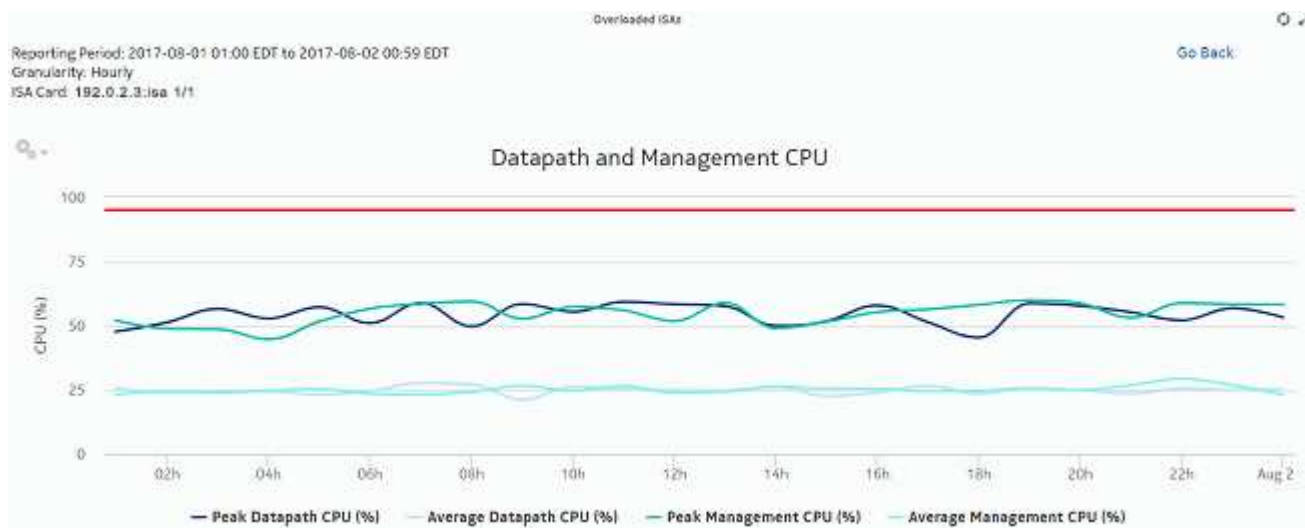


Figure 9-16 ISA Performance dashboard—Top Loaded ISAs drill-down



9.9 Network and Subscriber Dashboard

9.9.1 Dashboard overview

The Network and Subscriber Dashboard shows the following network- and router-level information:

- Top Routers—Download Bandwidth Per Router

- Total Download Bandwidth—All Routers
- Total Upload Bandwidth—All Routers
- Top Routers—Active Subscribers Per Router
- Application Group Distribution—Selected Routers
- Application Distribution—All Routers

Use cases

Capacity planning—Use the dashboard to examine traffic growth and identify usage patterns for planning future capacity requirements.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-9 Network and Subscriber Dashboard characteristics

Characteristic	Value	
Statistics type	Top Routers - Download Bandwidth Per Router—AA Accounting per partition application group Total Download Bandwidth - All Routers—AA Accounting per partition application group Total Upload Bandwidth - All Routers—AA Accounting per partition application group Top Routers - Active Subscribers Per Router—AA Accounting network performance Application Group Distribution - Selected Routers—AA Accounting per partition application group Application Distribution - All Routers—AA Accounting per partition application	
NSP Flow Collector required	No	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Site	
	Rank	Number of items to report
	Bandwidth Percentage Threshold	—
Drill-down support	Yes—Application Group Distribution - Selected Routers dashlet only; display a table of the top applications in the selected application group	

9.9.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-17 Top Routers - Download Bandwidth Per Router dashlet

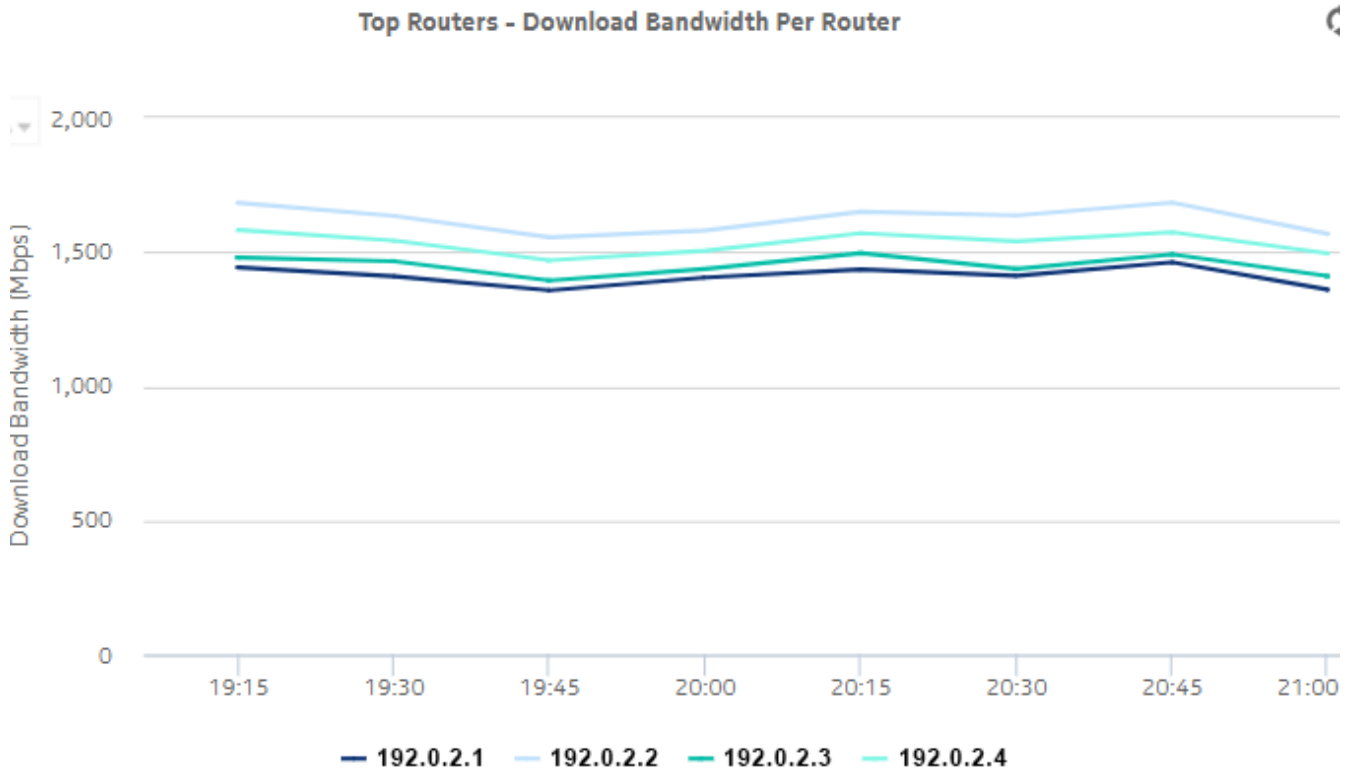


Figure 9-18 Top Routers - Active Subscribers Per Router dashlet

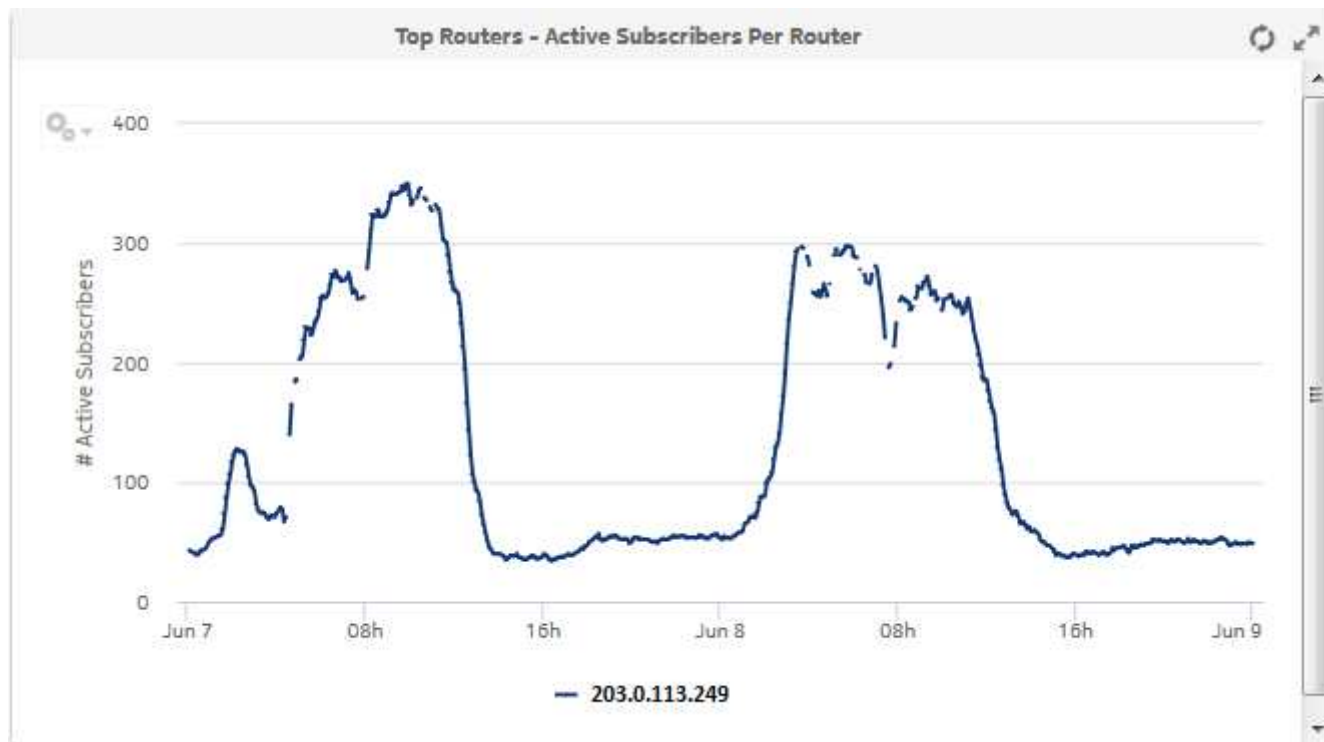


Figure 9-19 Total Download Bandwidth - All Routers dashlet

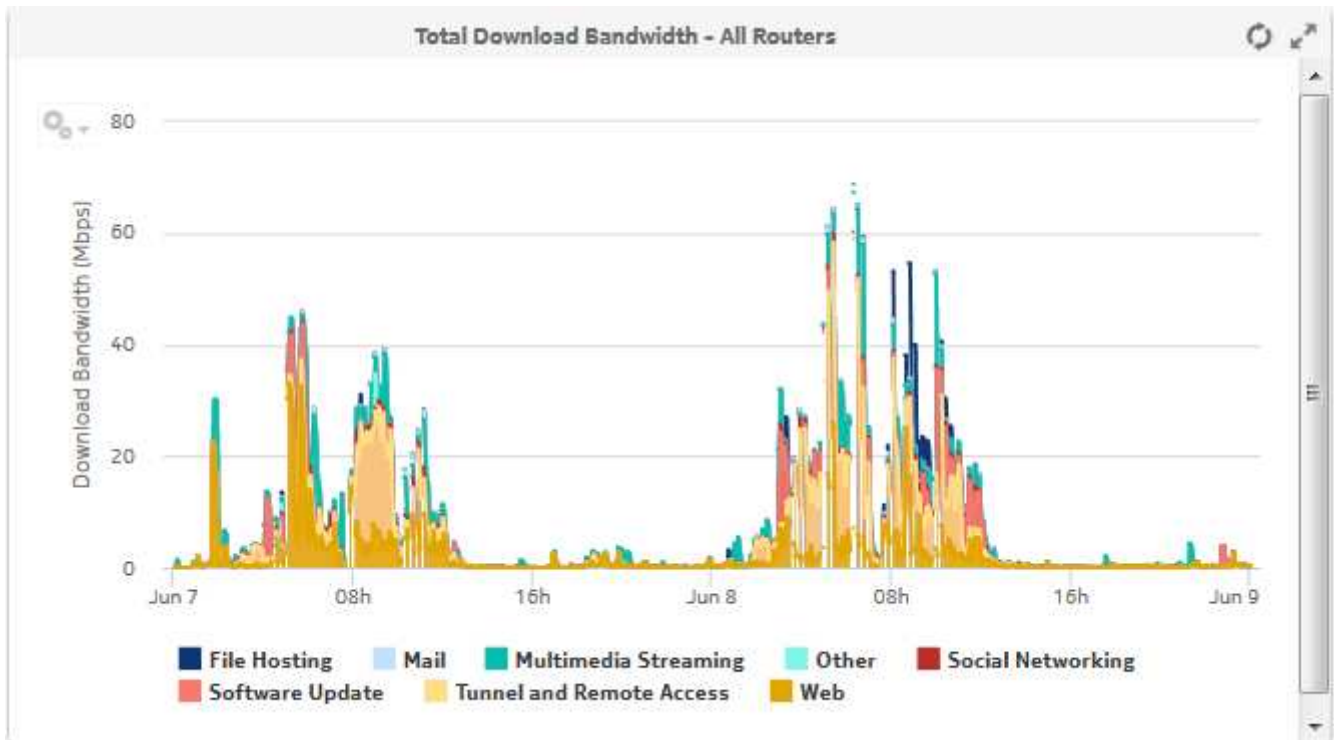


Figure 9-20 Application Group Distribution — Selected Routers dashlet

Application Group Distribution - Selected Routers

#	Application Group	Volume (GB)	%
1	Web	1,069.19	17.7
2	Tunnel and Remote Access	938.65	15.5
3	Real-Time Communication	932.74	15.4
4	Peer to Peer	515.31	8.5
5	Multimedia Streaming	495.6	8.2
6	Database	467.58	7.7
7	File Hosting	375.9	6.2
8	Mail	371.34	6.1
9	Gaming	233.14	3.9

Figure 9-21 Application Group Distribution - Selected Routers drill-down

Application Group Distribution - Selected Routers

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Application Group Distribution - Multimedia Streaming

Application Distribution

#	Application	Volume (GB)	%
1	Deezer	111.83	22.5
2	CNN Live	103.42	20.8
3	Funshion	94.28	19
4	Spotify	93.72	18.9
5	Slingbox	93.14	18.8
Total		496.39	100%

Figure 9-22 Total Upload Bandwidth - All Routers dashlet

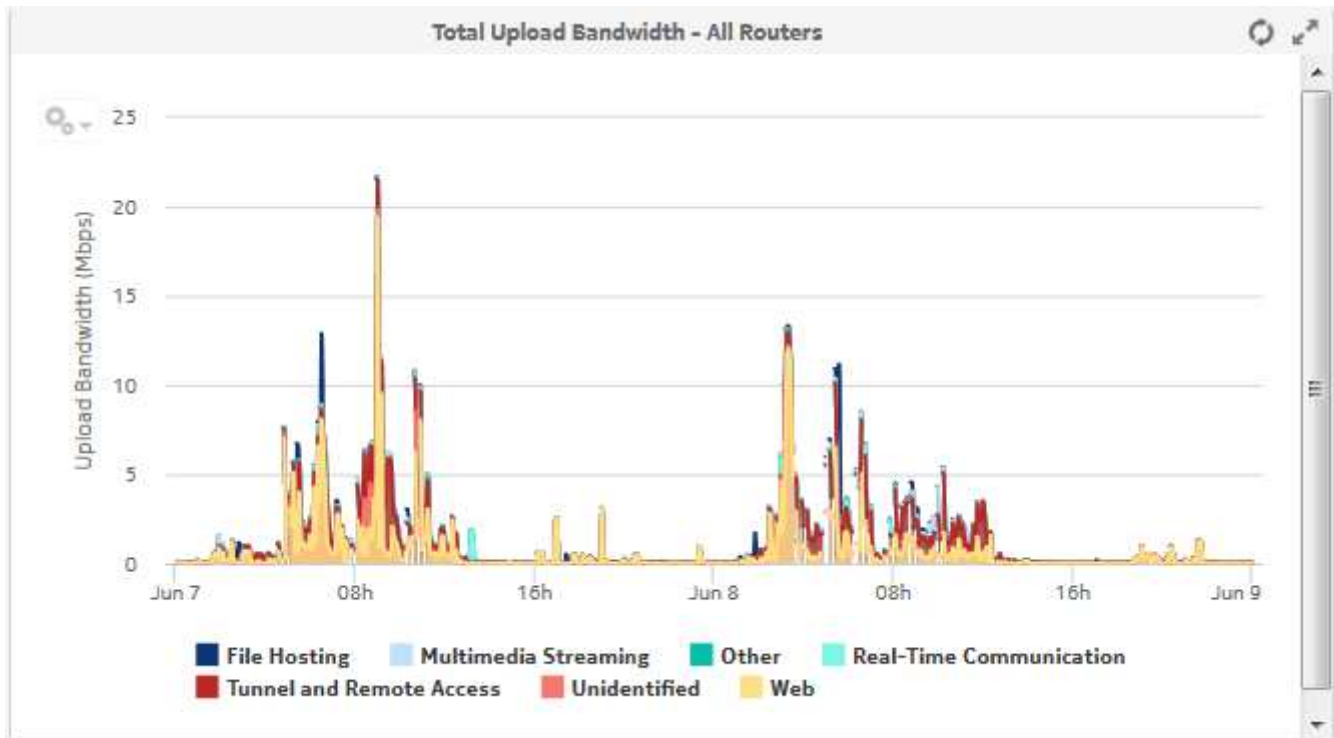
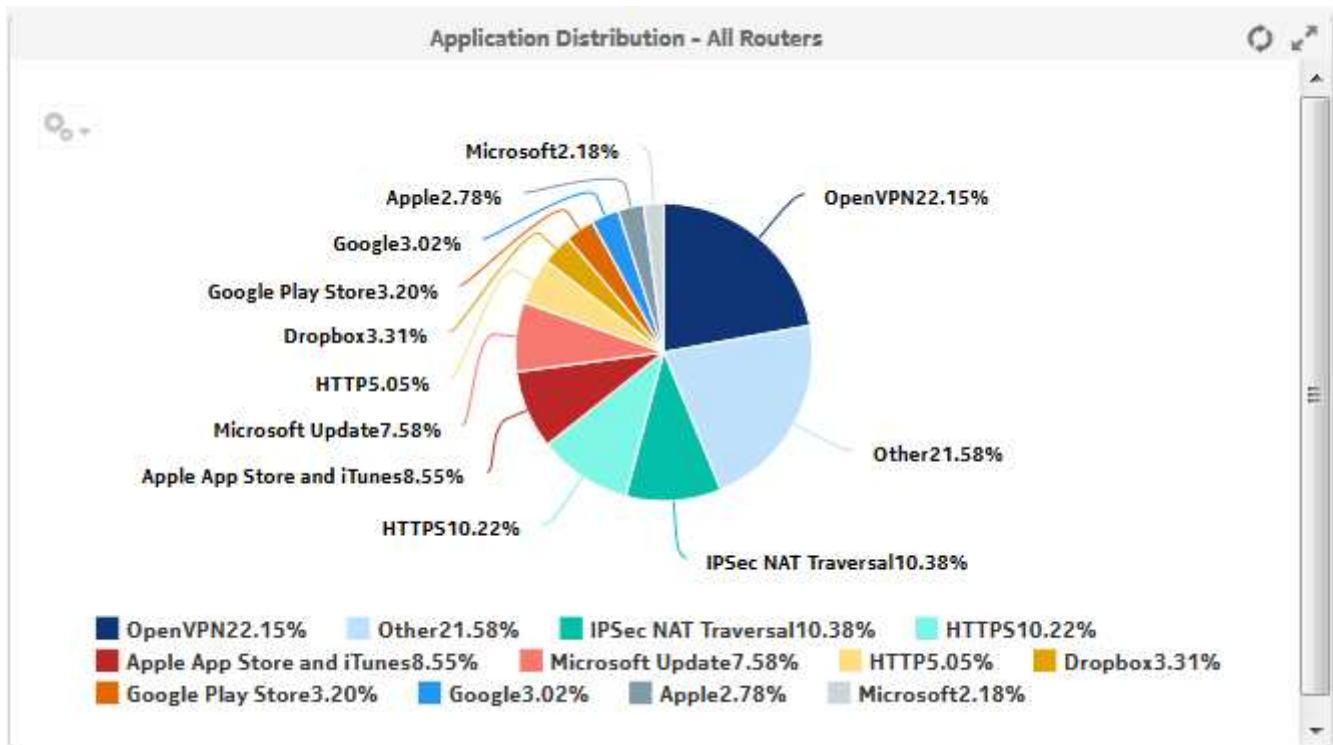


Figure 9-23 Application Distribution - All Routers dashlet



9.10 TCP Performance Dashboard

9.10.1 Dashboard overview

The TCP Performance Dashboard shows network performance in terms of the number of retransmitted packets and the time taken to establish a user session.

Use cases

User quality of experience—Use the report to anticipate user QoE issues by monitoring TCP performance to identify potential network issues.

Dashboard characteristics

The following table lists the principal dashboard characteristics.

Table 9-10 TCP Performance Dashboard characteristics

Characteristic	Value
Statistics type	AA Cflowd TCP performance application group Note: Cflowd aggregation per DCP group must be enabled.

Table 9-10 TCP Performance Dashboard characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%). Select individual items or click Select All .
	Application Group	
	Node Type	
	Site	
	Client IP Group	Configured on NSP Analytics Parameters tab of AA Group Policy
	Server IP Group	
	Top Applications	Number of items to report
Drill-down support	Yes—Display graphs to show the top applications contributing to retransmitted packets or excessive RTT for the selected time and direction.	

9.10.2 Example

The following figures show the dashlets that the dashboard contains.

Figure 9-24 Average Retransmitted Packets Per Session Direction dashlet

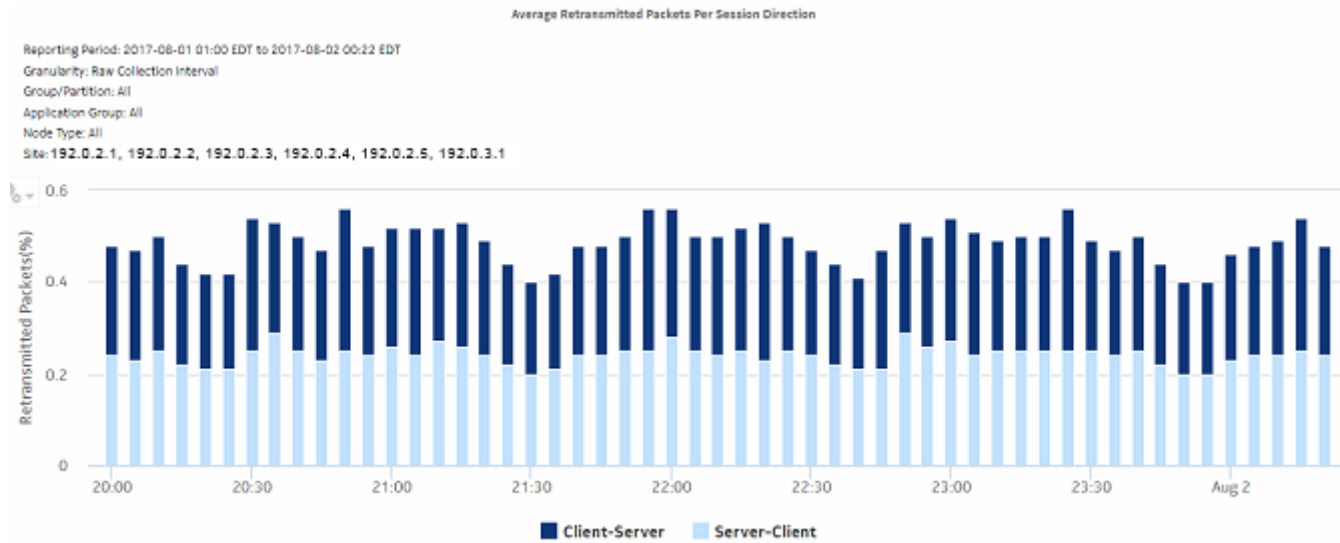


Figure 9-25 Average Session Establish Time Per Session Direction dashlet

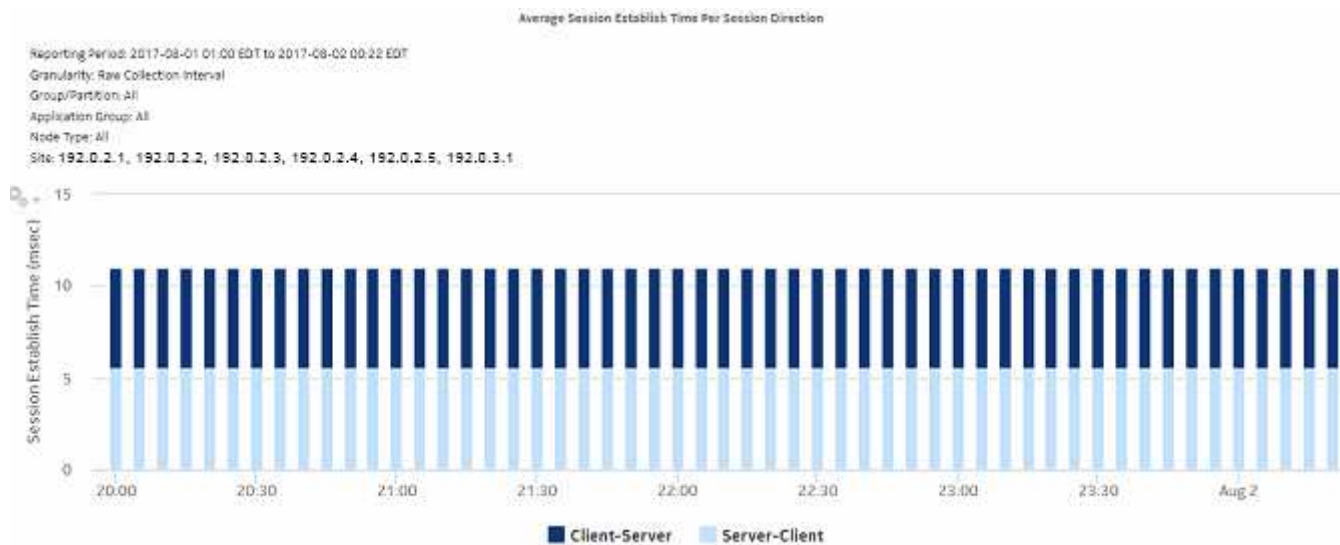


Figure 9-26 Average Retransmitted Packets Per Session Direction drill-down

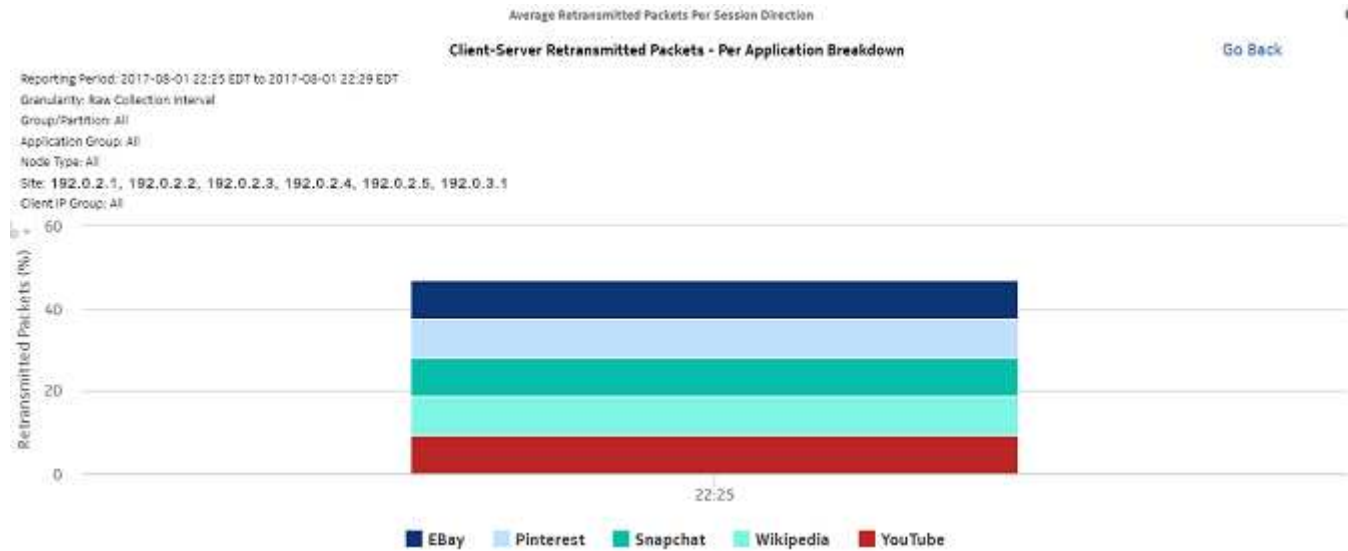
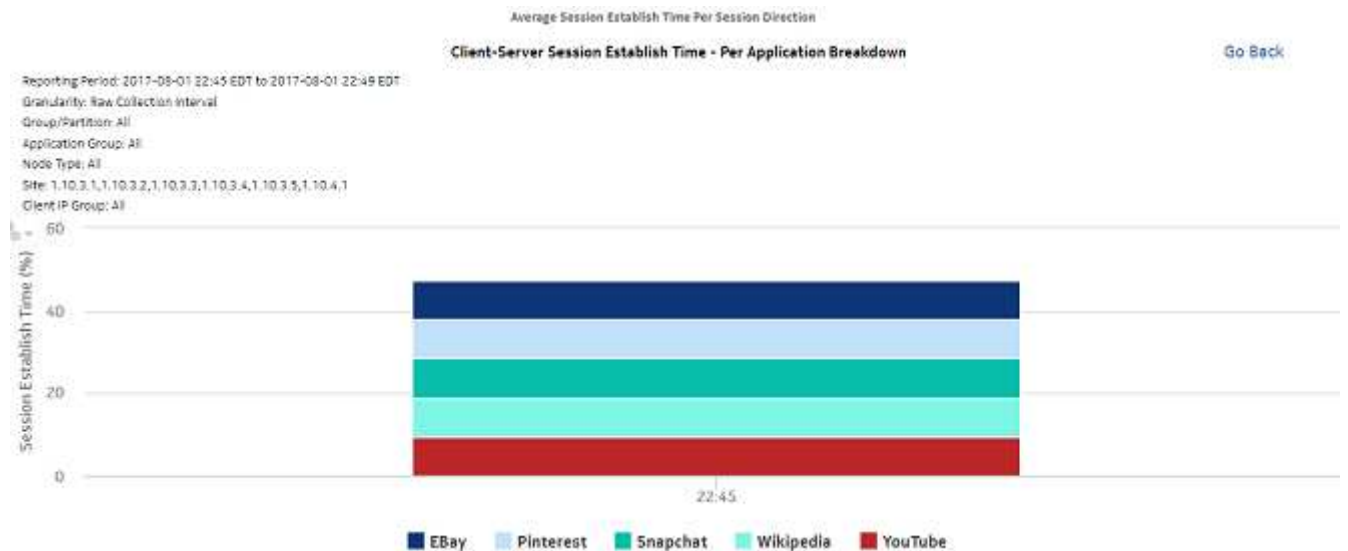


Figure 9-27 Average Session Establish Time Per Session Direction drill-down



9.11 TCP Performance Report - Worst Performing Applications report

9.11.1 TCP Performance Report - Worst Performing Applications report overview

The TCP Performance Report - Worst Performing Applications report shows the most poorly performing applications in terms of retransmitted packets or session establishment delay.

Use cases

User quality of experience—Use the report to identify low-quality application delivery and address user QoE issues by monitoring TCP performance to see the worst performing applications.

Report characteristics

The following table lists the principal report characteristics.

Table 9-11 TCP Performance Report - Worst Performing Applications report characteristics

Characteristic	Value
Statistics type	AA Cflowd TCP performance application Note: Cflowd aggregation per IP group must be enabled.
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

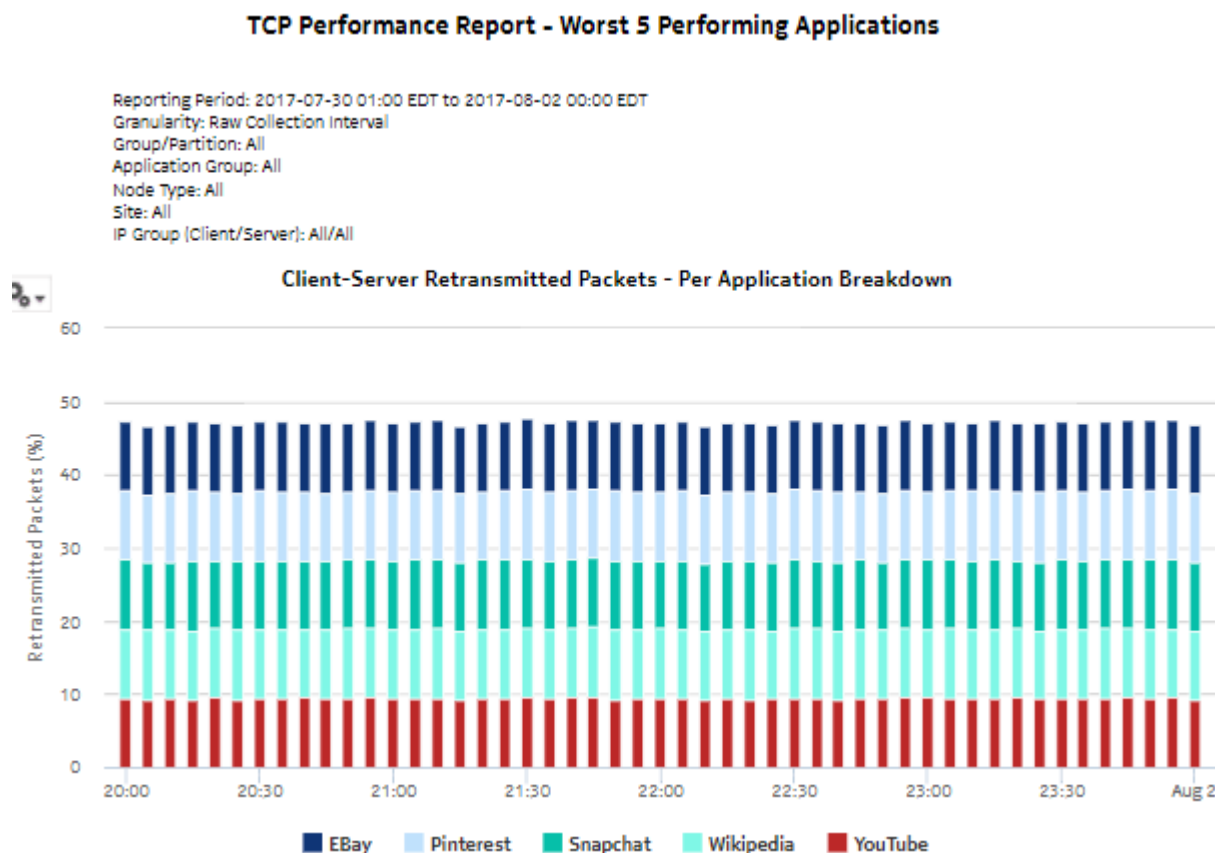
Table 9-11 TCP Performance Report - Worst Performing Applications report characteristics
(continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	
	Application Group	
	Top Applications	Number of items to report
	Client IP Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Server IP Group	
	Metrics	Retransmitted packets, session establish time
	Direction	Client-server, server-client
Drill-down support	No	

9.11.2 Example

The following figure shows a report example.

Figure 9-28 TCP Performance Report - Worst Performing Applications report



9.12 TCP Performance Report for Selected Application Group report

9.12.1 TCP Performance Report for Selected Application Group report overview

The TCP Performance Report for Selected Application Group report shows the TCP performance metrics for an application group.

Use cases

User quality of experience—Use the report to monitor application group performance and identify potential user QoE issues.

Report characteristics

The following table lists the principal report characteristics.

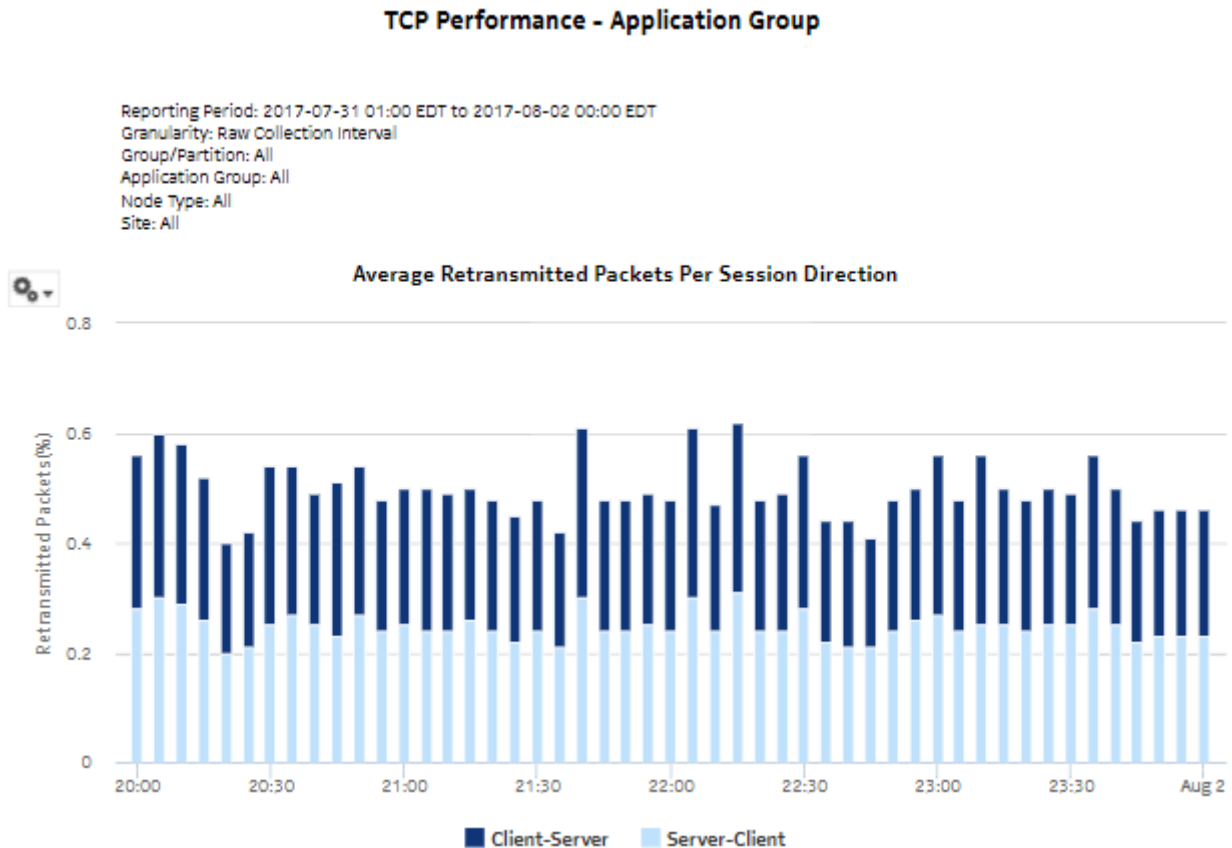
Table 9-12 TCP Performance Report for Selected Application Group report characteristics

Characteristic	Value	
Statistics type	AA Cflowd TCP performance application group Note: Cflowd aggregation per IP group must be enabled.	
NSP Flow Collector required	Yes	
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	
	Application Group	
	Client IP Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Server IP Group	
	Metrics	Retransmitted packets, session establish time
Drill-down support	Yes—Open TCP Performance Report - Worst Performing Applications to display graphs that show the top applications contributing to retransmitted packets or excessive RTT for the selected time and direction.	

9.12.2 Example

The following figure shows a report example.

Figure 9-29 TCP Performance Report for Selected Application Group report



9.13 VoIP MOS Forensic report

9.13.1 VoIP MOS Forensic report overview

The VoIP MOS Forensic report shows application-level VoIP MOS metrics.

Use cases

Troubleshooting—Use the report to perform root-cause analysis of VoIP call quality issues for an application.

Error case

Because the report output involves a crosstab-based-horizontally growing table, running the report without narrowing down the data using input controls can lead to a report showing partial results (not showing data for all intervals in the selected reporting period). This is caused by the configured limit for crosstab components in this report.

If this occurs, re-run the report narrowing down the input control values; for example, instead of selecting all metrics available to report on, select a subset. Similarly, select a subset of applications, source and destination IP groups to report on.

Caution: Changing the configured limit causes performance issues. To change the configured limit, contact Nokia technical support.

Report characteristics

The following table lists the principal report characteristics.

Table 9-13 VoIP MOS Forensic report characteristics

Characteristic	Value
Statistics type	AA Cflowd RTP voice performance application
NSP Flow Collector required	Yes
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business

Table 9-13 VoIP MOS Forensic report characteristics (continued)

Characteristic	Value			
Report inputs	Prompt	Notes		
	Start date	Calendar date or relative date (for example, two days ago) and time		
	Granularity	Read-only: Raw collection only		
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)		
	Group/Partition	Search using partial names or wildcard (%).		
	Application			
	Source IP Group			
	Destination IP Group			
	Node Type	Search using partial names or wildcard (%).		
	Node	Select individual items or click Select All .		
	Metrics	Average burst length (msec) Average round trip packet delay Average voice bandwidth Burst count Degradation factor due to: • codec • delay • echo • noise level • packet discard • packet loss • recency • signal level	Discard packets Flow duration Flow start timestamp Gap count Lost packets MOS: • conversational quality • listening quality • nominal • reference Mean absolute packet delay variation Out of sequence packets Payload type	R-factor: • conversational quality • for burst conditions • for gap conditions • G.107 • listening quality • nominal RTP average gap length (msec) Received packets
Drill-down support	No			

9.13.2 Example

The following figure shows a report example.

Figure 9-30 VoIP MOS Forensic report

VoIP Quality Forensics												
Reporting Period: 2017-12-04 12:44 EST to 2017-12-04 12:59 EST Granularity: Raw Collection Interval Group/Partition: All Application: Skype Node Type: 7750-SR12,7750-SR12-MG Node: 192.02.23 Source IP Group: All Destination IP Group: All...												
Time	Group	Partition	Site	Subscriber	Source IP	Destination IP	Direction	Codec Name	Flow Start Time	MOS - Conversational Quality	MOS - Listening Quality	MOS - Nominal
12-04-2017 12:45	1	1	192.02.23	Sub_198_18_0_0	192.02.23	5.6.7.8	Ingress	G.711 u-law/PLC	12-04-17 12:45:03	1.84	2.75	2.58
									12-04-17 12:45:09	1.98	1.32	3.59
									12-04-17 12:45:16	3.09	3.92	2.78
									12-04-17 12:45:18	2.49	3.02	3.94
									12-04-17 12:45:29	2.94	2.84	4.84
									12-04-17 12:45:33	4.21	2.40	1.20
									12-04-17 12:45:52	1.79	1.78	4.49
									12-04-17 12:45:56	4.54	1.75	3.66
									12-04-17 12:46:06	3.53	3.36	2.58
									12-04-17 12:46:07	2.73	4.15	3.75
									12-04-17 12:46:18	2.43	3.18	4.46
									12-04-17 12:46:19	3.53	4.68	3.92
									12-04-17 12:46:24	3.69	4.11	2.77
									12-04-17 12:46:26	3.80	1.31	2.96
									12-04-17 12:46:28	4.54	1.93	4.31
									12-04-17 12:46:31	4.59	3.17	4.80

9.14 VoIP MOS report

9.14.1 VoIP MOS report overview

The VoIP MOS report shows overall and per-application VoIP MOS metrics.

Use cases

User quality of experience—Use the report to monitor VoIP call quality and identify potential user QoE issues.

Report characteristics

The following table lists the principal report characteristics.

Table 9-14 VoIP MOS report characteristics

Characteristic	Value
Statistics type	AA Cflowd RTP voice performance application
NSP Flow Collector required	Yes

Table 9-14 VoIP MOS report characteristics (continued)

Characteristic	Value			
Domains	Residential / Wi-Fi (ESM) Mobile Wi-Fi (DSM) Business			
Report inputs	Prompt	Notes		
	End date	Calendar date or relative date (for example, two days ago) and time		
	Granularity	Aggregation types: • Hourly • Daily • Monthly		
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)		
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .		
	Node			
	Group/Partition			
	Application			
	Select metric to plot	R-Factor - listening quality, MOS - conversational quality, MOS - listening quality, MOS - nominal, MOS - reference, R-Factor - conversational quality		
	Select metrics to see the details summary	Degradation factor due to: • codec type • delay • echo • noise level • packet discard • packet loss • recency • signal level	MOS: • conversational quality • listening quality • nominal	R-factor: • conversational quality • listening quality
Drill-down support	No			

9.14.2 Example

The following figures show a report example.

Figure 9-31 VoIP MOS Report

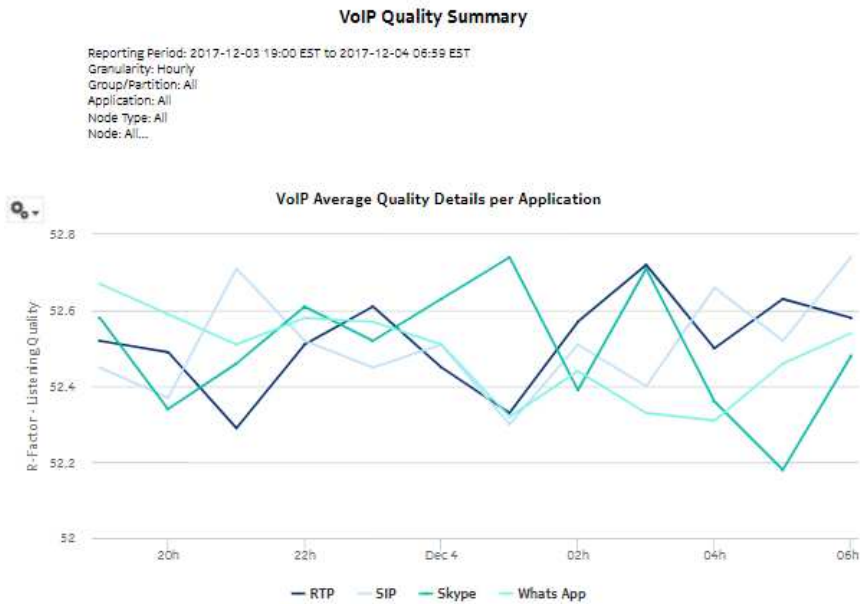


Figure 9-32 VoIP MOS Report report average quality summary

VoIP Average Quality Summary

Codec Name	Average Degradation Factor due to Codec Type	Average Degradation Factor due to Delay	Average Degradation Factor due to Echo	Average Degradation Factor due to Noise Level	Average MOS - Listening Quality	Total # Sampled Calls
G.711 u-law/PLC	52.49	52.55	52.52	52.49	2.94	2,116,058.00
G.719	52.46	52.51	52.46	52.55	2.94	636,884.00
G.722 64k	52.48	52.51	52.49	52.48	2.94	1,058,796.00
G.729A/G.729AB	52.51	52.48	52.50	52.53	2.94	2,119,148.00
Overall (Average)	52.48	52.51	52.49	52.51	2.94	1,482,721.50

10 Residential Subscribers reports

10.1 Residential Subscribers reports overview

10.1.1 General information

Residential Subscribers reports provide information about traffic usage, application usage, and application group usage by subscribers.

Drill-down reports

All reports can be run from the main Residential Subscribers reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Residential Subscribers reports. Each level of indentation indicates a drill down. For example, an Application Usage Pattern with Selected Application Profiles report is a drill-down report from a Top Applications with Selected Application Profiles report.

Table 10-1 Available drill-downs for Residential Subscribers reports

Top Application Groups with Selected Application Profiles	
	Application Group Usage Pattern with Selected Application Profiles
Top Application Groups with Selected Subscribers	
	Application Group Usage Pattern with Selected Subscribers
Top Application Profiles by Application Group Usage	
	Top Application Groups with Selected Application Profiles
Top Application Profiles by Application Usage	
	Top Applications with Selected Application Profiles
Top Applications with Selected Application Profiles	
	Application Usage Pattern with Selected Subscribers
Top Applications with Selected Subscribers	
	Application Usage Pattern with Selected Application Profiles
Top Subscribers by Application Group Usage	
	Top Application Groups with Selected Subscribers
Top Subscribers by Application Usage	
	Top Applications with Selected Subscribers

10.2 # Active Subscribers and Usage for Selected Application Groups report

10.2.1 # Active Subscribers and Usage for Selected Application Groups report overview

The # Active Subscribers and Usage for Selected Application Groups report shows the number of active subscribers for a specified set of application groups. Additionally, the report shows the average consumption per subscriber for the selected application groups

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-2 # Active Subscribers and Usage for Selected Application Groups report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.2.2 Example

The following figure shows a report example.

Figure 10-1 # Active Subscribers and Usage for Selected Application Groups report

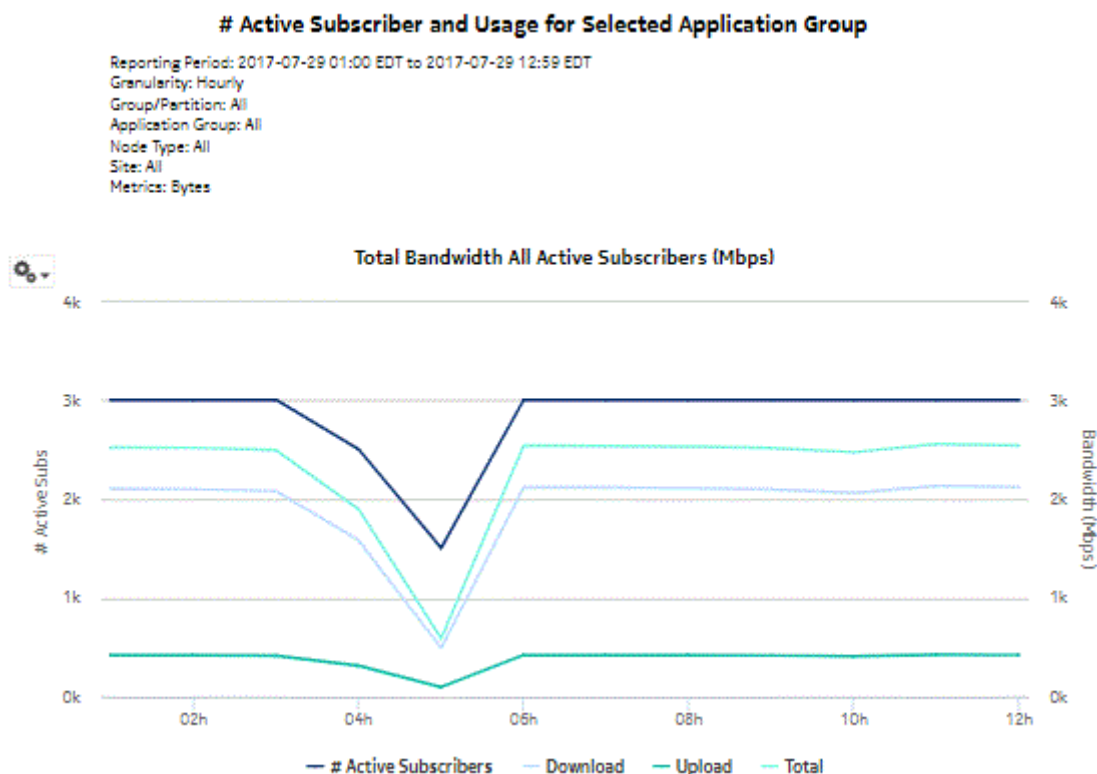
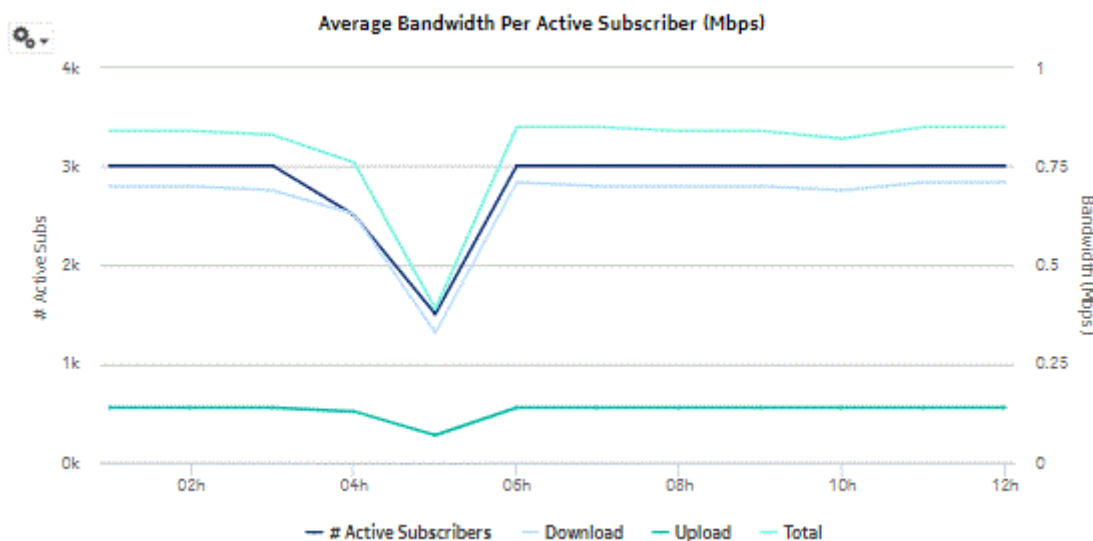


Figure 10-2 # Active Subscribers and Usage for Selected Application Groups report, continued



10.3 # Active Subscribers and Usage for Selected Application Profiles report

10.3.1 # Active Subscribers and Usage for Selected Application Profiles report overview

The # Active Subscribers and Usage for Selected Application Profiles report shows the number of active subscribers for a specified set of application profiles. Additionally, the report shows the average consumption per subscriber for the selected application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-3 # Active Subscribers and Usage for Selected Application Profiles report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber aggregate Note: Subscriber aggregation must be enabled in the associated AA accounting policy.
NSP Flow Collector required	No

Table 10-3 # Active Subscribers and Usage for Selected Application Profiles report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.3.2 Example

The following figure shows a report example.

Figure 10-3 # Active Subscribers and Usage for Selected Application Profiles report

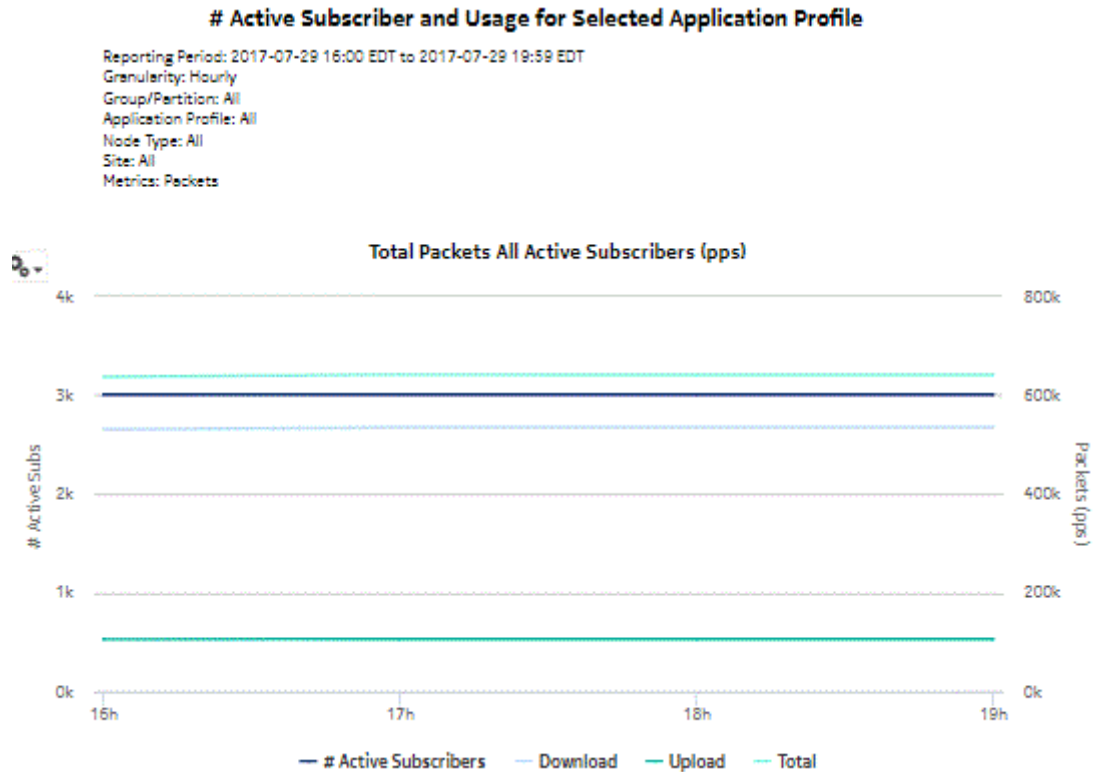
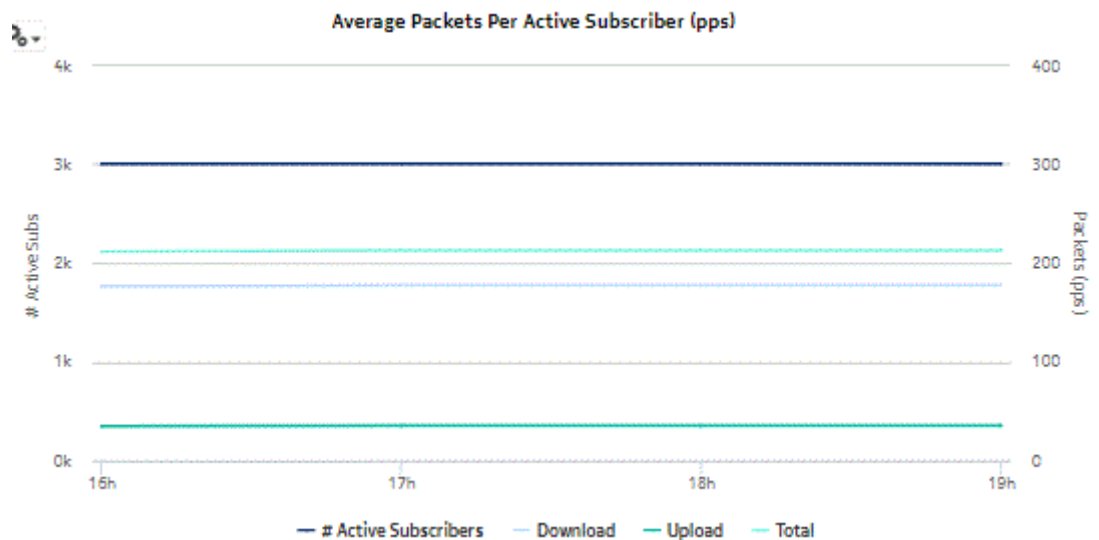


Figure 10-4 # Active Subscribers and Usage for Selected Application Profiles report, continued



10.4 # Active Subscribers and Usage for Selected Applications report

10.4.1 # Active Subscribers and Usage for Selected Applications report overview

The # Active Subscribers and Usage for Selected Applications report shows the number of active subscribers and the associated traffic volume for a specified set of applications. Additionally, the report shows the average consumption per subscriber for the selected applications.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-4 # Active Subscribers and Usage for Selected Applications report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Metrics	Bytes, packets or flows
Drill-down support	No	

10.4.2 Example

The following figure shows a report example.

Figure 10-5 # Active Subscribers and Usage for Selected Applications report

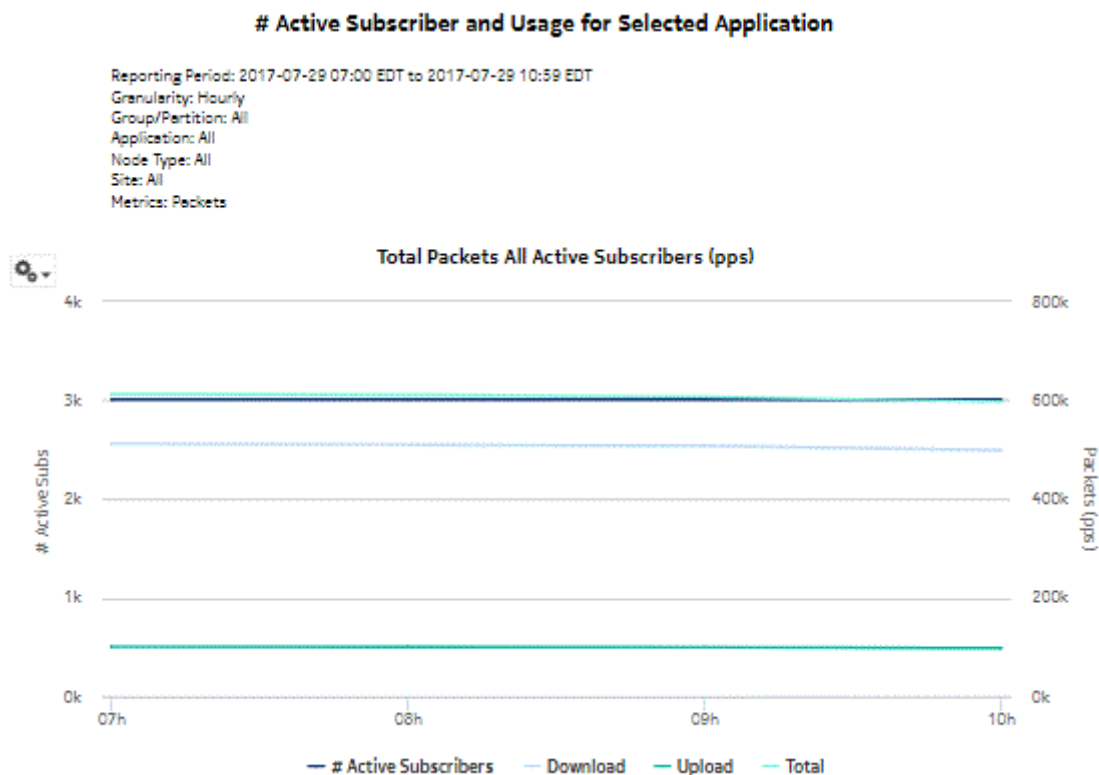
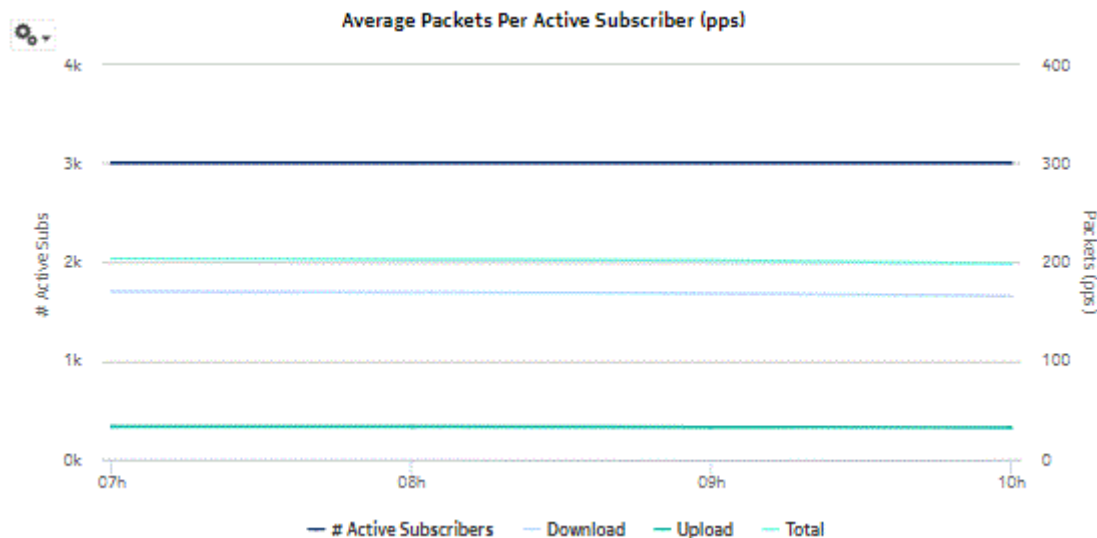


Figure 10-6 # Active Subscribers and Usage for Selected Applications report, continued



10.5 Application Group Usage Pattern with Selected Application Profiles report

10.5.1 Application Group Usage Pattern with Selected Application Profiles report overview

The Application Group Usage Pattern with Selected Application Profiles report shows the traffic distribution across a specified set of application groups for a specified set of application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-5 Application Group Usage Pattern with Selected Application Profiles report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber aggregate Note: Subscriber aggregation must be enabled in the associated AA accounting policy.
NSP Flow Collector required	No

Table 10-5 Application Group Usage Pattern with Selected Application Profiles report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of Week	Select individual items or click Select All .
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%).
	Application Group	Select individual items or click Select All .
Drill-down support	No	

10.5.2 Example

The following figure shows a report example.

Figure 10-7 Application Group Usage Pattern with Selected Application Profiles report

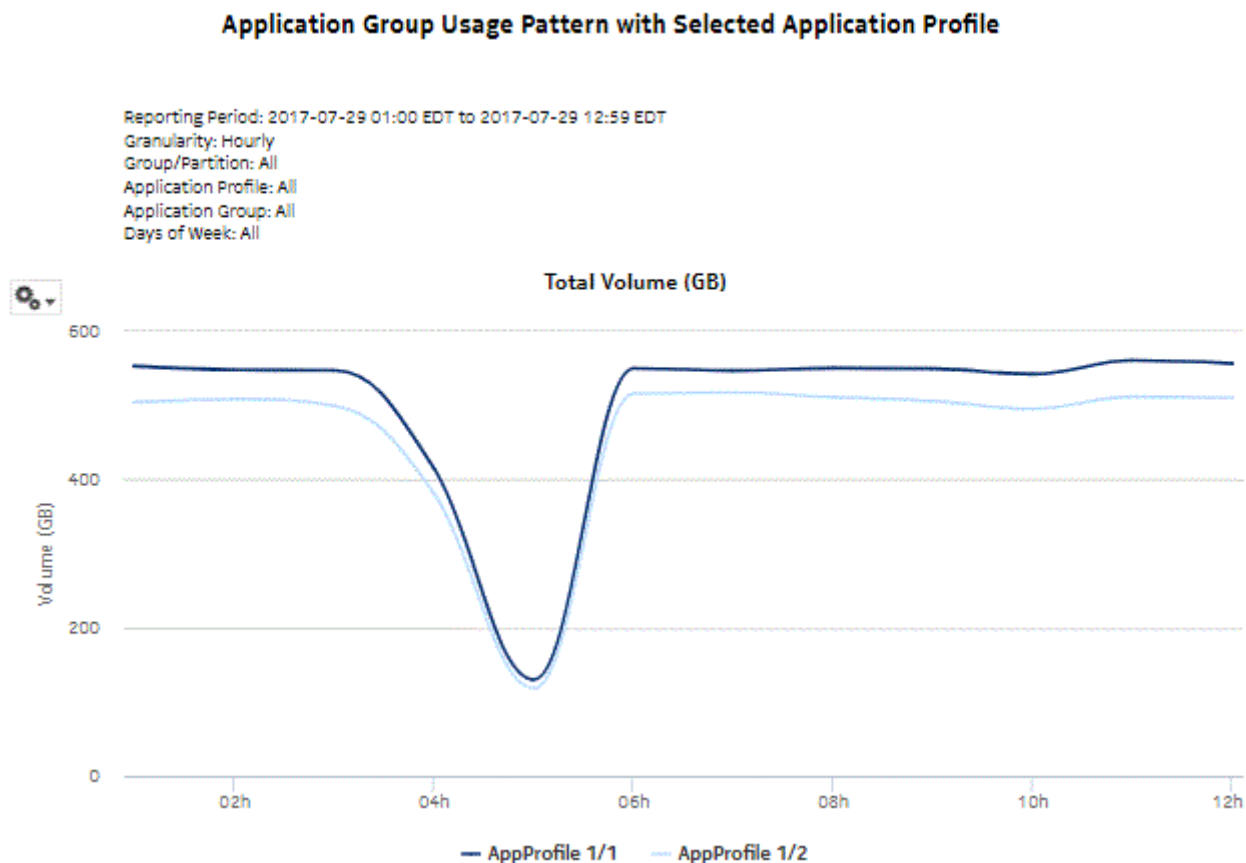


Figure 10-8 Application Group Usage Pattern with Selected Application Profiles - Download Volume

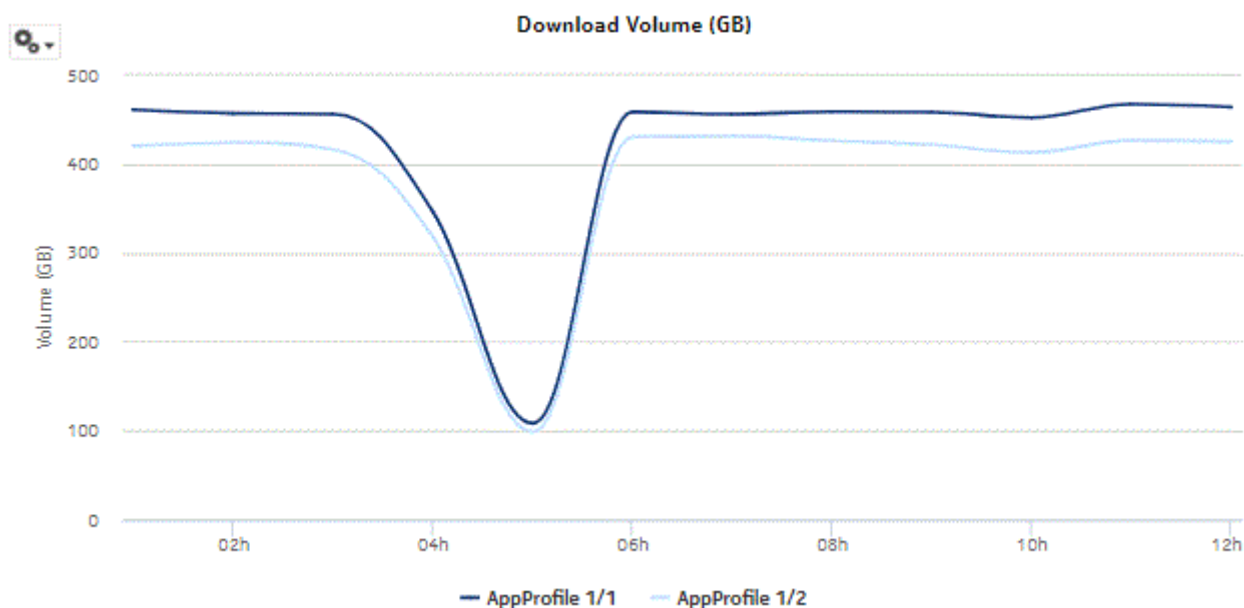
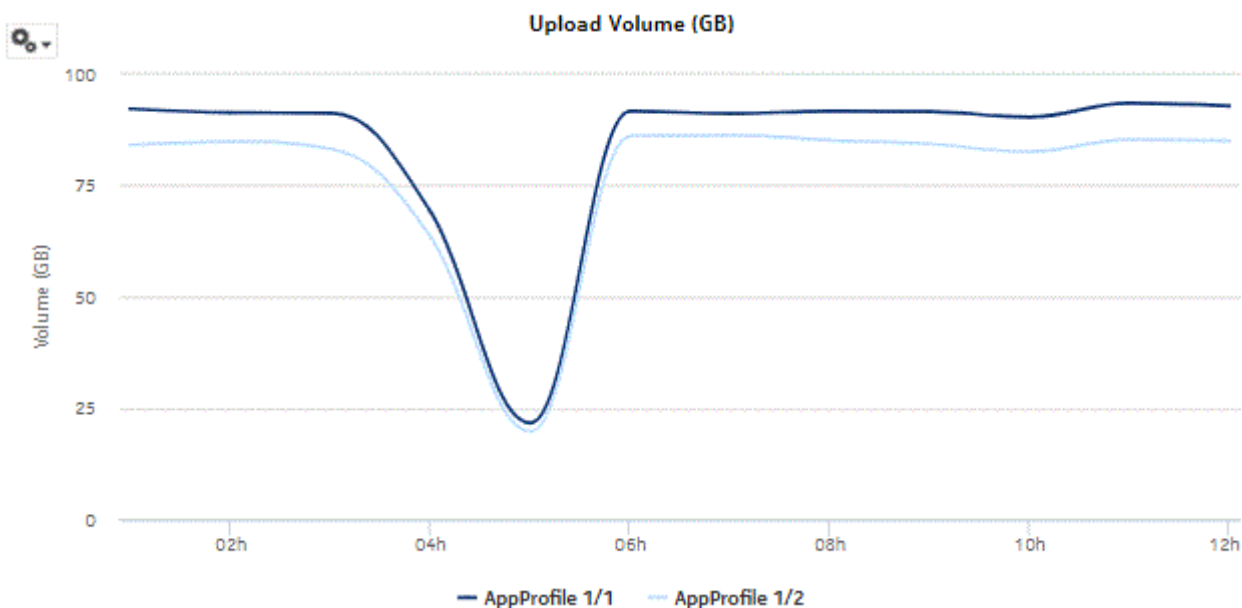


Figure 10-9 Application Group Usage Pattern with Selected Application Profiles - Upload Volume



10.6 Application Group Usage Pattern with Selected Subscribers report

10.6.1 Application Group Usage Pattern with Selected Subscribers report overview

The Application Group Usage Pattern with Selected Subscribers report shows the traffic distribution across a specified set of application groups for a specified set of subscribers. ESM hosts appear in the subscriber list in the format *subscribername:MAC address*.

Use cases

Policy pre-planning—Use the report to do the following:

- identify application groups that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-6 Application Group Usage Pattern with Selected Subscribers report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No

Table 10-6 Application Group Usage Pattern with Selected Subscribers report characteristics
(continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click Select All .
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Subscriber Name (or Name Pattern)	Enter text or wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	No	

10.6.2 Example

The following figures show report examples.

Figure 10-10 Application Group Usage Pattern with Selected Subscribers report

Application Group Usage Pattern with Selected Subscriber

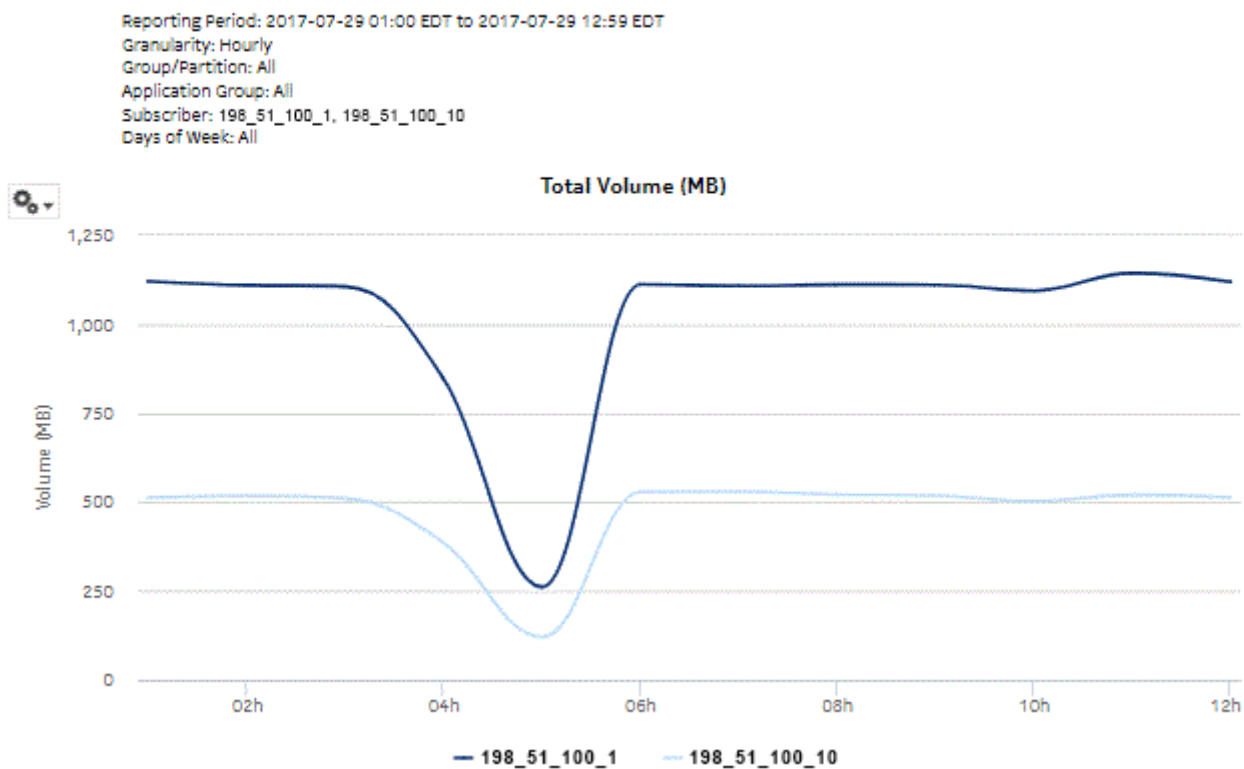


Figure 10-11 Application Group Usage Pattern with Selected Subscribers - Download Volume

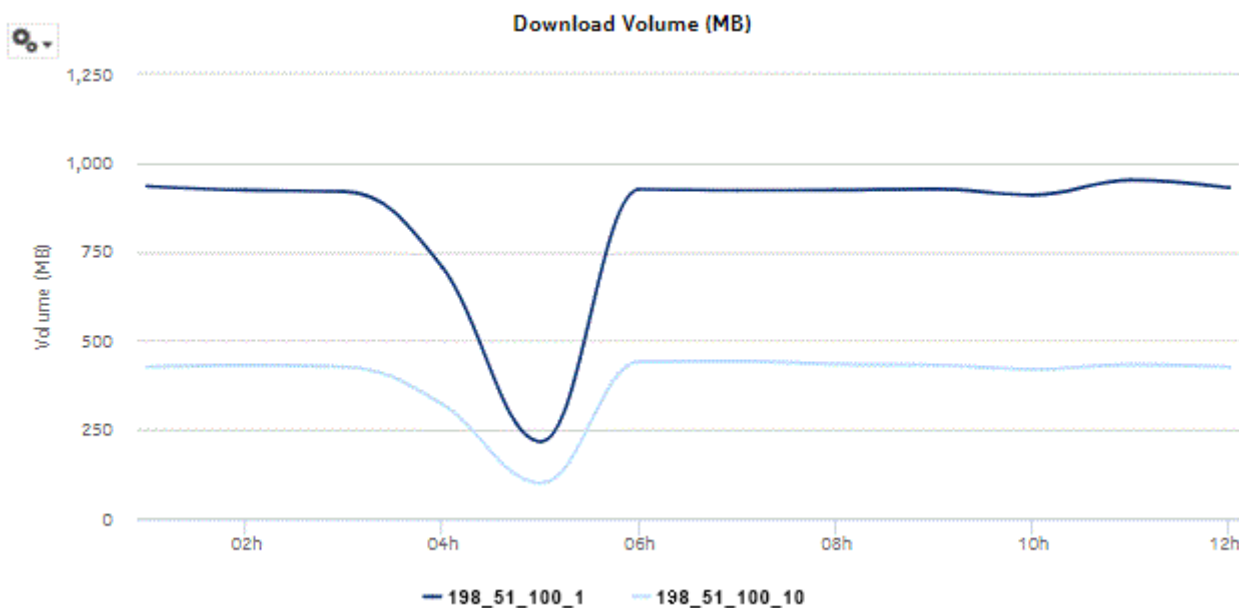
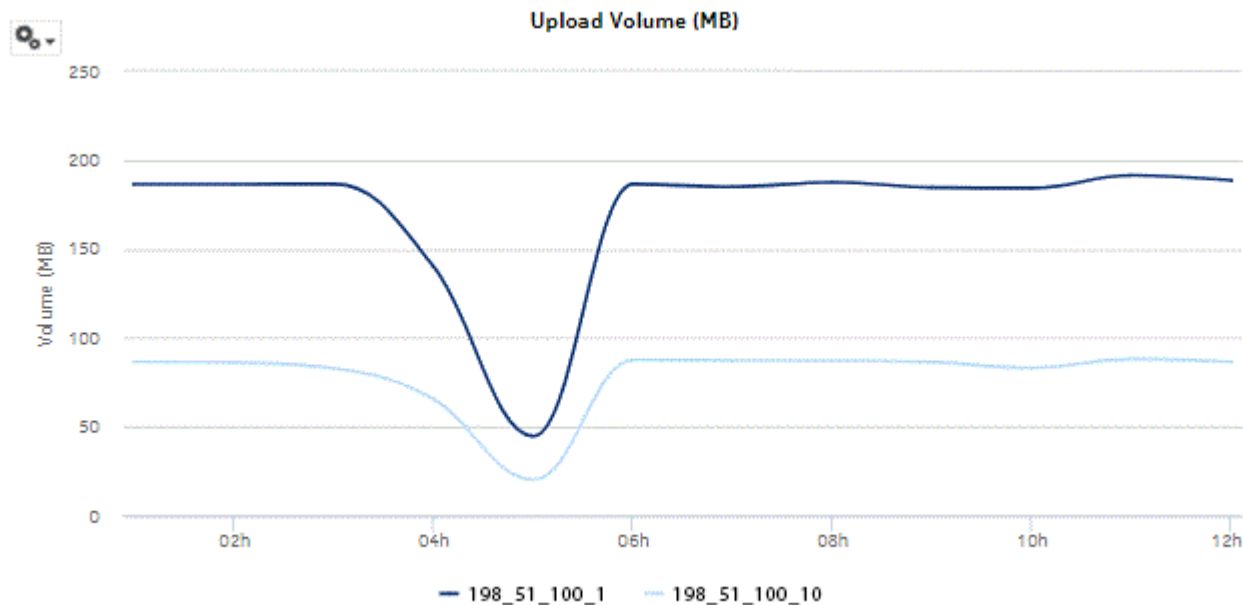


Figure 10-12 Application Group Usage Pattern with Selected Subscribers - Upload Volume



10.7 Application Usage Pattern with Selected Application Profile report

10.7.1 Application Usage Pattern with Selected Application Profiles report overview

The Application Usage Pattern with Selected Application Profile report shows the traffic distribution across a specified set of applications for a specified set of application profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-7 Application Usage Pattern with Selected Application Profile report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate Note: Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click Select All .
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application Profile	Search using partial names or wildcard (%).
	Application	Select individual items or click Select All .
Drill-down support	No	

10.7.2 Example

The following figures show a report example.

Figure 10-13 Application Usage Pattern with Selected Application Profile report

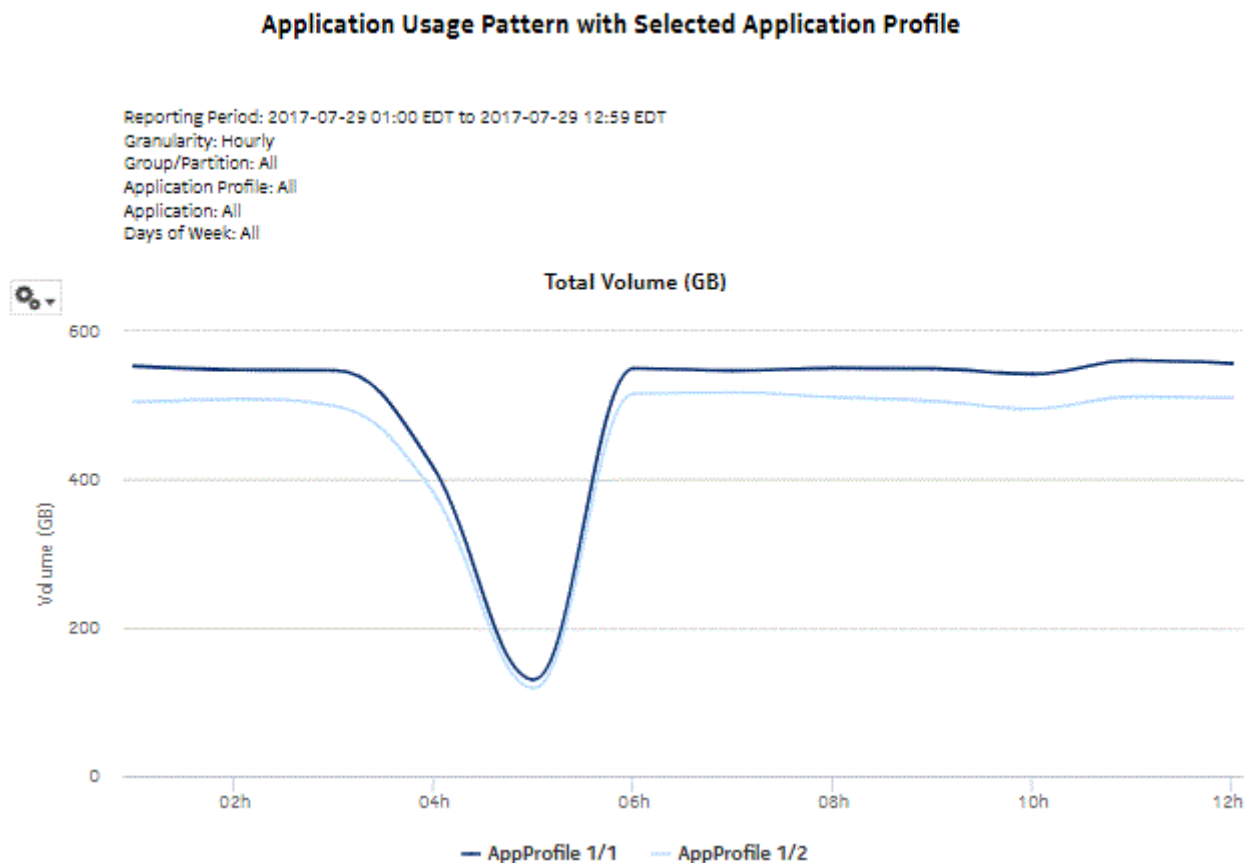


Figure 10-14 Application Usage Pattern with Selected Application Profile - Download Volume

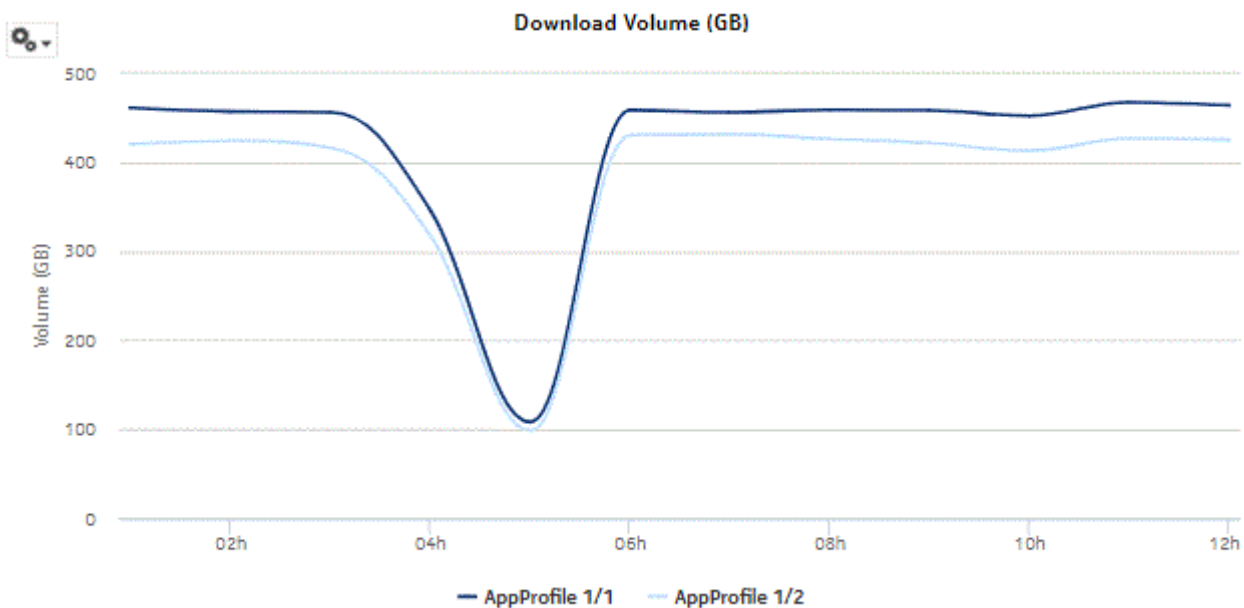
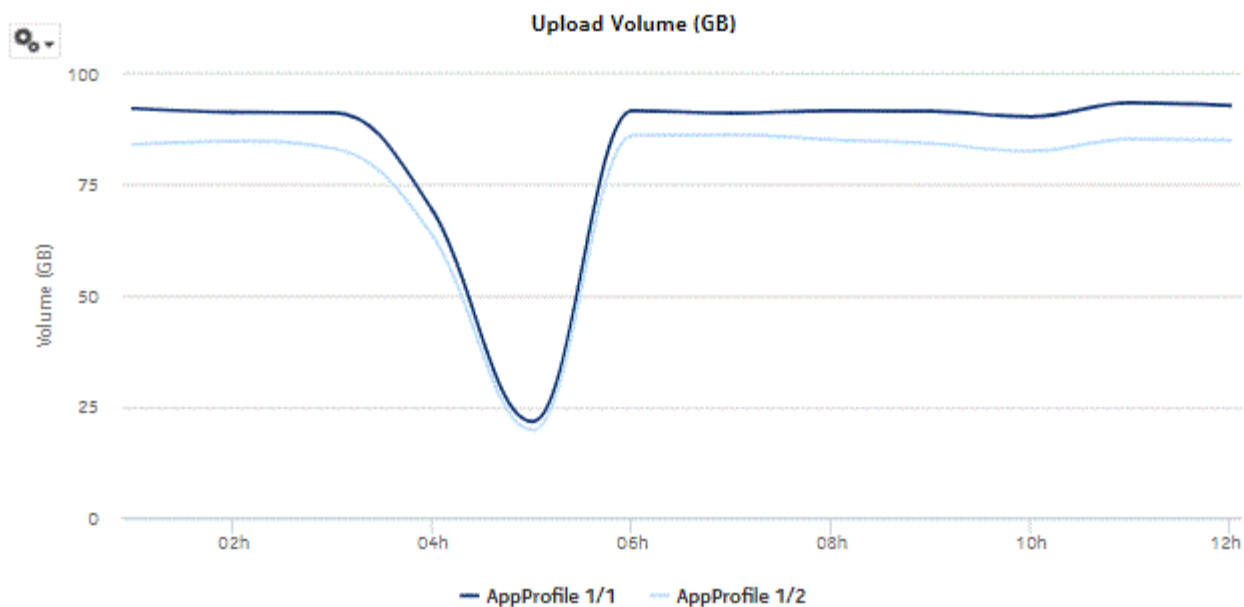


Figure 10-15 Application Usage Pattern with Selected Application Profile - Upload Volume



10.8 Application Usage Pattern with Selected Subscribers report

10.8.1 Application Usage Pattern with Selected Subscribers report overview

The Application Usage Pattern with Selected Subscribers report the traffic distribution across a specified set of applications for a specified set of subscribers on a specified set of ISA-AA groups and partitions. ESM hosts appear in the subscriber list in the format *subscribername:MAC address*.

Use cases

Policy pre-planning—Use the report to do the following:

- identify applications that require traffic shaping
- define policy implementation details
- identify patterns at specific times that may benefit from traffic shaping

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-8 Application Usage Pattern with Selected Subscribers report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application
NSP Flow Collector required	No

Table 10-8 Application Usage Pattern with Selected Subscribers report characteristics
(continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Days of week	Select individual items or click Select All .
	Hours of Day	
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Subscriber Name (or Name Pattern)	Enter text or wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click Select All .
Drill-down support	No	

10.8.2 Example

The following figure shows a report example.

Figure 10-16 Application Usage Pattern with Selected Subscribers report

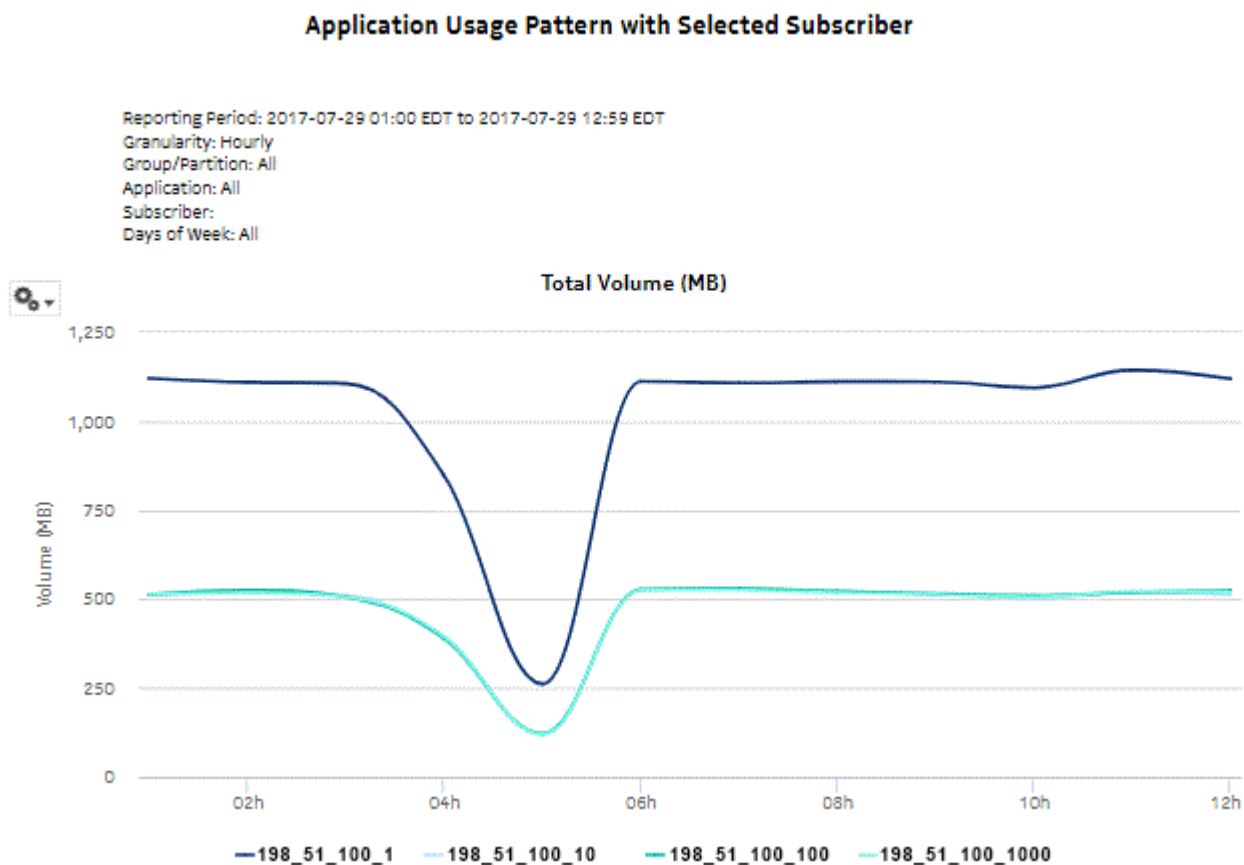


Figure 10-17 Application Usage Pattern with Selected Subscribers - Download Volume

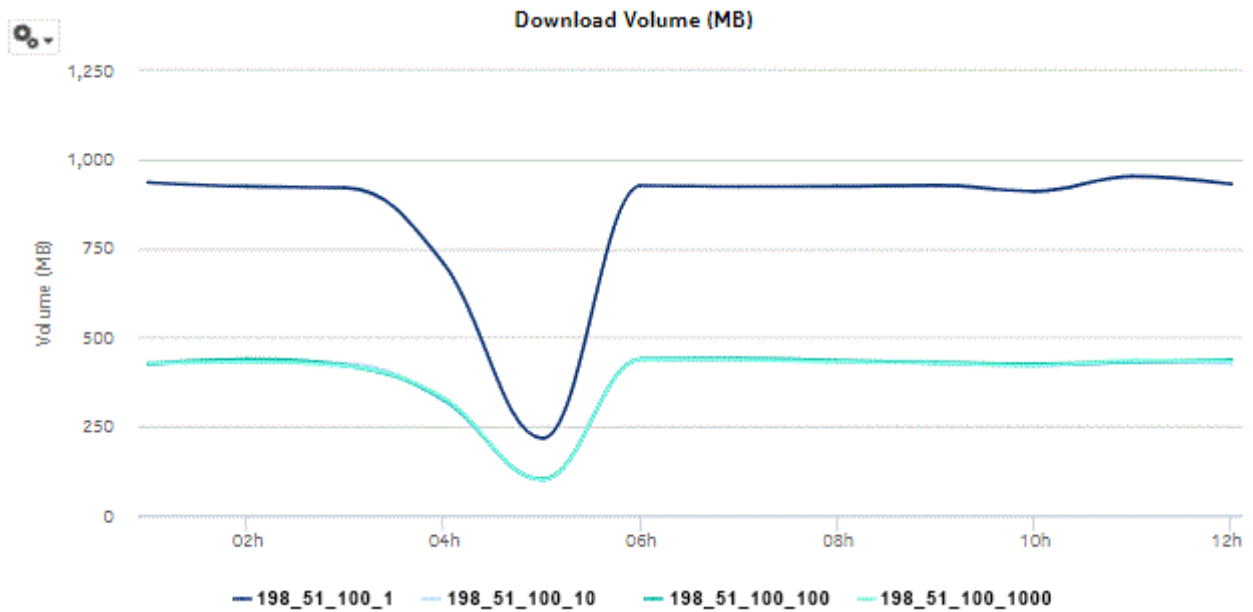
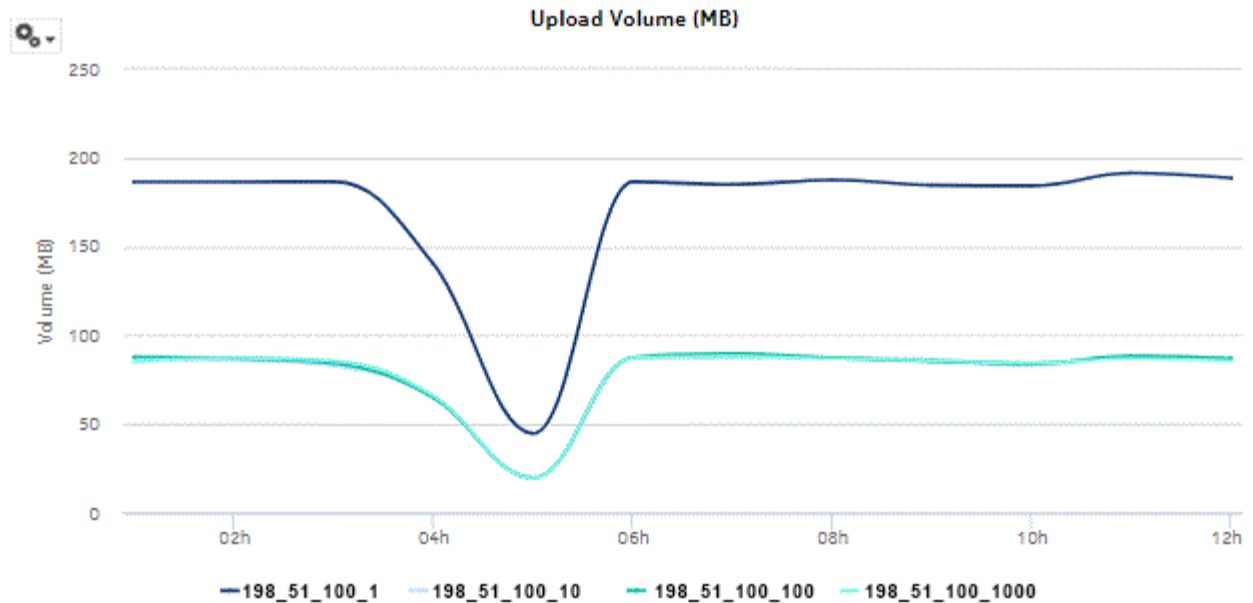


Figure 10-18 Application Usage Pattern with Selected Subscribers - Upload Volume



10.9 Subscriber Percentile vs Traffic Contribution report

10.9.1 Subscriber Percentile vs Traffic Contribution report overview

The Subscriber Percentile vs Traffic Contribution report shows the subscriber traffic contribution to bandwidth consumption by percentile, the usage within each percentile, and the cumulative contribution to the overall total usage.

Use cases

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage; use in conjunction with the following reports to identify the top subscribers and establish fair use policies, targeted campaigns, or new services:

- Top Subscribers by Application Usage
- Top Subscribers by Application Group Usage

Report characteristics

The following table lists the principal report characteristics.

Table 10-9 Subscriber Percentile vs Traffic Contribution report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%).
	Application	Select individual items or click Select All .
	Percentile Range	5, 10, 20, or 25
Drill-down support	No	

10.9.2 Example

The following figures show report examples.

Figure 10-19 Subscriber Percentile vs Traffic Contribution report

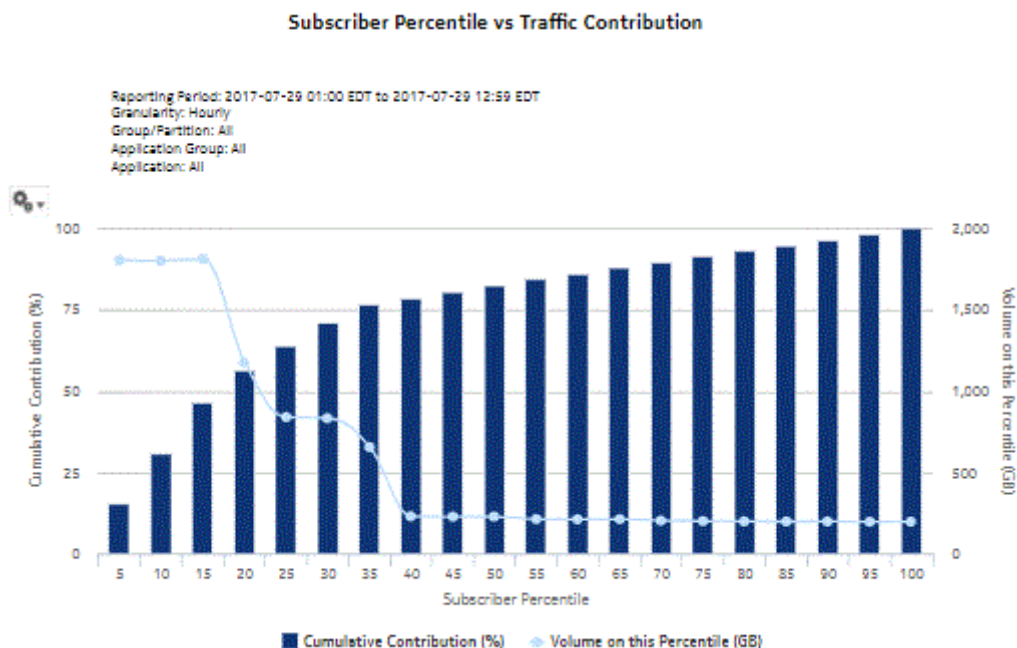


Figure 10-20 Subscriber Percentile vs Traffic Contribution report, continued

Subscriber Percentile (%)	Volume on this Percentile (GB)	Cumulative Volume (GB)	Cumulative Contribution to Overall Total (%)
5	1,805.79	1,805.79	15.51%
10	1,802.64	3,608.43	31.00%
15	1,812.14	5,420.57	46.57%
20	1,175.87	6,596.44	56.67%
25	840.79	7,437.23	63.89%
30	834.03	8,271.26	71.06%
35	655.49	8,926.75	76.69%
40	229.91	9,156.66	78.66%
45	227.70	9,384.36	80.62%
50	228.38	9,612.74	82.58%
55	212.53	9,825.27	84.41%
60	211.30	10,036.57	86.22%
65	212.07	10,248.64	88.04%
70	203.39	10,452.03	89.79%
75	200.52	10,652.55	91.51%
80	198.65	10,851.20	93.22%
85	197.85	11,049.05	94.92%
90	198.18	11,247.23	96.62%
95	196.29	11,443.52	98.31%
100	196.81	11,640.33	100.00%

10.10 Top Application Groups with Selected Application Profiles report

10.10.1 Top Application Groups with Selected Application Profiles report overview

The Top Application Groups with Selected Application Profiles report shows the top specified number of application groups by usage for a specified application profile.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-10 Top Application Groups with Selected Application Profiles report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate Note: Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Profile	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Application Profiles to display a graph of the bandwidth consumption per selected application group over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Application Profiles report for all application groups, not just the ones in the Others category. Drilling down from other groups opens the report for the selected group.	

10.10.2 Example

The following figures show report examples.

Figure 10-21 Top Application Groups with Selected Application Profiles report

Top 10 Application Groups with Selected Application Profile

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT
Granularity: Daily
Application Profile: All
Rank: 10

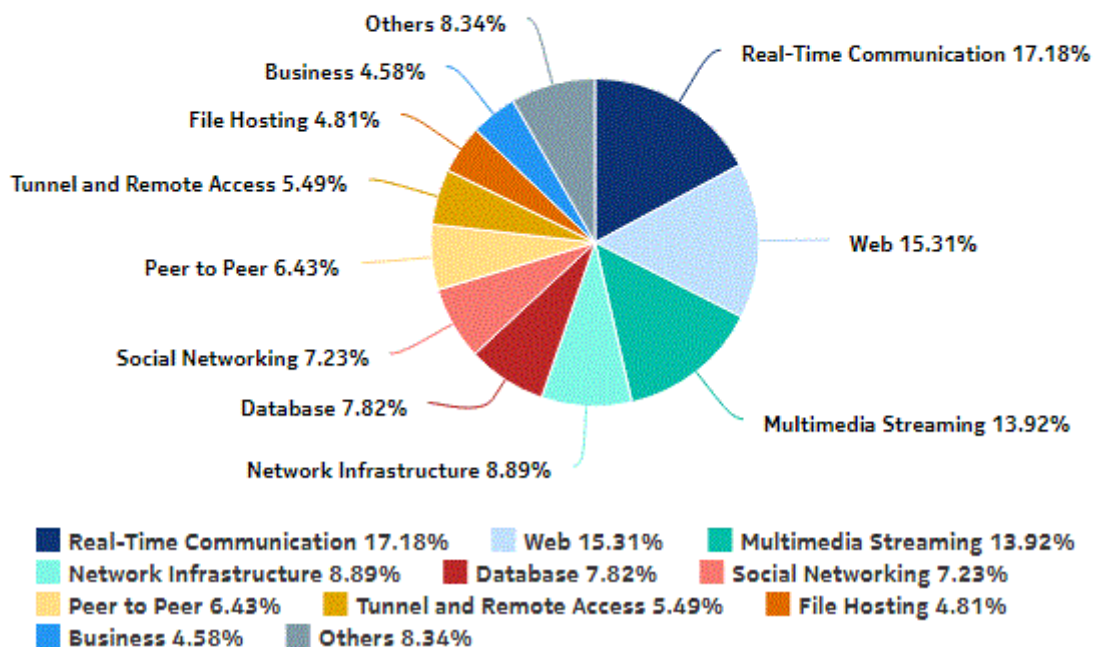


Figure 10-22 Top Application Groups with Selected Application Profiles - Total Volume

Top 10 Application Groups - Total Volume (GB)			
Rank	Application Group	Total Volume (GB)	% of All Application Groups
1	Web	1,152,495,192.89	39.59%
2	File Hosting	1,009,172,497.39	34.67%
3	Tunnel and Remote Access	747,733,792.86	25.69%
4	Multimedia Streaming	511,239.16	.02%
5	Business	317,326.83	.01%
6	Real-Time Communication	143,602.70	.00%
7	Mail	137,249.80	.00%
8	Peer to Peer	84,373.50	.00%
9	Social Networking	79,522.47	.00%
10	Software Update	65,912.46	.00%
Top 10 Application Groups Subtotal		2,910,740,710.06	99.98%

Figure 10-23 Top Application Groups with Selected Application Profiles - Download Volume

Top 10 Application Groups - Download Volume (GB)			
Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	14,448.87	17.18%
2	Web	12,881.04	15.31%
3	Multimedia Streaming	11,708.94	13.92%
4	Network Infrastructure	7,479.90	8.89%
5	Database	6,578.50	7.82%
6	Social Networking	6,080.26	7.23%
7	Peer to Peer	5,408.94	6.43%
8	Tunnel and Remote Access	4,619.03	5.49%
9	File Hosting	4,042.02	4.81%
10	Business	3,852.57	4.58%
Top 10 Application Groups Subtotal		77,100.07	91.66%

Figure 10-24 Top Application Groups with Selected Application Profiles - Upload Volume

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	2,889.68	17.18%
2	Web	2,575.88	15.31%
3	Multimedia Streaming	2,341.91	13.92%
4	Network Infrastructure	1,495.78	8.89%
5	Database	1,315.53	7.82%
6	Social Networking	1,216.16	7.23%
7	Peer to Peer	1,082.00	6.43%
8	Tunnel and Remote Access	923.80	5.49%
9	File Hosting	808.30	4.80%
10	Business	770.52	4.58%
Top 10 Application Groups Subtotal		15,419.56	91.65%

10.11 Top Application Groups with Selected Subscribers report

10.11.1 Top Application Groups with Selected Subscribers report overview

The Top Application Groups with Selected Subscriber report shows the top specified number of application groups by usage for the specified subscribers. ESM hosts appear in the subscriber list in the format *subscribername:MAC address*.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-11 Top Application Groups with Selected Subscribers report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application group	
NSP Flow Collector required	No	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Application Group Usage Pattern with Selected Subscribers to display a graph of the bandwidth consumption for the selected application group over time. Note: Drilling down from the Others segment opens the Top Applications with Selected Subscriber report for all application groups, not just the ones in the Others category. Drilling down from other application groups opens the report for the selected application group.	

10.11.2 Example

The following figures show a report example.

Figure 10-25 Top Application Groups with Selected Subscribers report

Top 10 Application Groups with Selected Subscriber

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT
Granularity: Daily
Subscriber: 198_18_0_1000:1fcec92093
Rank: 10

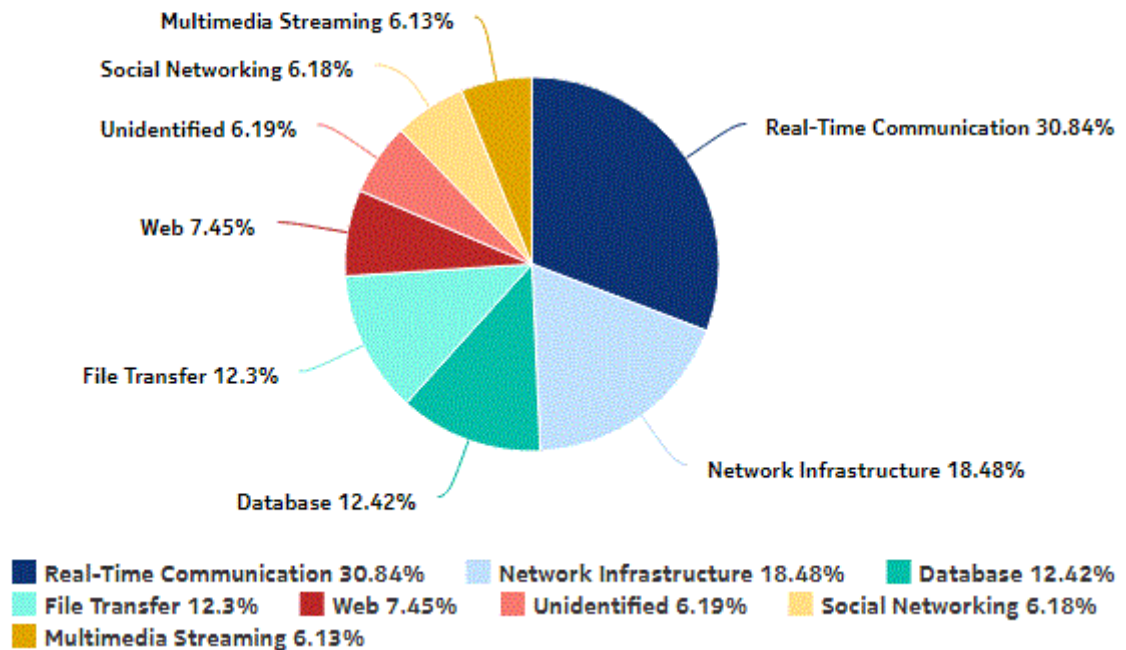


Figure 10-26 Top Application Groups with Selected Subscribers - Total Volume

Top 10 Application Groups - Total Volume (GB)

Rank	Application Group	Total Volume (GB)	% of All Application
1	Real-Time Communication	3.47	30.84%
2	Network Infrastructure	2.08	18.48%
3	Database	1.40	12.42%
4	File Transfer	1.38	12.30%
5	Web	.84	7.45%
6	Unidentified	.70	6.19%
7	Social Networking	.70	6.18%
8	Multimedia Streaming	.69	6.13%
Top 10 Application Groups Subtotal		11.26	99.99%

Figure 10-27 Top Application Groups with Selected Subscribers - Download Volume

Top 10 Application Groups - Download Volume (GB)

Rank	Application Group	Download Volume (GB)	% of All Application
1	Real-Time Communication	2.89	30.84%
2	Network Infrastructure	1.73	18.49%
3	Database	1.16	12.44%
4	File Transfer	1.15	12.29%
5	Web	.70	7.46%
6	Unidentified	.58	6.19%
7	Social Networking	.58	6.18%
8	Multimedia Streaming	.57	6.11%
Top 10 Application Groups Subtotal		9.36	100.00%

Figure 10-28 Top Application Groups with Selected Subscribers - Upload Volume

Top 10 Application Groups - Upload Volume (GB)

Rank	Application Group	Upload Volume (GB)	% of All Application
1	Real-Time Communication	.58	30.86%
2	Network Infrastructure	.35	18.48%
3	File Transfer	.23	12.38%
4	Database	.23	12.32%
5	Web	.14	7.41%
6	Multimedia Streaming	.12	6.19%
7	Social Networking	.12	6.19%
8	Unidentified	.12	6.18%
Top 10 Application Groups Subtotal		1.89	100.01%

10.12 Top Application Profiles by Application Group Usage report

10.12.1 Top Application Profiles by Application Group Usage report overview

The Top Application Profiles by Application Group Usage report shows the top specified number of application profiles by usage for a specified application group.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-12 Top Application Profiles by Application Group Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No

Table 10-12 Top Application Profiles by Application Group Usage report characteristics
(continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Application Profiles to display a graph of the top application groups for the selected application profile. Note: Drilling down from the Others segment opens the Top Application Groups with Selected Application Profiles report for all application profiles, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application profile.	

10.12.2 Example

The following figures show report examples.

Figure 10-29 Top Application Profiles by Application Group Usage report

Top 10 Application Profiles by Application Group Usage

Reporting Period: 2017-07-29 13:00 EDT to 2017-08-03 12:59 EDT

Granularity: Hourly

Group/Partition: All

Application Group: All

Rank: 10

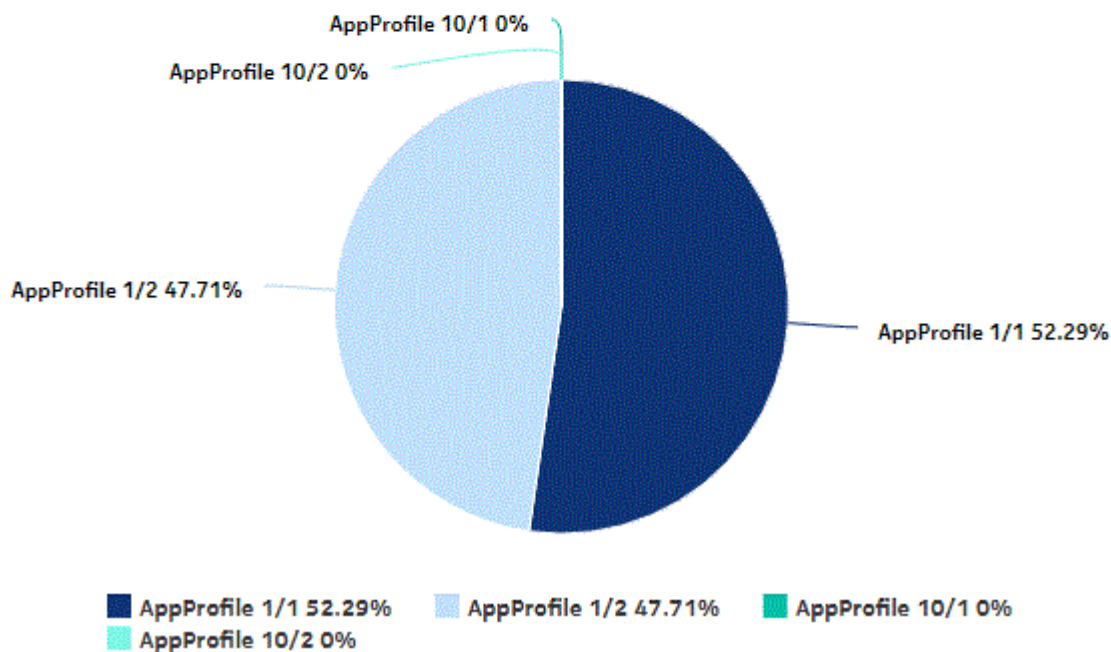


Figure 10-30 Top Application Profiles by Application Group Usage - Total Volume

Top 10 Application Profiles - Total Volume (GB)

Rank	Application Profile	Total Volume (GB)	% of All Application
1	AppProfile 1/1	46,133.28	52.30%
2	AppProfile 1/2	42,084.17	47.70%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
Top 10 Application Profiles Subtotal		88,217.45	100.00%

Figure 10-31 Top Application Profiles by Application Group Usage - Download Volume

Top 10 Application Profiles - Download Volume (GB)

Rank	Application Profile	Download Volume (GB)	% of All Application
1	AppProfile 1/1	38,444.88	52.30%
2	AppProfile 1/2	35,070.08	47.70%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
Top 10 Application Profiles Subtotal		73,514.96	100.00%

Figure 10-32 Top Application Profiles by Application Group Usage - Upload Volume

Top 10 Application Profiles - Upload Volume (GB)

Rank	Application Profile	Upload Volume (GB)	% of All Application
1	AppProfile 1/1	7,688.41	52.29%
2	AppProfile 1/2	7,014.09	47.71%
3	AppProfile 10/1	.00	.00%
4	AppProfile 10/2	.00	.00%
Top 10 Application Profiles Subtotal		14,702.50	100.00%

10.13 Top Application Profiles by Application Usage report

10.13.1 Top Application Profiles by Application Usage report overview

The Top Application Profiles by Application Usage report shows the top specified number of application profiles by usage for a specified application.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-13 Top Application Profiles by Application Usage report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Group/Partition	Search using partial names or wildcard (%).
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Application Profiles to display a graph of the top applications for the selected application profile. Note: Drilling down from the Others segment opens the Top Applications with Selected Application Profiles report for all application profiles, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application profile.	

10.13.2 Example

The following figure shows a report example.

Figure 10-33 Top Application Profiles by Application Usage report

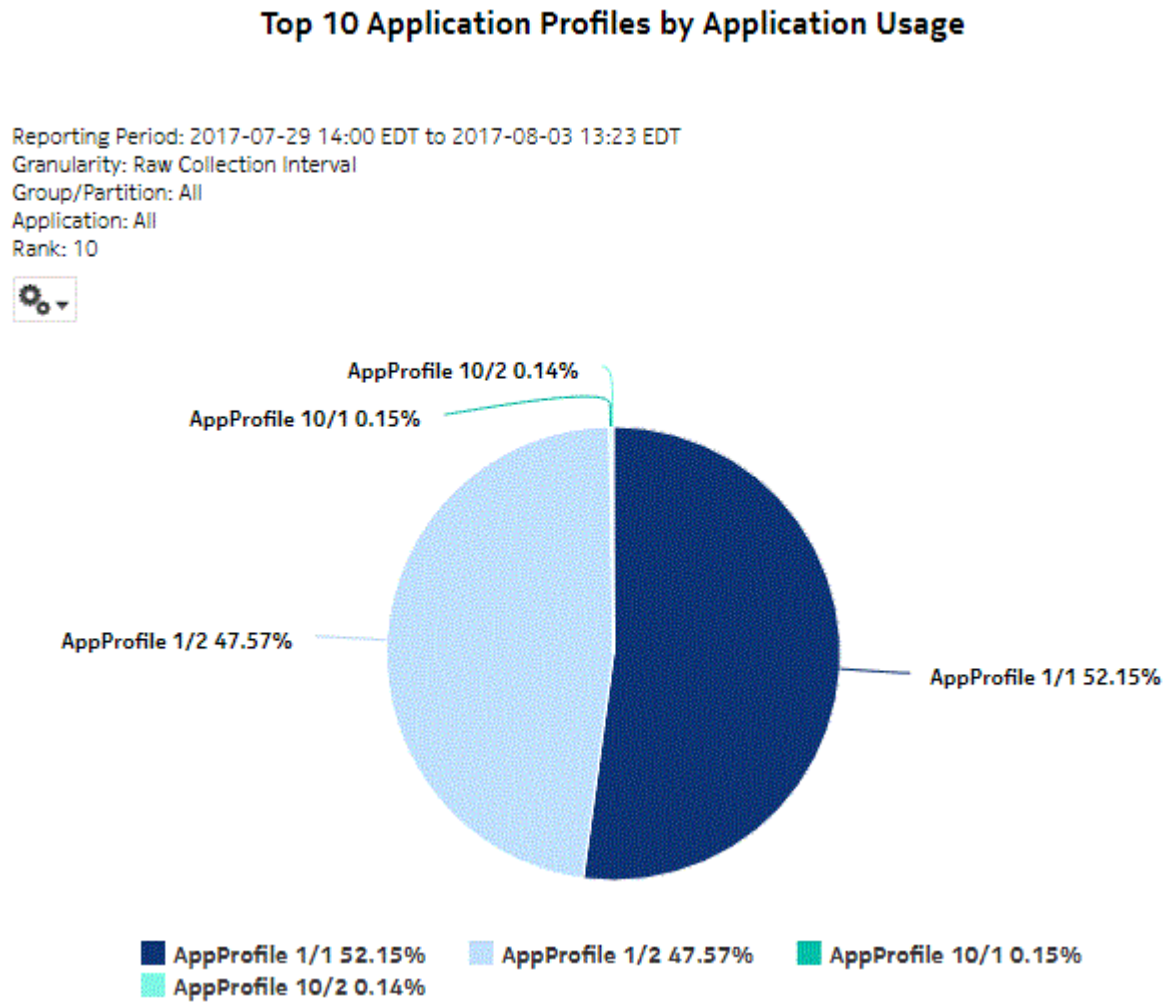


Figure 10-34 Top Application Profiles by Application Usage - Total Volume

Top 10 Application Profiles - Total Volume (GB)

Rank	Application Profile	Total Volume (GB)	% of All Application
1	AppProfile 1/1	46,707.50	52.15%
2	AppProfile 1/2	42,603.97	47.57%
3	AppProfile 10/1	129.98	.14%
4	AppProfile 10/2	124.92	.14%
Top 10 Application Profiles Subtotal		89,566.37	100.00%

Figure 10-35 Top Application Profiles by Application Usage - Download Volume

Top 10 Application Profiles - Download Volume (GB)

Rank	Application Profile	Download Volume (GB)	% of All Application
1	AppProfile 1/1	38,923.38	52.15%
2	AppProfile 1/2	35,503.25	47.57%
3	AppProfile 10/1	108.30	.14%
4	AppProfile 10/2	104.10	.14%
Top 10 Application Profiles Subtotal		74,639.03	100.00%

Figure 10-36 Top Application Profiles by Application Usage - Upload Volume

Top 10 Application Profiles - Upload Volume (GB)

Rank	Application Profile	Upload Volume (GB)	% of All Application
1	AppProfile 1/1	7,784.12	52.15%
2	AppProfile 1/2	7,100.72	47.57%
3	AppProfile 10/1	21.68	.14%
4	AppProfile 10/2	20.81	.14%
Top 10 Application Profiles Subtotal		14,927.33	100.00%

10.14 Top Applications with Selected Application Profiles report

10.14.1 Top Applications with Selected Application Profiles report overview

The Top Applications with Selected Application Profiles report shows the top specified number of applications by usage for a specified application Profiles.

Use cases

Capacity planning—Use the report to examine traffic growth and identify usage patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 10-14 Top Applications with Selected Application Profiles report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber aggregate Note: Subscriber aggregation must be enabled in the associated AA accounting policy.	
NSP Flow Collector required	No	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Profile	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Subscribers to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Subscriber report for all applications, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application.	

10.14.2 Example

The following figure shows a report example.

Figure 10-37 Top Applications with Selected Application Profiles report

Top 10 Applications with Selected Application Profile

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT
Granularity: Daily
Application Profile: All
Rank: 10

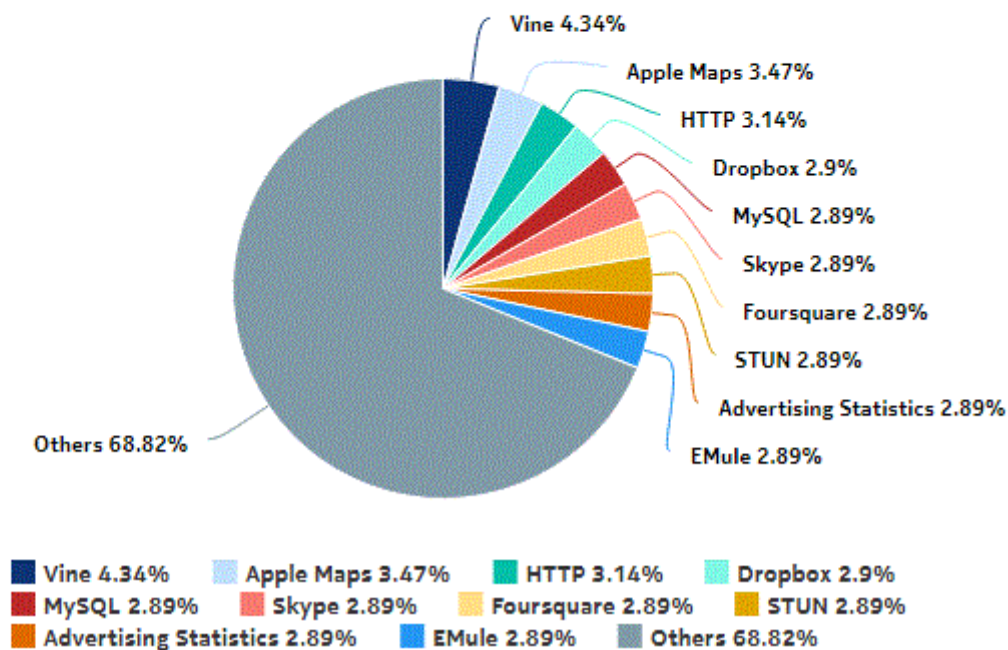


Figure 10-38 Top Applications with Selected Application Profiles - Total Volume

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Vine	4,376.41	4.34%
2	Apple Maps	3,497.75	3.47%
3	HTTP	3,169.48	3.14%
4	Dropbox	2,922.78	2.90%
5	MySQL	2,921.39	2.89%
6	Skype	2,920.25	2.89%
7	Foursquare	2,920.00	2.89%
8	STUN	2,916.47	2.89%
9	Advertising Statistics	2,915.48	2.89%
10	EMule	2,915.30	2.89%
Top 10 Applications Subtotal		31,475.31	31.19%

Figure 10-39 Top Applications with Selected Application Profiles - Download Volume

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	Vine	3,646.99	4.34%
2	Apple Maps	2,914.86	3.47%
3	HTTP	2,641.21	3.14%
4	Dropbox	2,435.74	2.90%
5	MySQL	2,434.55	2.89%
6	Skype	2,433.63	2.89%
7	Foursquare	2,433.26	2.89%
8	STUN	2,430.41	2.89%
9	Advertising Statistics	2,429.63	2.89%
10	EMule	2,429.33	2.89%
Top 10 Applications Subtotal		26,229.61	31.19%

Figure 10-40 Top Applications with Selected Application Profiles - Upload Volume

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	Vine	729.42	4.34%
2	Apple Maps	582.89	3.46%
3	HTTP	528.27	3.14%
4	Dropbox	487.04	2.90%
5	MySQL	486.84	2.89%
6	Foursquare	486.74	2.89%
7	Skype	486.62	2.89%
8	STUN	486.07	2.89%
9	EMule	485.97	2.89%
10	Advertising Statistics	485.85	2.89%
Top 10 Applications Subtotal		5,245.71	31.18%

10.15 Top Applications with Selected Subscribers report

10.15.1 Top Applications with Selected Subscribers report overview

The Top Applications with Selected Subscribers report shows the top specified number of applications by usage for the specified subscribers. ESM hosts appear in the subscriber list in the format *subscribername:MAC address*.

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-15 Top Applications with Selected Subscribers report characteristics

Characteristic	Value	
Statistics type	AA Accounting subscriber application	
NSP Flow Collector required	No	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Subscriber	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Application Usage Pattern with Selected Application Profiles to display a graph of the bandwidth consumption for the selected application over time. Note: Drilling down from the Others segment opens the Application Usage Pattern with Selected Application Profiles report for all applications, not just the ones in the Others category. Drilling down from other applications opens the report for the selected application.	

10.15.2 Example

The following figures show a report example.

Figure 10-41 Top Applications with Selected Subscribers report

Top 10 Applications with Selected Subscriber

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT

Granularity: Daily

Subscriber: 198_51_100_1, 198_51_100_10, 198_51_100_100, 198_51_100_1000, 198_51_100_1000:111f7c91d6

Rank: 10

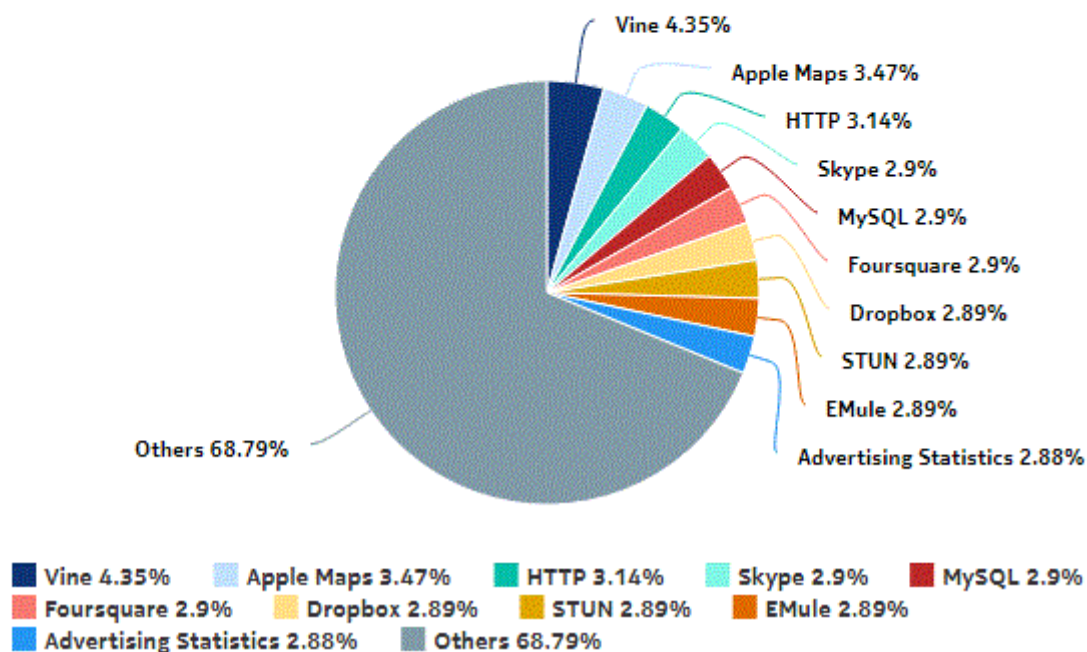


Figure 10-42 Top Applications with Selected Subscribers - Total Volume

Top 10 Applications - Total Volume (GB)

Rank	Application	Total Volume (GB)	% of All Applications
1	Vine	10.81	4.35%
2	Apple Maps	8.62	3.47%
3	HTTP	7.81	3.14%
4	Skype	7.22	2.90%
5	MySQL	7.21	2.90%
6	Foursquare	7.20	2.90%
7	Dropbox	7.20	2.89%
8	STUN	7.19	2.89%
9	EMule	7.18	2.89%
10	Advertising Statistics	7.17	2.88%
Top 10 Applications Subtotal		77.61	31.21%

Figure 10-43 Top Applications with Selected Subscribers - Download Volume

Top 10 Applications - Download Volume (GB)

Rank	Application	Download Volume (GB)	% of All Applications
1	Vine	9.01	4.35%
2	Apple Maps	7.19	3.47%
3	HTTP	6.51	3.14%
4	Skype	6.02	2.91%
5	MySQL	6.01	2.90%
6	Foursquare	6.00	2.90%
7	Dropbox	6.00	2.89%
8	EMule	5.99	2.89%
9	STUN	5.99	2.89%
10	Advertising Statistics	5.97	2.88%
Top 10 Applications Subtotal		64.69	31.22%

Figure 10-44 Top Applications with Selected Subscribers - Upload Volume

Top 10 Applications - Upload Volume (GB)

Rank	Application	Upload Volume (GB)	% of All Applications
1	Vine	1.80	4.35%
2	Apple Maps	1.43	3.46%
3	HTTP	1.30	3.14%
4	MySQL	1.20	2.90%
5	STUN	1.20	2.90%
6	Dropbox	1.20	2.90%
7	Advertising Statistics	1.20	2.90%
8	Skype	1.20	2.89%
9	Foursquare	1.20	2.89%
10	EMule	1.19	2.88%
Top 10 Applications Subtotal		12.92	31.21%

10.16 Top Applications with Selected Subscribers for Home Devices report

10.16.1 Top Applications with Selected Subscribers for Home Devices report overview

The Top Applications with Selected Subscribers for Home Devices report shows:

- the top specified number of UE devices in the home based on the total volume, sorted by volume in descending order
- the top specified number of application groups in the home based on the total volume, sorted by volume in descending order
- the top specified number of applications by usage for the specified subscribers for home devices, on a per-device basis

ESM-MAC hosts appear in the subscriber list in the format *subscribername:MAC address*

Use cases

Bill shock avoidance—Use the report to provide application usage information to a subscriber to satisfy concerns that may arise from quota exception notices.

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Report characteristics

The following table lists the principal report characteristics.

Table 10-16 Top Applications with Selected Subscribers for Home Devices report characteristics

Characteristic	Value	
Statistics type	AA Cflowd Volume	
NSP Flow Collector required	Yes	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Subscriber Name (or Name Pattern)	Enter a wildcard (%) in this field to populate the list of subscribers.
	Rank	Number of applications to report
	Max. no. of devices to report on	Enter the maximum number of devices to include in the report.
	Logo Resource ID	Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
Drill-down support	No	

10.16.2 Example

The following figure shows a report example.

Figure 10-45 Top Applications with Selected Subscribers for Home Devices report – Top UE devices in the home based on the total volume

Top 10 Devices and Application Groups for Sub_192.168.111.1%

Reporting Period: 2019-06-05 EDT to 2019-06-09 EDT
Granularity: Daily

Top 10 Devices

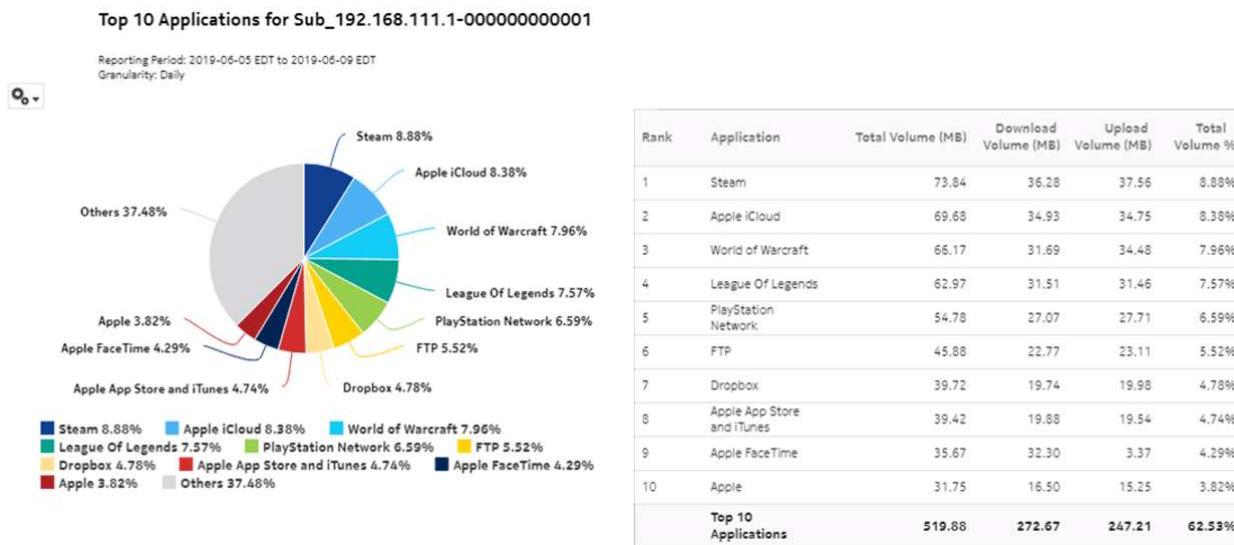
Rank	Device	Total Volume (MB)	Download Volume (MB)	Upload Volume (MB)	Total Volume %
1	Sub_192.168.111.19-000000000001	1,564.47	813.41	751.06	6.36%
2	Sub_192.168.111.13-000000000002	1,496.42	771.42	725.00	6.08%
3	Sub_192.168.111.19-000000000002	1,483.91	768.18	715.73	6.03%
4	Sub_192.168.111.13-000000000001	1,373.76	713.87	659.90	5.58%
5	Sub_192.168.111.1-000000000002	1,373.44	713.42	660.02	5.58%
6	Sub_192.168.111.14-000000000002	1,342.62	690.28	652.34	5.46%
7	Sub_192.168.111.16-000000000001	1,327.41	683.97	643.44	5.40%
8	Sub_192.168.111.12-000000000002	1,306.14	679.35	626.79	5.31%
9	Sub_192.168.111.17-000000000002	1,287.83	665.77	622.06	5.24%
10	Sub_192.168.111.10-000000000002	1,224.83	637.31	587.53	4.98%

Figure 10-46 Top Applications with Selected Subscribers for Home Devices report – Top applications groups in the home based on the total volume

Top 10 Application Groups

Rank	Application Group	Total Volume (GB)	Download Volume (GB)	Upload Volume (MB)	Total Volume %
1	Gaming	8.13	4.06	4,168.65	33.86%
2	Web	4.18	2.09	2,140.31	17.43%
3	File Hosting	3.08	1.54	1,576.01	12.82%
4	Business	1.46	.73	748.42	6.09%
5	Social Networking	1.36	.68	700.63	5.67%
6	Real-Time Communication	1.05	.95	102.31	4.38%
7	Multimedia Streaming	.97	.49	494.70	4.05%
8	File Transfer	.97	.48	499.25	4.04%
9	Software Update	.87	.44	445.27	3.64%
10	Mail	.86	.43	441.00	3.60%
Top Application Groups - Subtotal		22.95	11.89	11,316.56	95.58%

Figure 10-47 Top Applications with Selected Subscribers for Home Devices report – Top applications by usage for specified subscribers per device



10.17 Top Subscribers by Application Group Usage report

10.17.1 Top Subscribers by Application Group Usage report overview

The Top Subscribers by Application Group Usage report shows the top specified number of subscribers that use the specified application groups.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 10-17 Top Subscribers by Application Group Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application group
NSP Flow Collector required	No
Selectable metrics or counters	—

Table 10-17 Top Subscribers by Application Group Usage report characteristics (continued)

Characteristic	Value	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application Group	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Application Groups with Selected Subscriber to display a graph of the top application groups for the selected subscriber.	

10.17.2 Example

The following figures show report examples.

Figure 10-48 Top Subscribers by Application Group Usage report

Top 10 Subscribers by Application Group Usage

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT
Granularity: Daily
Application Group: All
Rank: 10

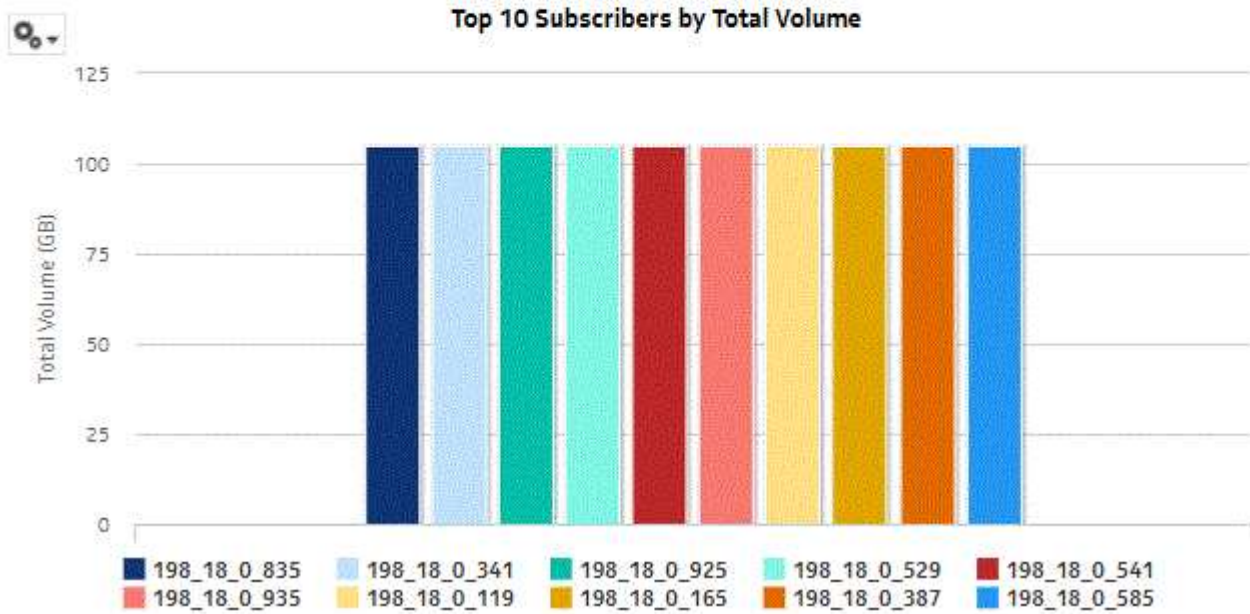


Figure 10-49 Top Subscribers by Application Group Usage - Total Volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	198_51_100_835	104.86	.10%
2	198_51_100_341	104.84	.10%
3	198_51_100_925	104.84	.10%
4	198_51_100_529	104.83	.10%
5	198_51_100_541	104.83	.10%
6	198_51_100_935	104.82	.10%
7	198_51_100_119	104.81	.10%
8	198_51_100_165	104.80	.10%
9	198_51_100_387	104.80	.10%
10	198_51_100_585	104.80	.10%
Top 10 Subscribers Subtotal		1,048.23	1.04%

Figure 10-50 Top Subscribers by Application Group Usage - Download Volume

Top 10 Subscribers - Download Volume (GB)

Rank	Subscriber	Download Volume (GB)	% of All Subscribers
1	198_51_100_835	87.41	.10%
2	198_51_100_341	87.39	.10%
3	198_51_100_925	87.39	.10%
4	198_51_100_529	87.38	.10%
5	198_51_100_935	87.38	.10%
6	198_51_100_119	87.37	.10%
7	198_51_100_731	87.37	.10%
8	198_51_100_165	87.36	.10%
9	198_51_100_523	87.36	.10%
10	198_51_100_541	87.36	.10%
Top 10 Subscribers Subtotal		873.77	1.04%

Figure 10-51 Top Subscribers by Application Group Usage - Upload Volume

Top 10 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	198_51_100_131	17.47	.10%
2	198_51_100_155	17.47	.10%
3	198_51_100_201	17.47	.10%
4	198_51_100_247	17.47	.10%
5	198_51_100_25	17.47	.10%
6	198_51_100_255	17.47	.10%
7	198_51_100_273	17.47	.10%
8	198_51_100_33	17.47	.10%
9	198_51_100_363	17.47	.10%
10	198_51_100_379	17.47	.10%
Top 10 Subscribers Subtotal		174.70	1.04%

10.18 Top Subscribers by Application Usage report

10.18.1 Top Subscribers by Application Usage report overview

The Top Subscribers by Application Usage report shows the top specified number of subscribers that use the specified applications.

Use cases

Subscriber profiling—Use the report to determine the behavior of a specific set of subscribers.

Top subscribers—Use the report to identify and characterize the behavior of the subscribers that have the highest network usage.

Report characteristics

The following table lists the principal report characteristics.

Table 10-18 Top Subscribers by Application Usage report characteristics

Characteristic	Value
Statistics type	AA Accounting subscriber application

Table 10-18 Top Subscribers by Application Usage report characteristics (continued)

Characteristic	Value	
NSP Flow Collector required	No	
Selectable metrics or counters	—	
Aggregation types	None (raw data) Hourly Daily Monthly	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Application	Search using partial names or wildcard (%). Select individual items or click Select All .
	Rank	Number of items to report
Drill-down support	Yes—Open Top Applications with Selected Subscriber to display a graph of the top applications for the selected subscriber.	

10.18.2 Example

The following figures show report examples.

Figure 10-52 Top Subscribers by Application Usage report

Top 10 Subscribers by Application Usage

Reporting Period: 2017-07-29 EDT to 2017-08-02 EDT
Granularity: Daily
Application: All
Rank: 10

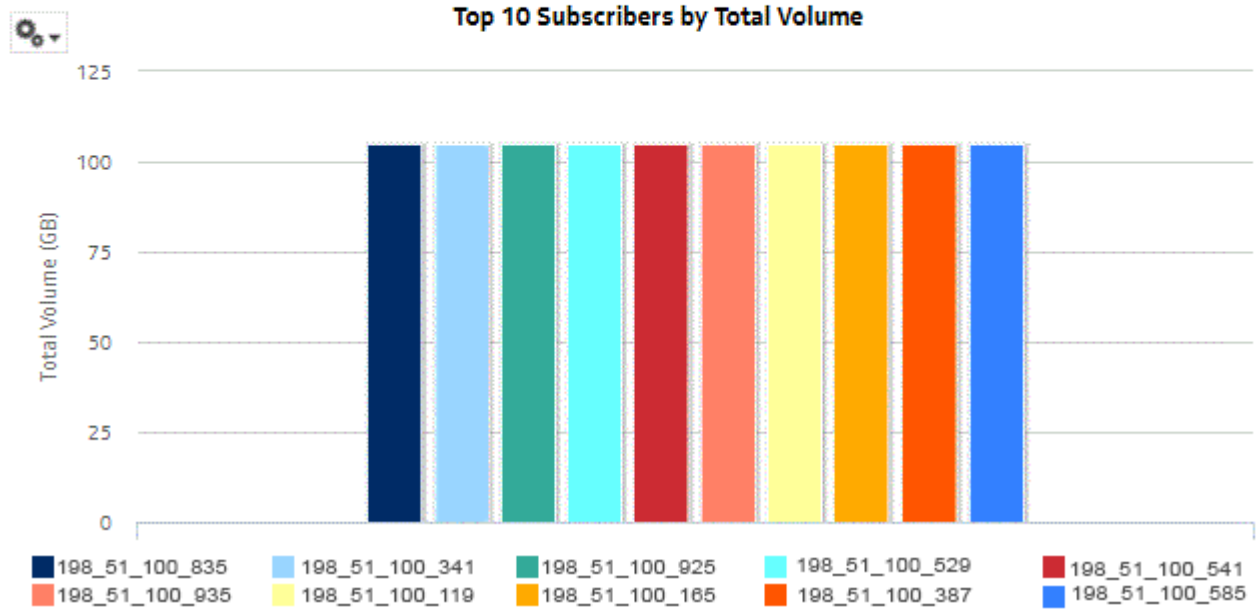


Figure 10-53 Top Subscribers by Application Usage - Total Volume

Top 10 Subscribers - Total Volume (GB)

Rank	Subscriber	Total Volume (GB)	% of All Subscribers
1	198_51_100_835	104.86	.10%
2	198_51_100_341	104.84	.10%
3	198_51_100_925	104.84	.10%
4	198_51_100_529	104.83	.10%
5	198_51_100_541	104.83	.10%
6	198_51_100_935	104.82	.10%
7	198_51_100_119	104.81	.10%
8	198_51_100_165	104.80	.10%
9	198_51_100_387	104.80	.10%
10	198_51_100_585	104.80	.10%
Top 10 Subscribers Subtotal		1,048.23	1.04%

Figure 10-54 Top Subscribers by Application Usage - Download Volume

Top 10 Subscribers - Download Volume (GB)

Rank	Subscriber		Download Volume (GB)	% of All Subscribers
1	198_18_0_835	198_51_100_835	87.41	.10%
2	198_18_0_341	198_51_100_341	87.39	.10%
3	198_18_0_925	198_51_100_925	87.39	.10%
4	198_18_0_529	198_51_100_529	87.38	.10%
5	198_18_0_935	198_51_100_935	87.38	.10%
6	198_18_0_119	198_51_100_119	87.37	.10%
7	198_18_0_731	198_51_100_731	87.37	.10%
8	198_18_0_165	198_51_100_165	87.36	.10%
9	198_18_0_523	198_51_100_523	87.36	.10%
10	198_18_0_541	198_51_100_541	87.36	.10%
Top 10 Subscribers Subtotal			873.77	1.04%

Figure 10-55 Top Subscribers by Application Usage - Upload Volume

Top 10 Subscribers - Upload Volume (GB)

Rank	Subscriber	Upload Volume (GB)	% of All Subscribers
1	198_51_100_131	17.47	.10%
2	198_51_100_155	17.47	.10%
3	198_51_100_201	17.47	.10%
4	198_51_100_247	17.47	.10%
5	198_51_100_25	17.47	.10%
6	198_51_100_255	17.47	.10%
7	198_51_100_273	17.47	.10%
8	198_51_100_33	17.47	.10%
9	198_51_100_363	17.47	.10%
10	198_51_100_379	17.47	.10%
Top 10 Subscribers Subtotal		174.70	1.04%

Part IV: Network and Service

Overview

Purpose

This part describes the NSP Analytics reports in the Network and Service category.

Notes:

Some Network and Service reports are supported in the NSP. See [Part V: "NSP"](#) for the reports that were formerly in this part.

Two objects of same object type (for example, port, LAG, service, SAP, LSP, interface, or link) with the same name but different case (for example, one name in upper case, and another name in lower case) cannot be selected at the same time in the report inputs. However, the report can be loaded separately for each object.

You cannot select a report input that contains an apostrophe in the name (for example, "Dom's nodes").

If a report has (μ s) as the delay unit, the corresponding CSV export file has ($\frac{1}{4}$ s) as the delay unit.

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11 Comprehensive reports

11.1 Comprehensive reports information overview

11.1.1 General information

Comprehensive reports support a user experience where a large quantity of network data is fetched and rendered, then sorted and filtered for data mining purposes.

Comprehensive Summary reports are tabular and typically present data in a Top-N fashion. Summary reports contain many columns in an effort to put all relevant data into the table to avoid the need for multiple reports. In some cases, there may be a need to scroll horizontally to view all columns. Most columns can be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#) for the columns that cannot.

Comprehensive Details reports provide a time series linear graph of one of more selected KPI. The Details reports can be run directly or as a drill-down from the Summary report. From the Summary report, clicking on a KPI in a table cell automatically launches the Details report for that KPI.

These reports filter based on network topology/grouping, by region and subregion. Weekly granularity is also provided.

Objects in subregions that are nested to three or more levels in depth are not displayed in the optional input prompts for region and subregion; they are displayed as N/A in the Region and Subregion columns in the reports. When you do not select a region or subregion, objects are displayed in the report regardless of the levels. When you select any region or subregion, the objects available are displayed.

Comprehensive reports take more time to generate or return an exception when trying to render results in one page (when you select “Show report output on one page”) for a large amount of data.

11.1.2 Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- For the Ports and Interfaces Utilization Summary and Ports and Interfaces Forwards and Discards per Queue Summary reports, either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.
- Schedule report generation for regions/subregions to ensure that there are no overlaps.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

11.2 Availability framework

11.2.1 General information

An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. Depending on the report, these periodic values are aggregated to determine the availability of an NE, interfaces and ports, or service over a period of time. A periodic table tracks the activity state and availability of an NE, interfaces and ports, or service. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

The availability framework supporting the availability reports can synchronize objects from the main database to the auxiliary database at a rate of 500,000 objects per minute. The following table shows the number of objects that can be used by the availability framework, based on the Periodic Sync Time.

Table 11-1 The number of objects that can be used by the availability framework based on the Periodic Sync Time

analyticsMODictPeriodicSyncTime (min)	Number of objects that can be used by availability framework
5	2,500,000
10	5,000,000
15	7,500,000
20	10,000,000
30	15,000,000
60	30,000,000

WARNING: Exceeding the objects per minute limit may result in incorrect availability report content, reports taking a long time to complete, or failing altogether.

It is possible that the synchronization of the data dictionary for the periodic and availability tables does not complete in the allotted time. In this case, the next scheduled resynchronization is skipped, and there may be incorrect availability report content. Any such occurrence is recorded as a warning in the EmsServer.log file on the NFM-P main server (go to /opt/nsp/nfmp/server/nms/log/server/EmsServer.log) with an entry containing "Skipping periodic resync for all enabled Periodic MO dictionary tables". If such logs occur regularly, you can do one or both of the following:

- Increase the analyticsMODictPeriodicSyncTime parameter.
- Disable the periodic monitoring status for one/more tables.

The following example shows a warning log for a situation in which the periodic Analytics resynchronization for the availability framework attempts to start, but since it is later than its scheduled time, the entire resynchronization is skipped, allowing the next resynchronization to start on time. In this example, the periodic resynchronization should have started at 10:30, but because the previous resynchronization (for 10:15) did not complete on time, the 10:30 resynchronization is skipped (as it is now 10:36), allowing the 10:45 resynchronization to start on time.

```
<2024.10.18 10:36:32 296 -0400><W><dbupgrade-server--3276818-keepvm>  
<ObjectSynchronizerWorkerPool[20]><server.analytics.  
AnalyticsMoRsyncManager.resyncAllMOs>[1729262192294] is too late to start  
the resync for [1729261790976]; skipping periodic resync for all enabled  
Periodic MO dictionary tables
```

The number of objects used for the availability framework can be controlled based on the Availability reports in use. Disable periodic monitoring or synchronization of tables used by Availability reports that are not used. For example, if the tables used by the Node Availability Summary and Node Availability Details reports are not required, disable the periodic monitoring of table *analytics_network_element*, as described in [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?”](#) (p. 334).

11.3 How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?

11.3.1 Purpose

Perform the following steps to set the object synchronization interval for tables registered for periodic calculation, such as availability tables. This procedure only needs to be performed once to set the interval for all relevant tables.

11.3.2 Steps

- 1 _____
Log in as the nsp user from the main server station.
- 2 _____
Navigate to the /opt/nsp/nfmp/server/nms/config directory.
- 3 _____
Create a backup copy of the nms-server.xml file.
-  **Note:** You must perform the steps related to the nms-server.xml file on each NFM-P main server.
- 4 _____
Open the nms-server.xml file using a plain-text editor such as vi.

5



CAUTION

Service Disruption

Contact technical support before you attempt to modify the *nms-server.xml* file.

Modifying the *nms-server.xml* file can have serious consequences that can include service disruption.

Locate the following section:

```
<samauxdb
    analyticsMODictPeriodicSyncTime="value"
    enabled="value"
    ipaddress=""
    oamTestResultEnabled="value"
    secure="value"
    sysKeysafe="value" />
```

6

Set the *analyticsMODictPeriodicSyncTime* parameter to 5, 10, 15, 20, 30, or 60, as shown below:

```
<samauxdb
    analyticsMODictPeriodicSyncTime="15"
    enabled="value"
    ipaddress=""
    oamTestResultEnabled="value"
    secure="value"
    sysKeysafe="value" />
```

7

Save and close the *nms-server.xml* file.

8

Open a console window.

9

Navigate to the */opt/nsp/nfmp/server/nms/bin* directory.

10

If the main server is a standalone server, or the primary server is in a redundant deployment, enter the following:

```
bash$ ./nmsserver.bash read_config ↵
```

The main server reads the nms-server.xml file and puts the configuration change into effect.

11

Set the analyticsMODictPeriodicSyncTime for redundant NFM-Ps by restarting the standby main server to read the updated configuration in the nms-server.xml file:

```
bash$ cd /opt/nsp/nfmp/server/nms/bin ↵
```

```
bash$ ./nmsserver.bash force_restart ↵
```

The standby main server reads the nsm-server.xml file and puts the configuration change in effect.

12

Close the console window.

13

List the existing dictionary tables with periodic monitoring support by entering:

```
/opt/nsp/nfmp/server/nms/bin/nmsserver.bash analyticsPeriodicDef list ↵
```

The output lists *analytics-mo-periodic-dictionary-table-name retention-days enabled/disabled status*

14

Update the periodic monitoring status for an existing dictionary table with periodic monitoring support by entering:

```
/opt/nsp/nfmp/server/nms/bin/nmsserver.bash analyticsPeriodicDef  
update analytics-mo-periodic-dictionary-table-name --enabled  
true/false ↵
```

where:

enabled is either true or false

15

Update the retention days for an existing dictionary table with periodic monitoring support by entering:

```
/opt/nsp/nfmp/server/nms/bin/nmsserver.bash analyticsPeriodicDef  
update analytics-mo-periodic-dictionary-table-name --retentionDays  
no-of-days ↵
```

where

no-of-days is the value for retentionDays; the range is 1 to 30



Note: Alternatively, instead of configuring [Step 14](#) and [Step 15](#), update both the periodic monitoring status and retention days by entering a single command:

```
/opt/nsp/nfmp/server/nms/bin/nmsserver.bash analyticsPeriodicDef
update analytics-mo-periodic-dictionary-table-name --retentionDays
no-of-days --enabled true/false ↵
```

Note: This step only needs to be run on the active main server.

END OF STEPS

11.4 Node Availability Details report

11.4.1 Node Availability Details report overview

The Node Availability Details report shows availability information for NEs.

Use cases

Service level agreement—Use the report to validate that NE availability meets agreed targets.

Troubleshooting—Use the report to determine if an NE is currently, or has previously, been unavailable.

Prerequisites

To create the Node Availability Details report, NE availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of an NE over a period of time. A periodic table tracks the activity state and availability of an NE. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?” \(p. 335\)](#). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-2 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_network_element	reachability	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-3 Node Availability Details report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database

Table 11-3 Node Availability Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	NE	Search using partial names or wildcard (%). Select individual items or click Select All .
	Uptime Threshold (%)	Identify the threshold percentage
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.4.2 Example

The following figure shows a report example.

Figure 11-1 Node Availability Details report



Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (DD:HH:MM:SS)
2022-04-30 08:14 IST	2022-04-30 09:14 IST	00:01:00:00
2022-04-30 10:20 IST	2022-04-30 10:50 IST	00:00:30:00
2022-04-30 12:14 IST	2022-04-30 12:54 IST	00:00:39:59
2022-04-30 14:00 IST	2022-04-30 15:00 IST	00:01:00:00
2022-04-30 16:30 IST	2022-04-30 17:14 IST	00:00:44:50
Totals		00:03:54:50



11.5 Node Availability Summary report

11.5.1 Node Availability Summary report overview

The Node Availability Summary report shows availability information for NEs.

Use cases

Service level agreement—Use the report to validate that NE availability meets agreed targets.

Troubleshooting—Use the report to determine if an NE is currently, or has previously, been unavailable.

Limitations

Report limitations include:

- When the report is exported to the RTF or DOCX file type, some columns may not display or there may be a problem with the table border.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).

Prerequisites

To create the report, NE availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of an NE over a period of time. A periodic table tracks the activity state and availability of an NE. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?”](#) (p. 335). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database”](#) (p. 441). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-4 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_network_element	reachability	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-5 Node Availability Summary report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database

Table 11-5 Node Availability Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Uptime Threshold (%)	Identify the threshold percentage
	Downtime Threshold (Minutes)	Identify the downtime threshold in minutes
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.5.2 Example

The following figure shows a report example. Not all figures are from the same report.

Figure 11-2 Node Availability Summary report

Node Availability Summary

Start Date:

2022-11 IST

Report Date:

2023-03-28 17:21:36 IST

End Date:

2023-02 IST

Granularity:

Monthly

Overall Uptime (%)	Downtime (DD:HH:MM:SS)	Report Duration	Outages
11.74	107:09:14:05	4m	3

Region	Sub Region	Sub Region1	Sub Region2	Node Name	Node ID	Avg Availability (%)	Max Availability (%)	Min Availability (%)	Max Availability Time
SAR	NA	NA	NA	s168_99_144_Both	92.168.99.144	45.84	100.00	0.00	2023-03-23 17:44:00
SAR	NA	NA	NA	s168_99_6_Both	92.168.99.6	100.00	100.00	100.00	2023-03-23 20:14:00

Min Availability Time	Downtime (DD:HH:MM:SS)	Outages	Last Outage Time (DD:HH:MM:SS)	Reachability Status	Maintenance Start Time	Maintenance End Time	MW Duration (DD:HH:MM:SS)
2023-03-23 20:14:00	00:02:27:21	2	2023-03-23 18:54:00	UP	2023-03-23 16:48:20	2023-03-23 17:21:40	00:00:33:20
2023-03-23 16:14:00	00:00:00:00	0	NA	UP	NA	NA	NA

11.6 Ports and Interfaces Availability Details report

11.6.1 Ports and Interfaces Availability Details report overview

The Ports and Interfaces Availability Details report shows the availability details for ports, LAGs, bundles, and their associated network/access interfaces for all possible modes (network, access, and hybrid).

Use cases

- Service level agreement—Use the report to validate that port and interface availability meets agreed targets.
- Troubleshooting—Use the report to determine if a port or interface is currently, or has previously, been unavailable.

Limitations

- Periodic Time should be non-zero for the reports to launch.

Prerequisites

To create the report, the availability of interfaces and ports (LAG, bundle, SCADA, and POS) must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of interfaces and ports over a period of time. A periodic table tracks the activity state and availability of interfaces and ports. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?” \(p. 335\)](#). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-6 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_bundleInterface	operationalState	Returns 1	Returns 0
analytics_lagInterface	operationalState	Returns 1	Returns 0
analytics_PhysicalPort	operationalState	Returns 1	Returns 0
analytics_Sts12Channel	operationalState	Returns 1	Returns 0
analytics_ScadaPort	operationalState	Returns 1	Returns 0
analytics_rtr_ntwInterface	operationalState	Returns 1	Returns 0
analytics_business_aa_sub	operationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-7 Ports and Interfaces Availability Details report characteristics

Characteristic	Value	
Data type	Availability tables computed by availability framework	
Source database	Auxiliary database	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	Interface	Search using partial names or wildcard (%). Select individual items or click Select All .
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.6.2 Example

The following figures show a report example.

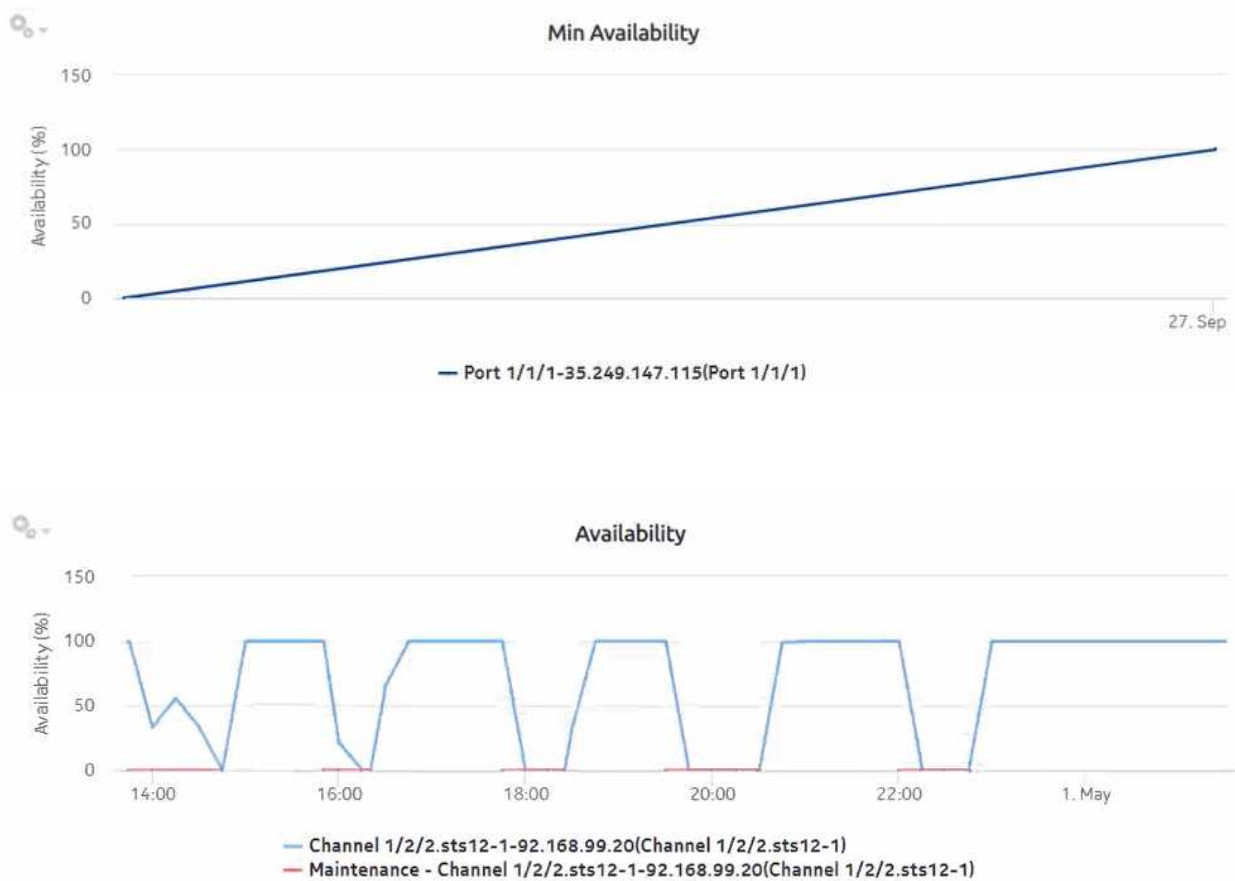
Figure 11-3 Ports and Interfaces Availability Details report

Ports and Interfaces Availability Details			
Start Date:	2022-04-30 08:01:00 IST	End Date:	2022-04-30 20:00:00 IST
Report Date:	2022-05-27 12:39:33 IST	OuterEncap:	0
Granularity:	Raw Collection Interval	InnerEncap:	0
TerminationObject NE Name:	92.168.99.20	TerminationObject Name:	Channel 1/2/2.sts12-1
Region:	SR-Region	Subregion:	SR-SubRegion
Subregion1:	SR-SubRegion1	Subregion2:	NA

Maintenance Table

Type	Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (HH:MM:SS)
port	2022-04-30 08:14 IST	2022-04-30 09:14 IST	00:01:00:00
port	2022-04-30 10:20 IST	2022-04-30 10:50 IST	00:00:30:00
port	2022-04-30 12:14 IST	2022-04-30 12:54 IST	00:00:39:59
port	2022-04-30 14:00 IST	2022-04-30 15:00 IST	00:01:00:00
port	2022-04-30 16:30 IST	2022-04-30 17:14 IST	00:00:44:50
Totals			00:03:54:50





11.7 Ports and Interfaces Availability Summary report

11.7.1 Ports and Interfaces Availability Summary report overview

The Ports and Interfaces Availability Summary report shows the availability summary for ports, LAGs, bundles, and their associated network/access interfaces for all possible modes (network, access, and hybrid).



Note: Report launching time will be non-linear with respect to huge data.

Use cases

- Service level agreement—Use the report to validate that port and interface availability meets agreed targets.
- Troubleshooting—Use the report to determine if a port or interface is currently, or has previously, been unavailable.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Periodic Time should be non-zero for the reports to launch.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.

Prerequisites

To create the report, the availability of interfaces and ports (LAG, bundle, SCADA, and POS) must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of interfaces and ports over a period of time. A periodic table tracks the activity state and availability of interfaces and ports. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?” \(p. 335\)](#). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-8 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_bundleInterface	operationalState	Returns 1	Returns 0
analytics_lagInterface	operationalState	Returns 1	Returns 0
analytics_PhysicalPort	operationalState	Returns 1	Returns 0

Table 11-8 Attributes to track operational state changes (continued)

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_Sts12Channel	operationalState	Returns 1	Returns 0
analytics_ScadaPort	operationalState	Returns 1	Returns 0
analytics_rtr_ntwInterface	operationalState	Returns 1	Returns 0
analytics_business_aa_sub	operationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-9 Ports and Interfaces Availability Summary report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database

Table 11-9 Ports and Interfaces Availability Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

Notes:

1. **Note:** The 7705 SAR-H is not supported.

11.7.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width. Not all figures are from the same report.

Figure 11-4 Ports and Interfaces Availability Summary report

Ports and Interfaces Availability Summary

Start Date:

2022-05-02 07:00 IST

Report Date:

2022-05-27 12:35:42 IST

End Date:

2022-05-02 20:00 IST

Granularity:

Hourly

Region	Sub Region	Sub Region1	Sub Region2	Mode	TerminationObject Type	TerminationObject NE IP Address	TerminationObject NE Name	TerminationObject Name
SAR-Region	SAR-Subregion	SAR-SubRegion1	SAR-SubRegion2					
				Access	N/A	92.168.98.71	Branch 1/1/1.1	Branch 1/1/1.1

Interface Name	Interface Description	Outer Encap	Inner Encap	Interface IP Address	Mask	Avg Availability (%)	Max Availability (%)	Min Availability (%)
Branch 1/1/1.1:0.0	SCADA_Cpipe	0	0	N/A	0	61.77	100.0	0.0

Max Availability Time	Min Availability Time	Maintenance Start Time	Maintenance End Time	MW Duration(in Minutes)
2022-05-02 15:10:00	2022-05-02 20:14:00			
		2022-05-02 08:00:00	2022-05-02 10:00:00	00:02:00:00

11.8 Ports and Interfaces Forwards and Discards per Queue Details report

11.8.1 Ports and Interfaces Forwards and Discards per Queue Details report overview

The Ports and Interfaces Forwards and Discards per Queue Details report contains detailed information about throughput and utilization information for each forwarding class of a port, LAG, bundle and associated network and access interfaces for all possible modes, including network, access, or hybrid.

The network interface scenario is not supported.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns to ensure that service-level agreements are met.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, an empty space displays.
- When the report is exported to the RTF file type, half of the page displays.

Prerequisites

The following table describes the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies.

Table 11-10 Ports and Interfaces Forwards and Discards per Queue Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
equipment.PhysicalPort	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R all 7705 SAR variants 7750 SR
lag.Interface	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	all 7705 SAR variants 7750 SR
lag.Interface	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R all 7705 SAR variants 7750 SR
bundle.Interface	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7750 SR
bundle.Interface	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7750 SR

Table 11-10 Ports and Interfaces Forwards and Discards per Queue Details report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
service. L3AccessInterface	service. CompleteService- EgressPacketOctets service. CompleteServiceIn- gressPacketOctetsA	Accounting, file, and log policies	completeSvcInEg policy,svcEgressOctet policy	7250 IXR-R6 7705 SAR 7750 SR
service. L3AccessInterface	service. ServiceEgressOctets service. ServiceIngressOctets	Accounting, file, and log policies	completeSvcInEg policy svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R
service. L2AccessInterface	service. CompleteServiceEgress PacketOctets service. CompleteService- EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7705 SAR 7750 SR
service. L2AccessInterface	service. ServiceEgressOctets service. ServiceEgressOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R

Notes:

1. For equipment.PhysicalPort, lag.Interface, service.L2AccessInterface and service.L3AccessInterface, SAS,equipment does not support per FC counters.
2. For service.L2AccessInterface and service.L3AccessInterface, IXR equipment does not support egress QoS policy.

Report characteristics

The following table lists the principal report characteristics.

Table 11-11 Ports and Interfaces Forwards and Discards per Queue Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 11-11 Ports and Interfaces Forwards and Discards per Queue Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	AF Discards Egress AF Discards Ingress AF Forwards Egress AF Forwards Ingress BE Forwards Egress BE Forwards Ingress BE Discards Egress BE Discards Ingress EF Discards Egress EF Discards Ingress EF Forwards Egress EF Forwards Ingress H1 Discards Egress H1 Discards Ingress H1 Forwards Egress H1 Forwards Ingress H2 Discards Egress H2 Discards Ingress H2 Forwards Egress H2 Forwards Ingress L1 Discards Egress L1 Discards Ingress L1 Forwards Egress L1 Forwards Ingress L2 Discards Egress L2 Discards Ingress L2 Forwards Egress L2 Forwards Ingress NC Discards Egress NC Discards Ingress NC Forwards Egress NC Forwards Ingress

Table 11-11 Ports and Interfaces Forwards and Discards per Queue Details report characteristics (continued)

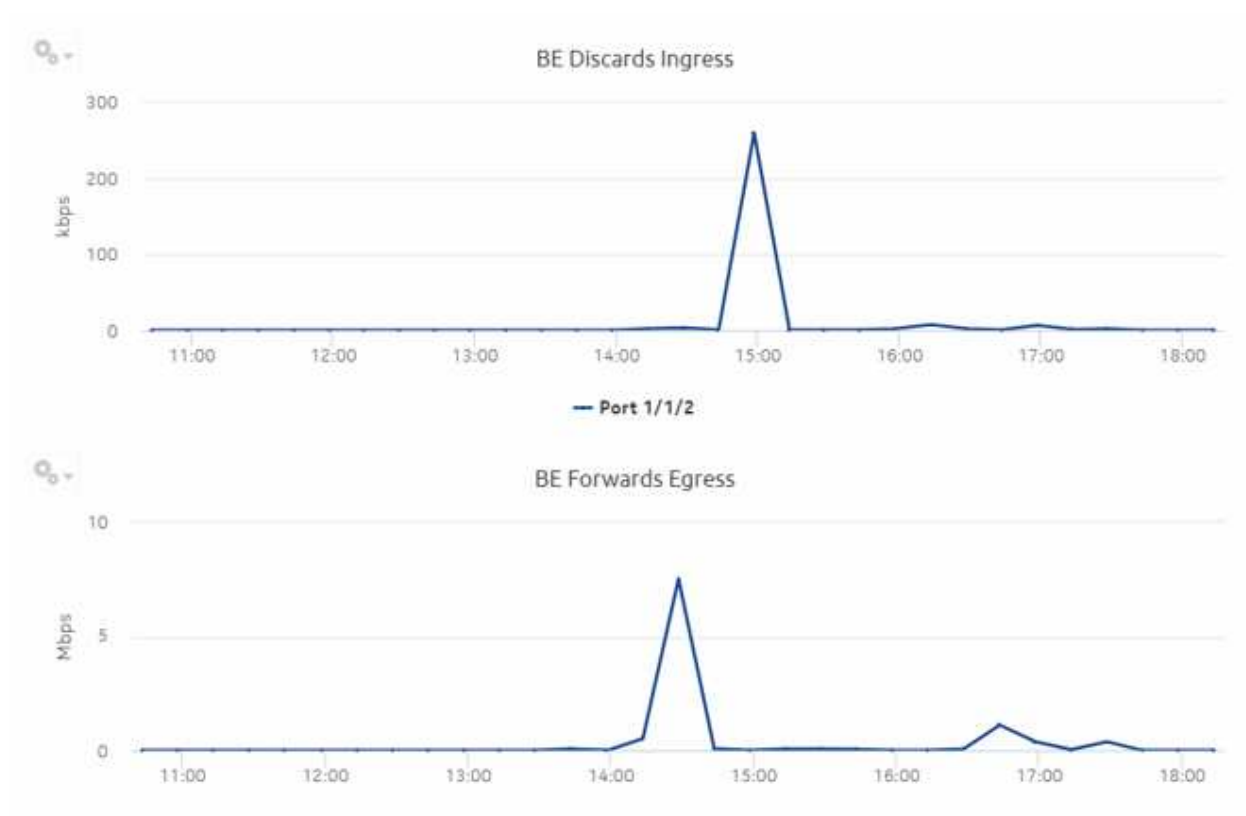
Characteristic	Value	
	Port/LAG/Bundle/SAP	Search using partial names or wildcard (%). Select individual items or click Select All .
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

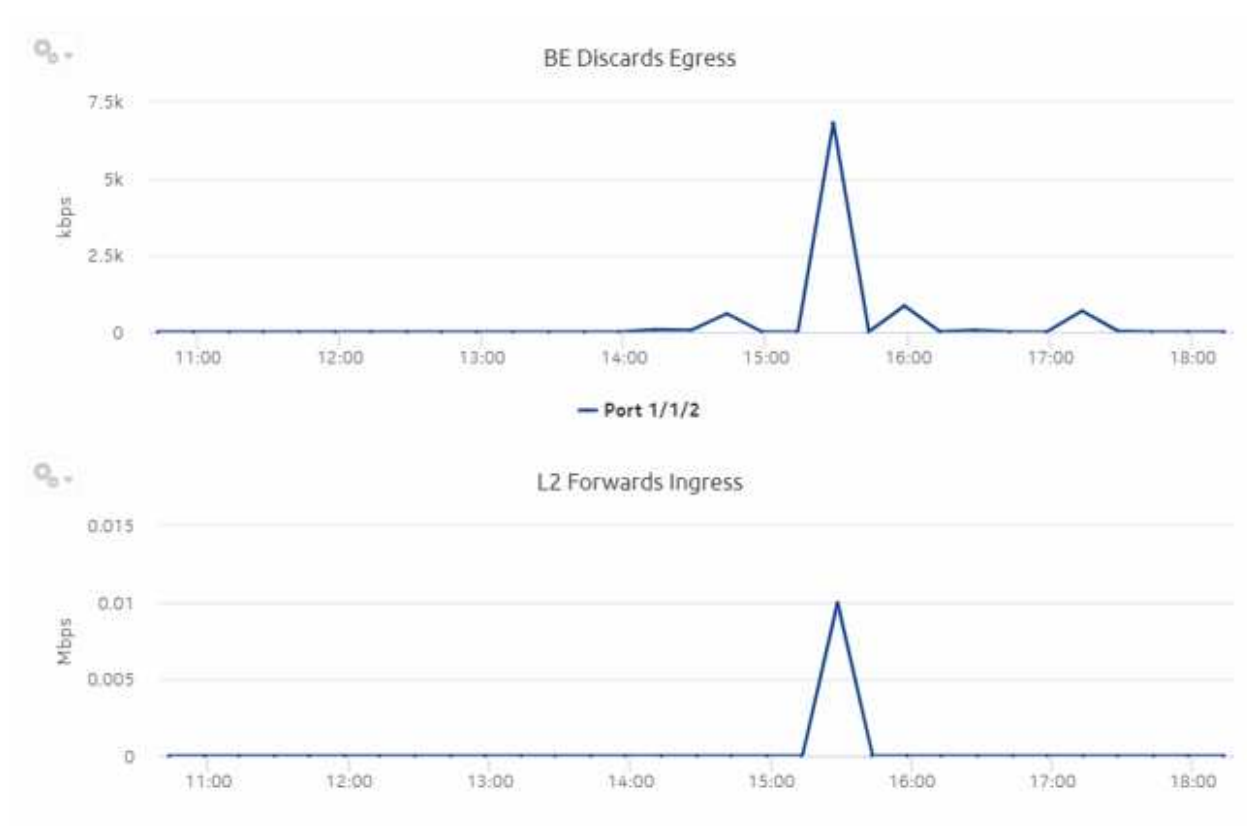
11.8.2 Example

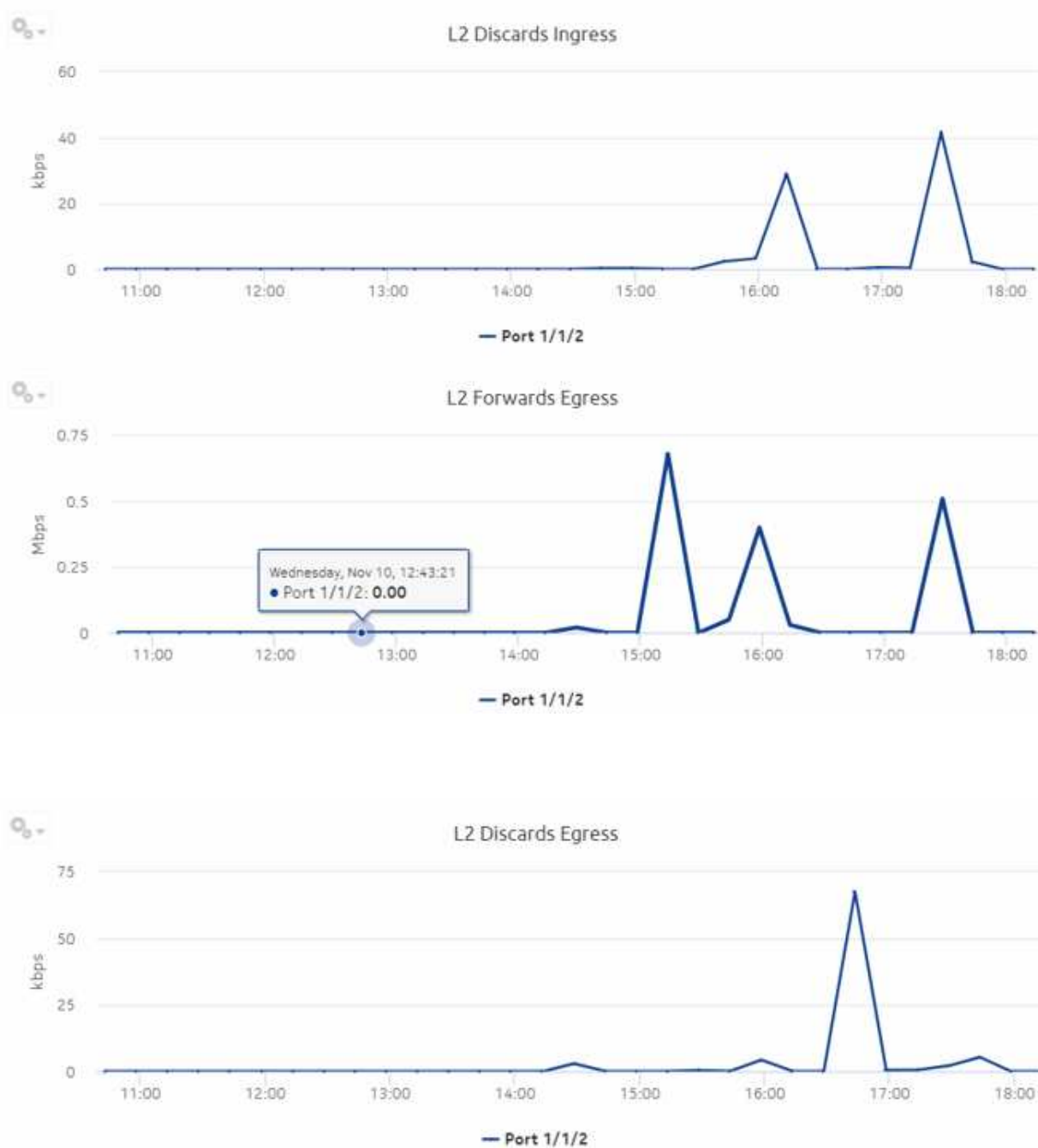
The following figures show a report example. Not all figures are from the same report.

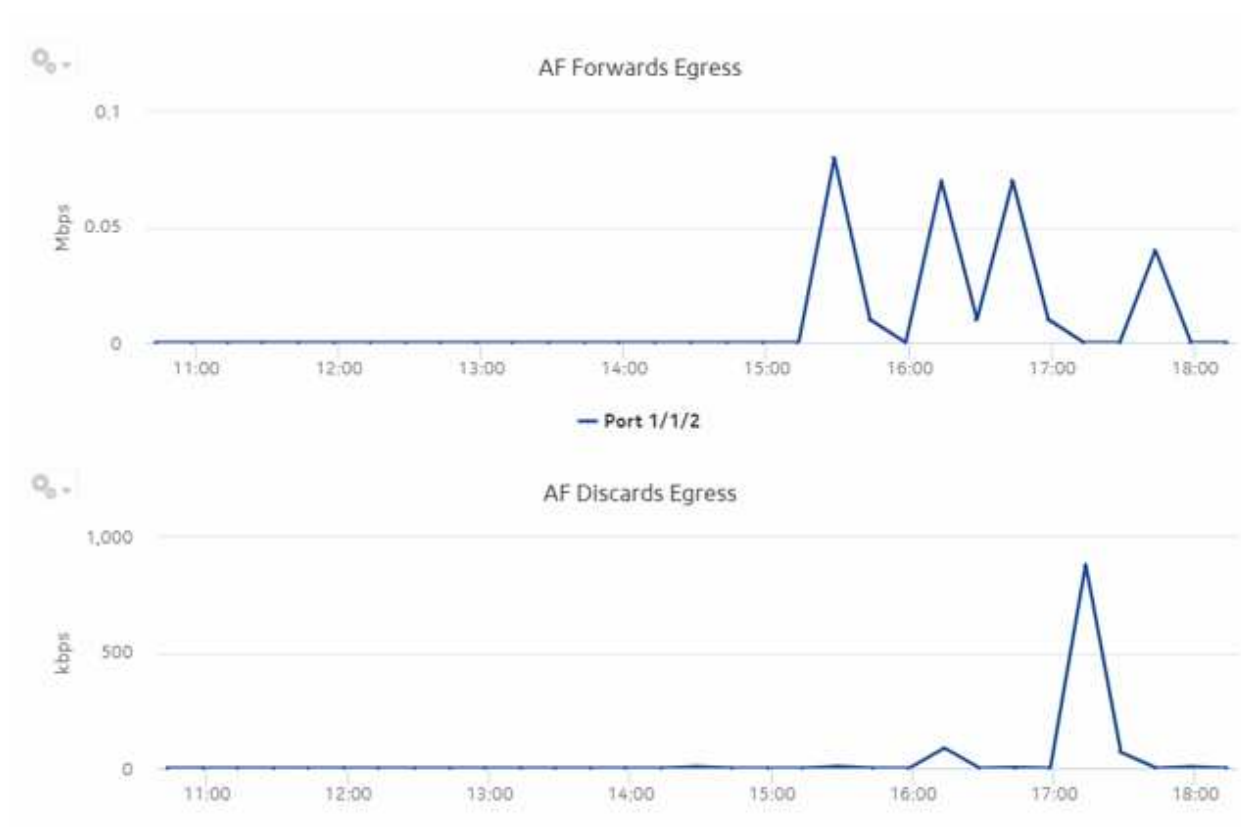
Figure 11-5 Ports and Interfaces Forwards and Discards per Queue Details report

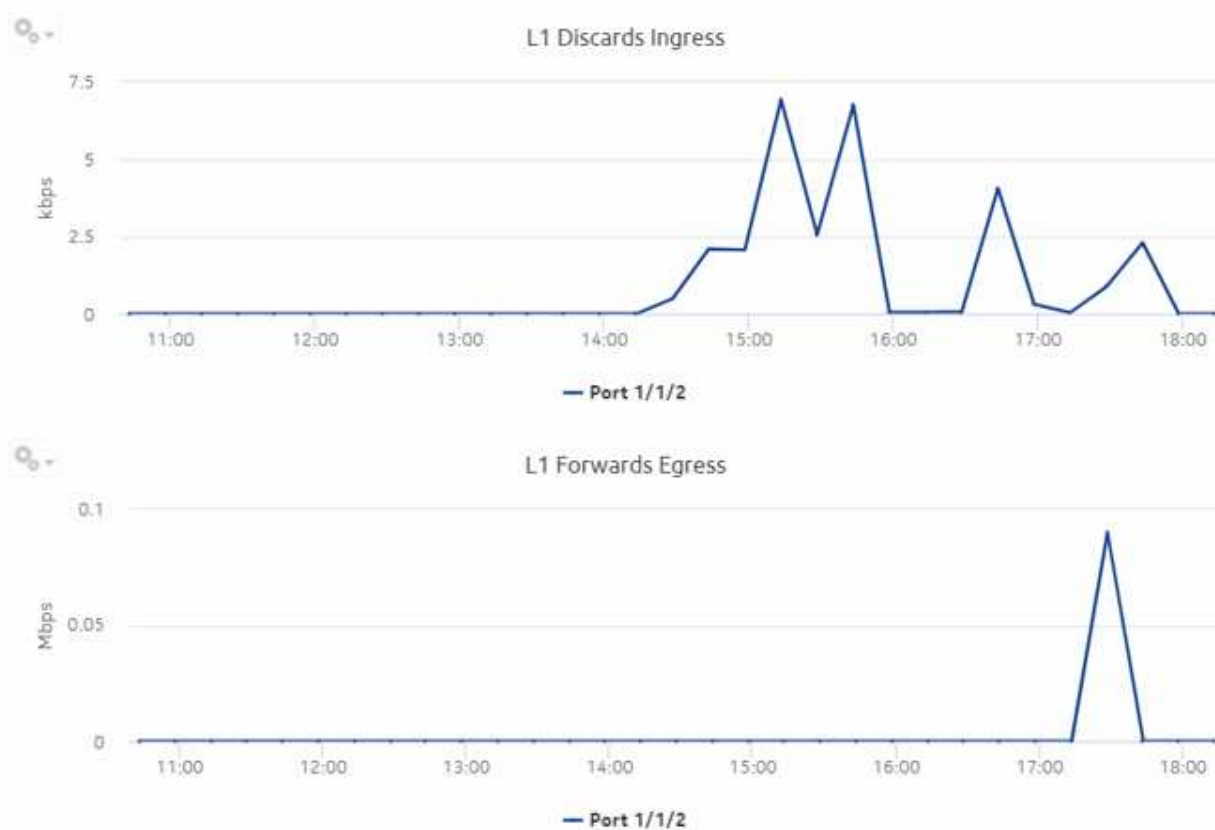
Ports and Interfaces Forwards and Discards per Queue Details			
Start Date:	2023-03-23 09:02:00 IST	End Date:	2023-03-23 10:01:00 IST
Report Date:	2023-04-04 12:01:31 IST	Termination Object NE ID:	92.168.98.235
Object Type:	LAG	Termination Object Name:	Lag 1
Region:	SR Region	Outer Encap:	0
Sub Region:	SR subregion	Inner Encap:	0
Sub Region1:	N/A	Reference Speed:	1000.0 Mbps
Sub Region2:	N/A	Service Id:	N/A
Operational State:	Down	Administrative State:	Up

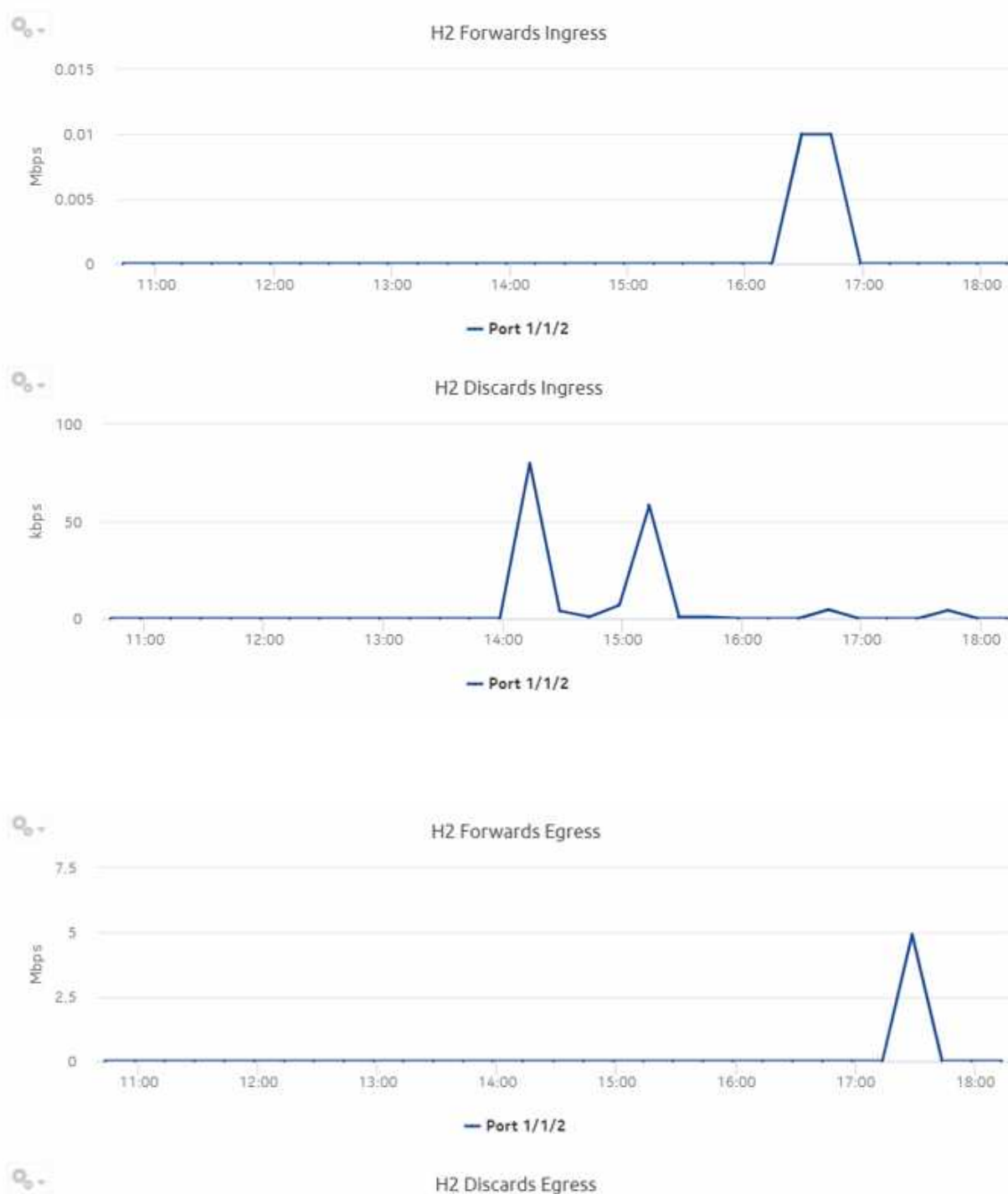


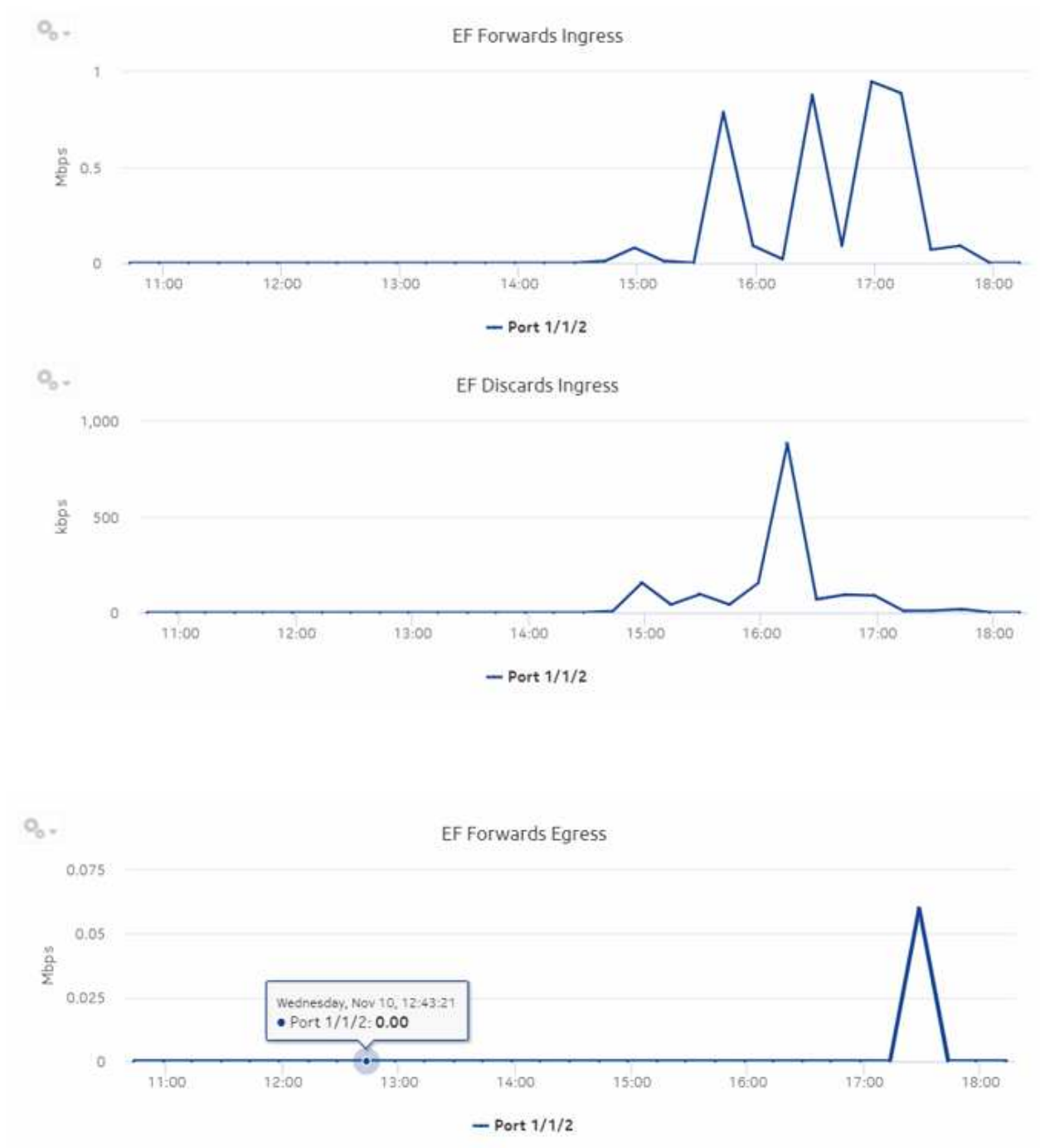




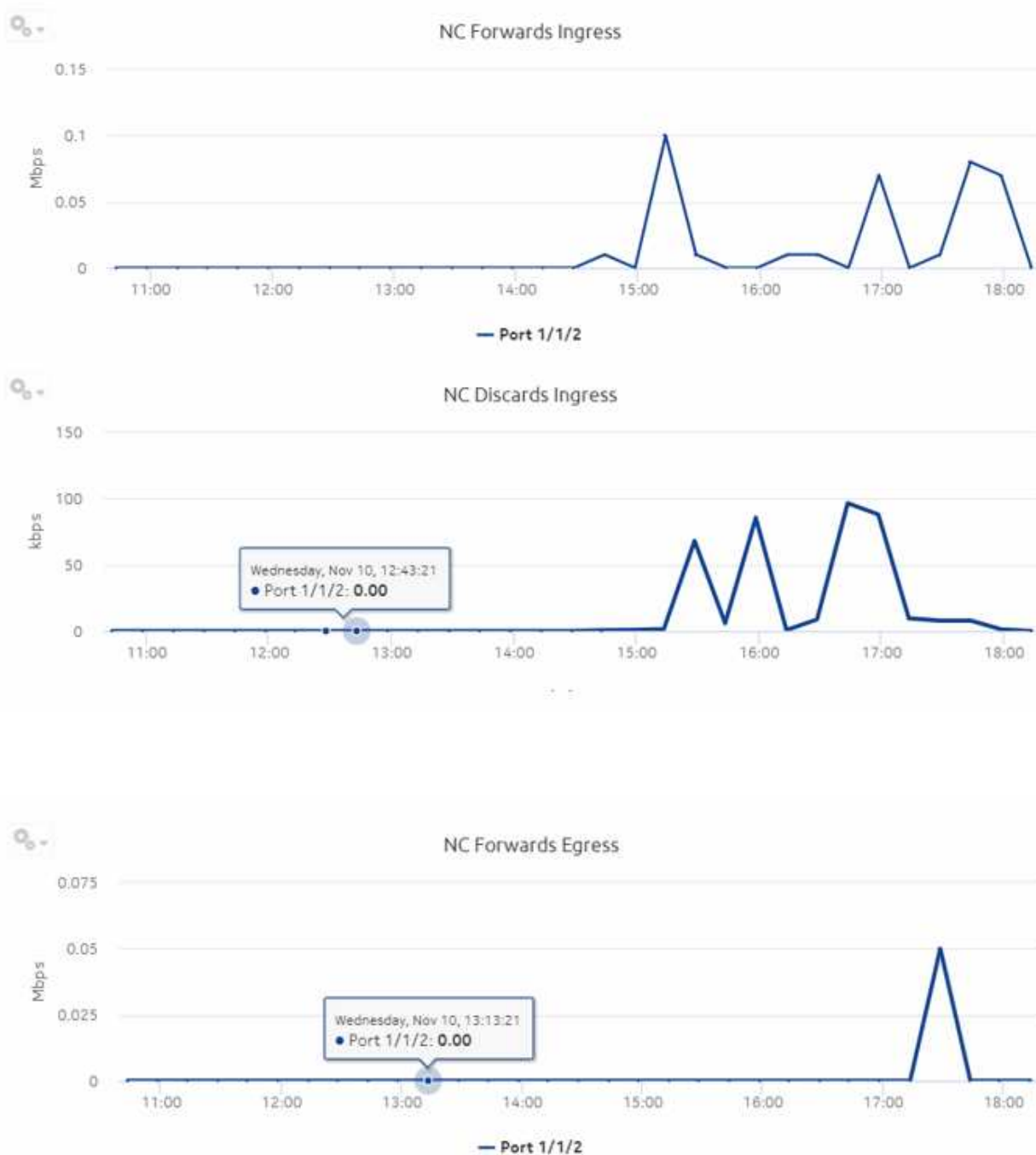












11.9 Ports and Interfaces Forwards and Discards per Queue Summary report

11.9.1 Ports and Interfaces Forwards and Discards per Queue Summary report overview

The Ports and Interfaces Forwards and Discards per Queue Summary report contains a summary of information about throughput and utilization information for each forwarding class of a port, LAG, bundle and associated network and access interfaces for all possible modes, including network, access, or hybrid.

The network interface scenario is not supported.

Note: Either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns to ensure that service-level agreements are met.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, an empty space displays.
- When the report is exported to the RTF file type, half of the page displays.
- When the report is exported to the ODT file type, the table does not display properly.

Prerequisites

The following table describes the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies.

Table 11-12 Ports and Interfaces Forwards and Discards per Queue Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
equipment.PhysicalPort	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR 7705 SAR-H 7750 SR

Table 11-12 Ports and Interfaces Forwards and Discards per Queue Summary report prerequisites
(continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
lag.Interface	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
lag.Interface	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR 7750 SR 7705 SAR-H
bundle.Interface	service. CombinedNetworkEgressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	service. CombinedNetworkIngressOctets	Accounting, file, and log policies	combinedNetIngrEgr Policy	7705 SAR 7705 SAR-H 7750 SR
service. L3AccessInterface	service. CompleteService-EgressPacketOctets service. CompleteServiceIngressPacketOctetsA	Accounting, file, and log policies	completeSvcInEg policy,svcEgressOctet policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7750 SR
service. L3AccessInterface	service. ServiceEgressOctets service. ServiceIngressOctets	Accounting, file, and log policies	completeSvcInEg policy svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS R 7705 SAR-H
service. L2AccessInterface	service. CompleteService-EgressPacketOctets service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7705 SAR 7705 SAR-H 7750 SR
service. L2AccessInterface	service. ServiceEgressOctets service. ServiceEgressOctets	Accounting, file, and log policies	completeSvcInEg policy svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H

Notes:

1. For equipment.PhysicalPort, lag.Interface, service.L2AccessInterface and service.L3AccessInterface, SAS,equipment does not support per FC counters.
2. For service.L2AccessInterface and service.L3AccessInterface, IXR equipment do not support egress QoS policy.

Report characteristics

The following table lists the principal report characteristics.

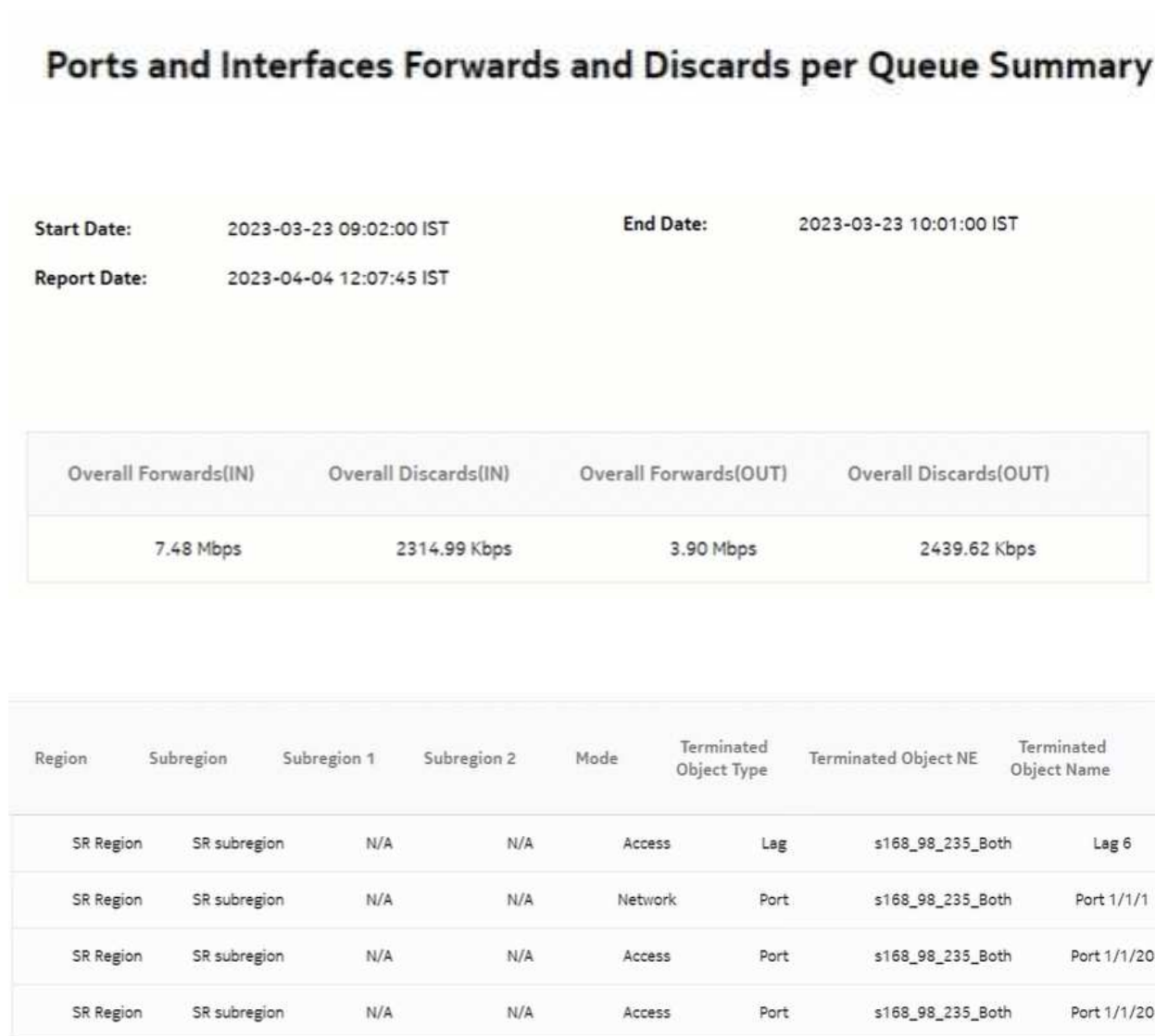
Table 11-13 Ports and Interfaces Forwards and Discards per Queue Summary report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.9.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width. Not all figures are from the same report.

Figure 11-6 Ports and Interfaces Forwards and Discards per Queue Summary report



Service Id	Operational State	Administrative State	Interface Name	Interface Description
N/A	Down	Up	N/A	lag25
N/A	Down	Up	N/A	10/100/Gig Ethernet TX
N/A	Down	Up	N/A	10/100/Gig Ethernet TX
87	Down	Up	Port 1/1/20:0.0	SAP_235_Desc_20

Outer Encap	Inner Encap	Interface IP Address	Mask	Reference Speed (Mbps)	BE Forwards Ingress (MB)	BE Discards Ingress (KB)	BE Forwards Egress (MB)	BE Discards Egress (KB)	L2 Forwards Ingress (MB)	L2 Discards Ingress (KB)	L2 Forwards Egress (MB)	L2 Discards Egress (KB)	AF Forwards Ingress (MB)	AF Discards Ingress (KB)
0	0	N/A	0	0.0	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34
0	0	N/A	0	0.0	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34
1000	0	N/A	0	622.08	8.33	3151.52	3.06	31.02	0.10	307.08	0.60	58.98	0.03	4.13
0	0	N/A	0	622.08	8.33	3151.52	3.06	31.02	0.10	307.08	0.60	58.98	0.03	4.13

AF Forwards Egress (MB)	AF Discards Egress (KB)	L1 Forwards Ingress (MB)	L1 Discards Ingress (KB)	L1 Forwards Egress (MB)	L1 Discards Egress (KB)	H2 Forwards Ingress (MB)	H2 Discards Ingress (KB)	H2 Forwards Egress (MB)	H2 Discards Egress (KB)	EF Forwards Ingress (MB)	EF Discards Ingress (KB)	EF Forwards Egress (MB)	EF Discards Egress (KB)	H1 Forwards Ingress (MB)
3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64
3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82	36.64
0.52	4.45	0.31	3.87	0.03	99.04	0.04	0.41	0.05	43.76	0.00	0.21	0.08	7.31	0.91
0.52	4.45	0.31	3.87	0.03	99.04	0.04	0.41	0.05	43.76	0.00	0.21	0.08	7.31	0.91

H1 Discards Ingress (KB)	H1 Forwards Egress (MB)	H1 Discards Egress (KB)	NC Forwards Ingress (MB)	NC Discards Ingress (KB)	NC Forwards Egress (MB)	NC Discards Egress (KB)
8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82
8404.34	3.81	69778.82	36.64	8404.34	3.81	69778.82
38.53	0.05	418.66	0.35	30.71	0.04	229.14
38.53	0.05	418.66	0.35	30.71	0.04	229.14

11.10 Ports and Interfaces Utilization Details report

11.10.1 Ports and Interfaces Utilization Details report overview

The Ports and Interfaces Utilization Details report shows utilization information about network and/or access interfaces associated with existing termination objects (port, LAG, or bundle) for all possible modes (network, access, or hybrid).

Use cases

Capacity planning—Use the report to examine port and interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

Table 11-14 Ports and Interfaces Utilization Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
lag.Interface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
rtr.NetworkInterface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
mpls.Interface	mpls.MplsInterfaceStats	MIB-based	TIMETRA-MPLS-MIB. vRtrMplsIfStatEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-14 Ports and Interfaces Utilization Details report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
rtr.NetworkInterface	rtr. IpInterfaceAdditional-Stats rtr.IpInterfaceStats rtr.SarIpInterfaceStats	MIB-based	TIMETRA-VRTR-MIB. vRtrIfStatsEntry TIMETRA-VRTR-MIB. vRtrIfStatsExtEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7750 SR Note: 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
service.AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
service.AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
equipment.PhysicalPort	ethernetequipment. Dot3Stats (only supported at the port level)	Performance statistics	EtherLike-MIB. dot3StatsEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 11-15 Ports and Interfaces Utilization Details report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Threshold value	Specify the threshold value
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Tx Throughput Min Tx Throughput Avg Tx Throughput Max Rx Throughput Min Rx Throughput Avg Rx Throughput Tx Volume Rx Volume Max Tx Utilization Min Tx Utilization Avg Tx Utilization Max Rx Utilization Min Rx Utilization Avg Rx Utilization Max Utilization Min Utilization
	Interface	Search using partial names or wildcard (%). Select individual items or click Select All .

Table 11-15 Ports and Interfaces Utilization Details report characteristics (continued)

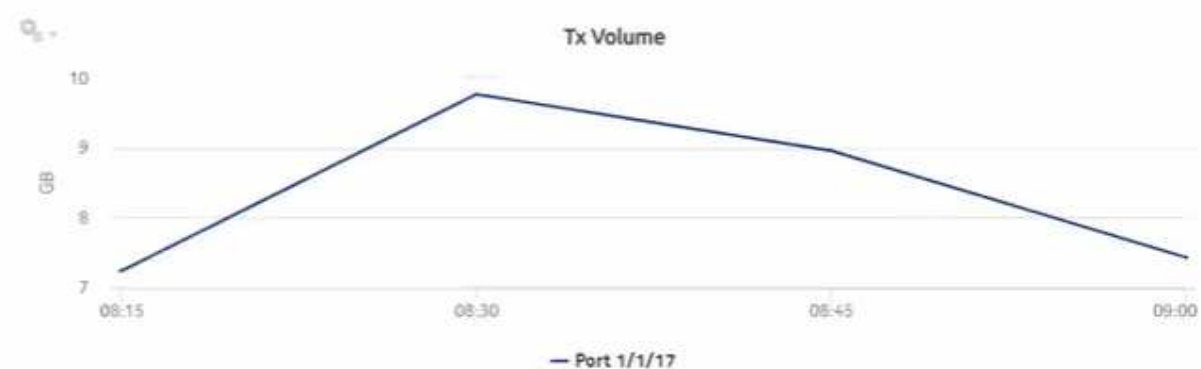
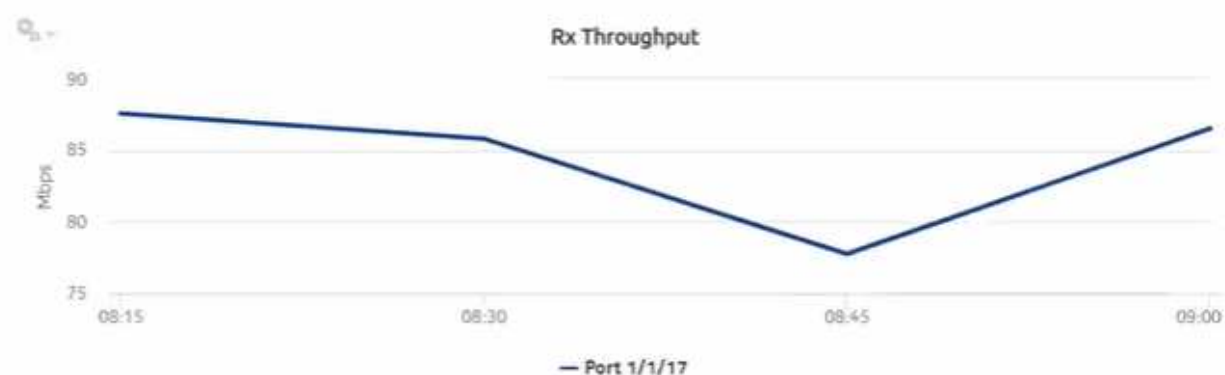
Characteristic	Value	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports. Note: The report displays all content on one page regardless of whether the check box is enabled.
Drill-down support	No	

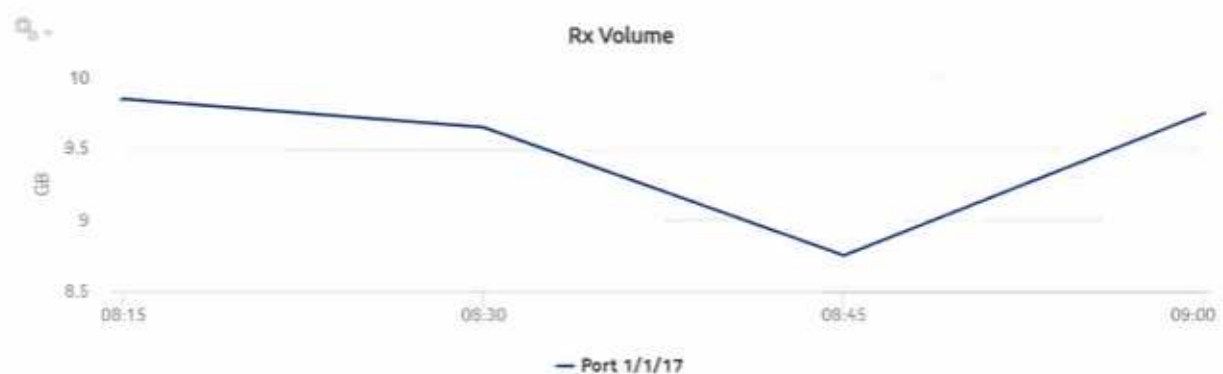
11.10.2 Example

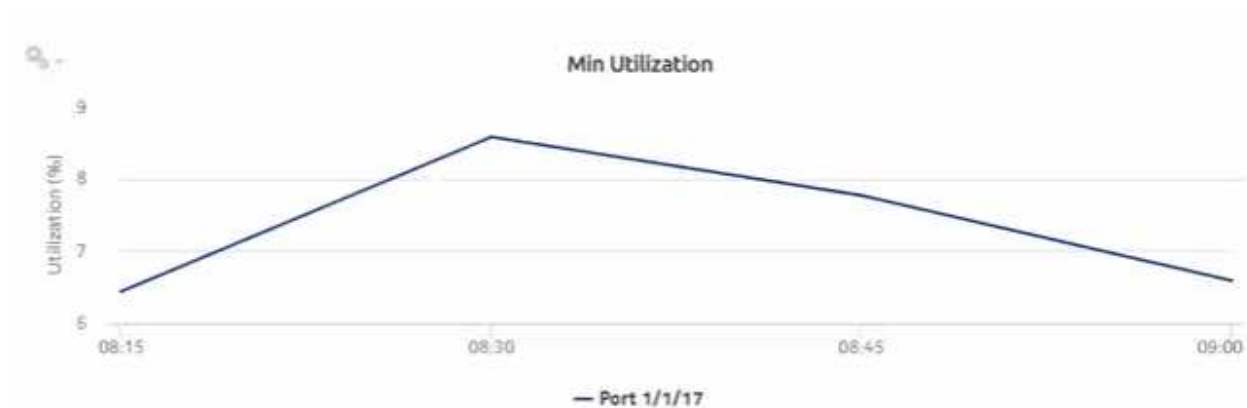
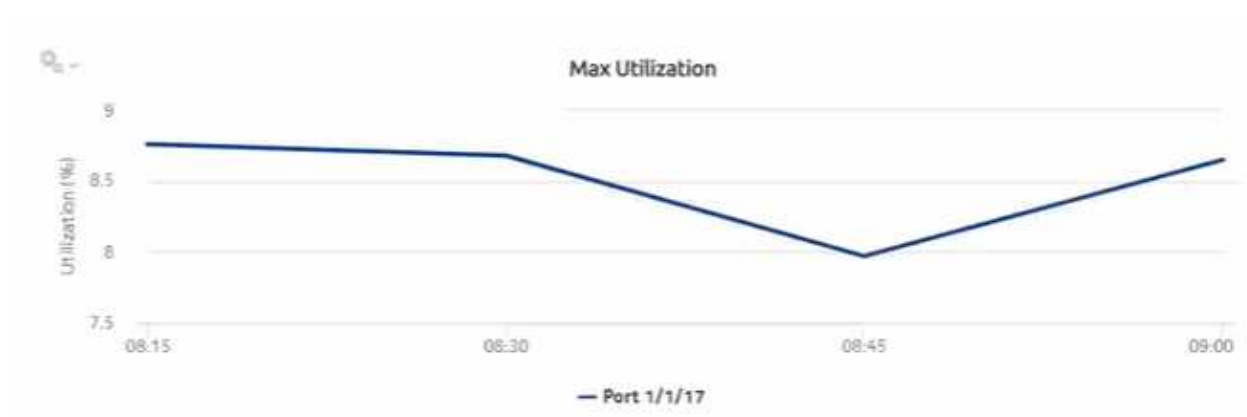
The following figure shows a report example.

Figure 11-7 Ports and Interfaces Utilization Details report

Ports and Interfaces Utilization Details		
2023-02-07 08:06:00 IST	End Date:	2023-02-07 09:05:00 IST
2023-02-24 15:38:04 IST	Granularity:	Raw Collection Interval
92.168.98.235	Terminated Object Description:	10/100/Gig Ethernet TX
Port	Terminated Object Name:	Port 1/1/17
SR-Group	Subregion:	SR_SubRegion
SR_SubRegion1	Subregion 2:	N/A







Errors and Collisions								
Alignment	Carrier Sense	Deferred Transmissions	Excessive Collisions	FCS	Frame Too Long	MAC Receive	MAC Transmit	Late Collisions
5	1	9	2	3	1	3	3	1

Multiple Collision	Single Collision	SQE Test	Symbol
4	3	3	5

11.11 Ports and Interfaces Utilization Summary report

11.11.1 Ports and Interfaces Utilization Summary report overview

The Ports and Interfaces Utilization Summary report shows a summary of utilization information about network and/or access interfaces associated with existing termination objects (port, LAG, or bundle) for all possible modes (network, access, or hybrid).

i **Note:** Either generate or schedule the reports for each region or subregion individually. These reports are for all ports, LAGs, bundles, Scada, channels, interface and SAPs in the network, resulting in a summary of millions of rows over thousands of pages.

i **Note:** When the report is exported, file names display as Port and Interface Utilization Summary.

Use cases

Capacity planning—Use the report to examine port and interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- When the report is exported to the ODT file type, the table is not properly aligned.
- When the report is exported to the DOCX file type, an empty page displays.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 11-16 Ports and Interfaces Utilization Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment.PhysicalPort	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
lag.Interface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
bundle.Interface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
rtr.NetworkInterface	equipment. InterfaceAdditionalStats	MIB-based	IF-MIB.ifXEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR
mpls.Interface	mpls.MplsInterfaceStats	MIB-based	TIMETRA-MPLS-MIB. vRtrMplsIfStatEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7705 SAR-H 7750 SR

Table 11-16 Ports and Interfaces Utilization Summary report prerequisites (continued)

Monitored object class	Statistics class	Statistics collection	MIB name	NE types
rtr.NetworkInterface	rtr. IpInterfaceAdditional-Stats rtr.IpInterfaceStats rtr.SarIpInterfaceStats	MIB-based	TIMETRA-VRTR-MIB. vRtrIfStatsEntry TIMETRA-VRTR-MIB. vRtrIfStatsExtEntry	7210 SAS-D 7210 SAS-R 7250 IXR 7705 SAR 7750 SR Note: 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
service.AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. CompleteServiceIngressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR-H 7750 SR
service.AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H
service.AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 11-17 Ports and Interfaces Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 11-17 Ports and Interfaces Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Percentile	Identify a percentile of interest between 1 and 99.
	KPI Threshold	Specify the KPI threshold value
	Threshold Value	Specify the threshold value
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.11.2 Example

The following figures show report examples. The table below is a single table, but is separated due to its width.

Figure 11-8 Ports and Interfaces Utilization Summary report

Ports and Interfaces Utilization Summary

Start Date:

2023-02-07 08:06:00 IST

Report Date:

2023-03-01 18:15:54 IST

Granularity:

Raw Collection Interval

End Date:

2023-02-07 09:05:00 IST

Region	Subregion	Subregion 1	Subregion 2	Mode	TerminatedObject Type	TerminatedObject NE IP Address	TerminatedObject NE Name	TerminatedObject Name	TerminatedObject Description	Interface Name
SAS	N/A	N/A	N/A	Network	Port	35.250.40.84	NE84	Port 1/1/17	10/100/Gig Ethernet TX	N/A
SR-Group	SR_SubRegion	SR_SubRegion1	N/A	Access	Port	92.168.98.235	s168_98_235_Both	Port 1/1/17	10/100/Gig Ethernet TX	N/A

Outer Encap	Inner Encap	Interface IP Address	Mask	Reference Speed (Mbps)	Max Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Avg Tx Throughput (Mbps)	Max Tx Throughput Time	Min Tx Throughput Time	Max Rx Throughput (Mbps)
0	0	N/A	0	0.0	0.00	0.00	0.00	2023-02-07 09:00:00	2023-02-07 08:15:00	0.00
0	0	N/A	0	1000.0	85.80	64.37	74.20	2023-02-07 08:30:00	2023-02-07 08:15:00	87.58

Min Rx Throughput (Mbps)	Avg Rx Throughput (Mbps)	Max Rx Throughput Time	Min Rx Throughput Time	Tx Volume (MB)	Rx Volume (MB)	95 PCTL Tx Utilization	Max Tx Utilization (%)	Min Tx Utilization (%)	Avg Tx Utilization (%)
0.00	0.00	2023-02-07 09:00:00	2023-02-07 08:15:00	0.00	0.00	0.00	0.00	0.00	0.00
77.74	84.42	2023-02-07 08:15:00	2023-02-07 08:45:00	33393.48	37992.22	8.57	8.68	6.44	7.42

95 PCTL Rx Utilization	Max Rx Utilization (%)	Min Rx Utilization (%)	Avg Rx Utilization (%)	Max Utilization (%)	Min Utilization (%)	Errors/Collision
0.00	0.00	0.00	0.00	0.00	0.00	0
8.74	8.76	7.72	8.44	8.76	6.44	43

11.12 Service Availability Details report

11.12.1 Service Availability Details report overview

The Service Availability Details report shows the availability details of services. The report provides graphs showing the maximum, minimum, and average availability of services.

Use cases

Service level agreement—Use the report to validate that service availability meets agreed targets.

Troubleshooting—Use the report to determine if a service is currently, or has previously, been unavailable.

Prerequisites

To create the report, service availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of a service over a period of time. A periodic table tracks the activity state and availability of a service. The report does not consider the site, but instead uses the operational state of a service to provide the availability. Only the Up service is considered for Uptime; Partially Down and Down states are considered as downtime. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?” \(p. 335\)](#). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-18 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_service	aggrOperationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-19 Service Availability Details report characteristics

Characteristic	Value
Data type	Availability tables computed by availability framework
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7705 SAR variants all 7750 SR variants Note: The 7705 SAR-H is not supported.

Table 11-19 Service Availability Details report characteristics (continued)

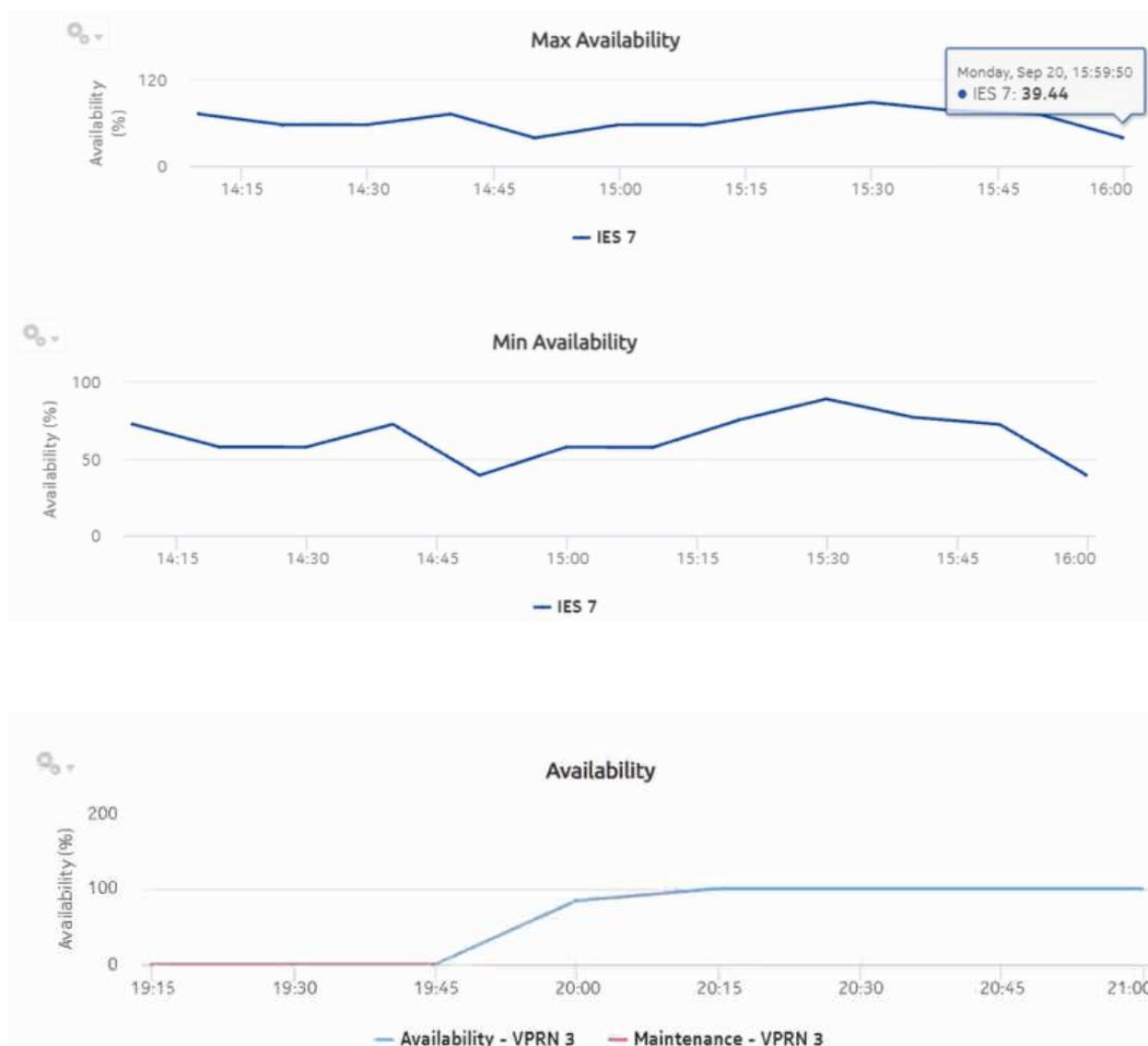
Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Max Availability Min Availability Avg Availability (for all granularities except for raw granularity) Availability (for raw granularity)
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

11.12.2 Example

The following figures show a report example. Not all figures are from the same report.

Figure 11-9 Service Availability Details report

Service Availability Details			
Start Date:	2022-05-26 19:01:00 IST	End Date:	2022-05-26 21:00:00 IST
Report Date:	2022-06-13 12:47:46 IST	Granularity:	Raw Collection Interval
ServiceType:	vprn	Region:	NA
Subregion:	NA		
Maintenance Window			
Type	Start Time (YYYY-MM-DD HH:MM)	End Time (YYYY-MM-DD HH:MM)	Duration (DD:HH:MM:SS)
service	2022-05-26 19:14 IST	2022-05-26 19:44 IST	00:00:30:00
Totals			00:00:30:00



11.13 Service Availability Summary report

11.13.1 Service Availability Summary report overview

The Service Availability Summary report shows a summary of the availability details of services. The report provides a table showing, for example, average availability, maximum availability, minimum availability, maximum availability time, and minimum availability time.

Use cases

Service level agreement—Use the report to validate that service availability meets agreed targets.

Troubleshooting—Use the report to determine if a service is currently, or has previously, been unavailable.

Limitations

Report limitations include:

- When the report is exported to the RTF file type, half of the report displays.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).

Prerequisites

To create the report, service availability must be determined. An availability framework computes periodic outage time and outage counts from state change records contained in the auxiliary database data dictionary. These periodic values are aggregated to determine the availability of a service over a period of time. A periodic table tracks the activity state and availability of a service. The report does not consider the site, but instead uses the operational state of a service to provide the availability. Only the Up service is considered for Uptime; Partially Down and Down states are considered as downtime. The availability framework supports the creation of an availability table that aggregates the data in the periodic table based on the periodic synchronization time configured on the system.

Update the interval of Analytics Data Dictionary tables: The object synchronization interval for tables registered for periodic calculation must be configured to run every 15 min by configuring analyticsMODictPeriodicSyncTime in the nms-server.xml file; see [11.3 “How do I synchronize the Analytics data dictionary table data with the NFM-P for periodic availability monitoring support?” \(p. 335\)](#). This procedure applies to all availability reports; it can be skipped if it has already been done.

Optionally, you may populate the maintenance window table in the auxiliary database with details of object maintenance; see [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#). The report runs if the table is not created or empty; however, maintenance windows are treated as downtime when availability is calculated.

Attributes to track operational state changes

The following table contains the attributes for tracking operational state changes.

Note: The table does not need to be manually enabled as it is system wide; by default, it is enabled for the entire network. Therefore, no action is required to enable the table. The current database sizing tool does not account for availability reports, and the retention time is not configurable. The availability reports are limited.

Table 11-20 Attributes to track operational state changes

Dictionary Name	Input Parameter	If State Changed	If State Not Changed
analytics_service	aggrOperationalState	Returns 1	Returns 0

Report characteristics

The following table lists the principal report characteristics.

Table 11-21 Service Availability Summary report characteristics

Characteristic	Value	
Data type	Availability tables computed by availability framework	
Source database	Auxiliary database	
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7705 SAR variants all 7750 SR variants Note: The 7705 SAR-H is not supported.	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

11.13.2 Example

The following figure shows a report example.

Figure 11-10 Service Availability Summary report

Service Availability Summary									
		Start Date:		2022-05-26 19:01:00 IST			End Date:		2022-05-26 21:00:00 IST
		Report Date:		2022-06-13 12:39:31 IST			Granularity:		Raw Collection Interval
Service Name	Service ID	ServiceType	Avg Availability (%)	Max Availability (%)	Min Availability (%)	Max Availability Time	Min Availability Time	Maintenance Start Time	Maintenance End Time
VPRN 3	3	vprn	96.83	100.0	84.14	2022-05-26 20:59:00	2022-05-26 19:59:00		
								2022-05-26 19:14:00	2022-05-26 19:44:00
		Maintenance Window Duration(DD:HH:MM:SS)							
Maintenance End Time									
2022-05-26 19:44:00		00:00:30:00							

12 Inventory report

12.1 Service Inventory report

12.1.1 Service Inventory report overview

An inventory report provides hardware configuration details at the service level. The Service Inventory report shows the number of services associated with a port that are currently on a single device or on multiple devices in a single view. The report allows you to see what NE services and LSPs are affected by a move/add/change/outage of a network or access interface from a service perspective. The report can be run from a router perspective, port perspective, or TDM bundle perspective.

Supported services include IES, VPLS, VPRN, Epipe, Apipe, Cpipe, VLAN, and MVPLS.

Use cases

Network planning—Use the report to plan for the acquisition of new hardware when required.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file format, data may be missing or obscured on the right side.

Prerequisites

To generate a Service Inventory report, you must discover all of the NEs that are part of the path in the network. This ensures that the path is accurately represented and fully visible in the report.

Report characteristics

The following table lists the principal report characteristics.

Table 12-1 Service Inventory report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP database

Table 12-1 Service Inventory report characteristics (continued)

Characteristic	Value	
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7250 IXR variants all 7210 SAS variants 7210 SAS-D 6F 4T, 7210 SAS-D 6F 4T ETR, 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12 OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
	Support is limited to NEs found in the network.	
Report inputs	Prompt	Notes
	Resource type	Router, Port, Bundle
	NEs/ Physical Ports/ TDM Bundles	Search using partial names or wildcard (%). To launch the report for a network-wide NE, physical port, or TDM bundle, do not select all input values.
	Name or name pattern for services	Search using partial names or wildcard (%). Select individual items or click Select All.
	Services	Select individual items or click Select All.
	Exclude Options	Enable, disable
	OLC State	Maintenance, In Service
	Administrative State	Up, Down, Partially Down, Unknown
	Lsp Path Type	Other, Primary, Standby, Secondary
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

12.1.2 Example

The following figure shows a report example.

Figure 12-1 Service Inventory report

Service Inventory									
Report Date :		2022-11-10 15:47:17 IST							
NE ID	NE Name	Service ID	Service Name	Description	Port Name	Port Description	Customer Name	Administrative State	Operational State
10.1.199.38	HT-7750-SR7-N38	2541	VPLS 2541	[XPS_VM[MSH]	Port 1/1/18	10/100/Gig Ethernet SFP	Saleh - Test19)	Up	Up
10.1.199.75	SAR18-N75	533	SrvName-VPLSMESH-533	SrvDesc-VPLSMESH-533 [XPS_VM]	Port 1/1/5	10/100 Ethernet TX	Shridhara testing(S)	Up	Up
10.1.199.75	SAR18-N75	576	VRPN-MESH-576	VRPN-MESH-576 [VRPN_MESH]	Port 1/9/1	10/100/Gig Ethernet SFP	Shridhara testing(S)	Up	Up
35.121.32.233	vSim32-233	2517	EPIPE 2517	Test Srv. Inventory Report - Sal-02[XPS_EPIPE]	Port 1/1/18	10/100/Gig Ethernet TX	Saleh - Test19)	Up	Down
10.1.199.153	IND-KAN-CA5-SAR8	1980000	Epipe 019-80000	019-80000 - SQA- RQIP - 01	Port 1/1/1	10/100 Ethernet TX	Saleh - Test19)	Up	Up

OLC State	Originating LSP Name/MPLS Name/ Type/Status/SDP Status	Terminating LSP Name/MPLS Name/ Type/Status/SDP Status
Maintenance	SR7-N38toAATA08-19930 SR7-N38toAATA08-19930-1E primary Active Up	AATA08-19930to7705-1 AATA08-19930to7705-1 primary Active Down
In Service	LSP1 MP1 primary Active Up	new new_sec Standby Inactive Down
In Service	LSP1 MP1 primary Active Up	new new_pri primary Inactive Down
In Service	vSim32-233vSim32-232 vSim32-233tovSim32-232P1 Secondary Active Up	LSPvSim32-2 aaav Sim32-233 vSim32-232tovSim32-232P1 primary Active Up
In Service	INDSSAR8-to-AATA081993005LSP-D INDSSAR8-to-AATA081993005LSP1 Secondary Active Up	AATA081993005-to-INDSSAR8LSP1D AATA081993005-to-INDSSAR8LSP1 Secondary Active Up

13 OAM reports

13.1 OAM report overview

13.1.1 General information

OAM reports show aggregated information on latency and loss based on results of OAM testing. Information in the report inputs is optimized to reflect the configuration of the test in the NFM-P GUI, for example, only configured forwarding classes appear in the inputs.

Forwarding classes are highlighted when latency or packet loss exceeds thresholds:

- Orange highlighting indicates that the maximum RTD is double or more the value of the average RTD
- Yellow highlighting indicates that the loss is greater than 0% but less than 5%.
- Red highlighting indicates that the loss is greater than 5%.



Note: Gaps may appear in line graphs: these indicate a time during which no data was available.

Both the NE name and its IP address display in the report.

Drill-down reports

All OAM reports can be run from the main OAM reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for OAM reports. Each level of indentation indicates a drill down.

Table 13-1 Available drill-downs for OAM reports

OAM-PM Composite Service Summary		
	OAM-PM Composite Service View	
Ping Network Summary		
	Ping Network Site Summary	
		Ping Latency Ping Jitter & Loss
Ping Service Summary		
	Ping Service Site Summary	
		Ping Service Site

Table 13-1 Available drill-downs for OAM reports (continued)

	Ping Latency Ping Jitter & Loss
Ping Top N Worst Results	
	Ping Latency Ping Jitter & Loss

Supported standards

The following table describes the test types supported by the reports, and alternate test names where they exist.

Table 13-2 Supported standards for OAM testing

Reports	Standards or alternate test names
• OAM-PM Composite Service Summary	MEF35

Prerequisites

The following must be configured for OAM reports to be created:

- OAM testing can be configured in the NFM-P or the NSP.
See the following in the *NSP NFM-P Classic Management User Guide* for information about the tests and policies that provide data for OAM reports:
 - PM bin group policies
 - Configuring a CFM two way delay OAM diagnostic test from the STM
 - Configuring a PM session OAM diagnostic test from the STM
 - Configuring a CFM DMM session OAM diagnostic test from the STM
 - Configuring a TWAMP-Light session OAM diagnostic test from the STM
 - Creating and running an ICMP ping OAM diagnostic test from the STM
 - Creating and running a VCCV ping OAM diagnostic test from the STM
- The OAM test results must be stored in the auxiliary database. To enable auxiliary database storage of OAM test results, you must enable the `oam-test-results` parameter in the `samauxdb` section of each NFM-P main server configuration. See the *NSP Installation and Upgrade Guide* for information about using the `samconfig` utility to modify the NFM-P configuration.
- OAM statistics must be collected using an accounting policy:
 - ETH-CFM Two-Way Delay, ICMP Ping, and VCCV Ping tests require an NE Schedulable Tests policy.
 - ETH-CFM Session and TWAMP-Light Session tests require a Complete-PM policy.
- To view the reports for granularities other than raw data, the OAM aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

13.2 OAM-PM Composite Service Summary report

13.2.1 OAM-PM Composite Service Summary report overview

The OAM-PM Composite Service Summary report shows an aggregated view of composite services in use, and results of PM CFM DMM, PM CFM SLM, and TWAMP-Light tests, grouped by ID.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service or composite service

Troubleshooting—Troubleshoot service performance by forwarding class and segment

Limitations

Report limitations include:

- When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.
- When the report is exported to the PDF file type, table borders may not display.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following tasks need to be performed using NSP Classic management for OAM-PM Composite Service Summary reports to be created:

- A DMM session must be defined with accounting enabled.
- A TWAMP-Light session must be defined with accounting enabled.
- For session loss information to be available, an SLM session must also be defined.

Report inputs

The following table shows the report inputs.

Table 13-3 OAM-PM Composite Service Summary report inputs

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Result set limit	Number of results to report

Table 13-3 OAM-PM Composite Service Summary report inputs (continued)

Prompt	Notes
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-4 OAM-PM Composite Service Summary report characteristics

Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: - Click on a composite to show an OAM-PM Composite Service View report, displaying test results by service segment. - From an OAM-PM Composite Service View, click on a service to show an OAM-PM ETH-CFM Service Site Summary or an OAM-PM TWAMP-Light Service Site Summary report.

13.2.2 Example

The following figures show report examples.

Figure 13-1 OAM-PM Composite Service Summary report

OAM-PM Composite Service Summary		
Report Generated On:	2017-08-09 14:15 EDT	Start Date: 2017-08-08 14:00 EDT
		End Date: 2017-08-09 13:59 EDT
ID	Composite Service Name	Number of Services
1	N/A	1
2	N/A	1
3	N/A	1
4	Composite 4	2
5	Composite 5	2
6	Composite 6	2
7	Composite 7	2
8	Composite 8	2
9	Composite 9	4
10	Composite 10	2
11	Composite 11	4
12	Composite 12	2
13	Composite 13	3
14	Composite 14	6
15	Composite 15	2
16	Composite 16	2
17	Composite 17	7
18	Composite 18	3
19	Composite 19	2
20	Composite 20	2
21	Composite 21	2
22	Composite 22	2

Figure 13-2 OAM-PM Composite Service View

OAM-PM Composite Service View

Composite Service ID: 5

Composite Service Name: Composite 5

Report Generated On: 2017-08-09 14:22 EDT

Start Date: 2017-08-08 14:00 EDT

End Date: 2017-08-09 13:59 EDT

Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
EPIPE 22	672019	2229647	2182	12.66
VPLS 24	2014404	2202138	6641	26.99

13.3 Ping Network Summary report

13.3.1 Overview

Ping Network Summary reports show an aggregated view of ping tests between selected NEs over a specified time period, grouped by source and target NE and forwarding class.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Limitations

Report limitations include:

- When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the RTF file type, some table columns may not display.

Report inputs

The following table shows the report inputs.

Table 13-5 Ping Network Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping , LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)

Table 13-5 Ping Network Summary report inputs (continued)

Prompt	Notes
Source Node	Search using partial or full names. Select individual items or click Select All . Both the NE name and its IP address display.
Target Node	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-6 Ping Network Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes—Opens a Ping Network Site Summary report of the selected test type: an aggregate view of the set of tests used to create the row. From a Ping Network Site Summary report: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.3.2 Example

The following figures show report examples.

Figure 13-3 ETH-CFM Two Way Delay Network Summary report

ETH-CFM Two Way Delay Network Summary

Source Node: 203.0.113.74

Target Node: ALL

Report Generated On: 2017-08-02 13:22

Start Date: 2017-08-01 13:00

End Date: 2017-08-02 12:59

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.73	nc	2724.989	13962	892	292.413	0	184
203.0.113.74	203.0.113.75	nc	1740572.389	2213350	0	14877.014	29.74	694
203.0.113.74	203.0.114.156	nc	5424	16358	2818	328.652	0	46
203.0.113.74	203.0.114.158	nc	5066.884	16169	2781	342.464	0	138

Figure 13-4 ICMP Ping Network Summary report

ICMP Ping Network Summary

Source Node: 203.0.113.74

Target Node: [203.0.114.156, 203.0.114.158, 203.0.113.68, 203.0.113.69,

Report Generated On: 2017-08-10 09:44 EDT

Start Date: 2017-08-09 09:00 EDT

End Date: 2017-08-10 08:59 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.68	be	0	0	0	0	100	23
203.0.113.74	203.0.113.68	ef	0	0	0	0	100	23
203.0.113.74	203.0.113.69	be	0	0	0	0	100	23
203.0.113.74	203.0.113.69	ef	0	0	0	0	100	23
203.0.113.74	203.0.113.75	be	1087301.648	1416248	0	18069.067	19.28	253
203.0.113.74	203.0.113.75	ef	1086763.269	1388437	0	18220.423	19.34	253
203.0.113.74	203.0.114.156	be	1666.783	13603	0	114.326	80	92
203.0.113.74	203.0.114.156	ef	1667.63	14054	0	113.359	80	92
203.0.113.74	203.0.114.158	be	1572.282	845221	0	12.268	97.09	71
203.0.113.74	203.0.114.158	ef	1657.069	893284	0	11.458	95.76	72

Figure 13-5 VCCV Ping Network Summary report

VCCV Ping Network Summary

Source Node: 203.0.113.74

Target Node: ALL

Report Generated On: 2017-08-10 10:40 EDT

Start Date: 2017-07-31 10:00 EDT

End Date: 2017-08-10 09:59 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.73	be	1790.067	8762	645	211.933	0	15
203.0.113.74	203.0.113.73	be	1599888.667	1767381	6657	15727.333	10.24	30

Figure 13-6 LSP Ping Network Summary report

LSP Ping Network Summary

Source Node: sim72 (35.121.8.72)

Target Node: ALL

Start Date: 2018-11-24 00:00 EST

End Date: 2019-09-23 14:59 EDT

Report Generated On: 2019-09-23 15:21 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
sim72 (35.121.8.72)	sim73 (35.121.8.73)	be	4747016	9281677	314935	3350278	0	765
sim72 (35.121.8.72)	sim73 (35.121.8.73)	l2	4747016	9281677	314935	3350278	0	405
sim72 (35.121.8.72)	sim73 (35.121.8.73)	af	4747016	9281677	314935	3350278	0	585
sim72 (35.121.8.72)	sim73 (35.121.8.73)	l1	4747016	9281677	314935	3350278	0	270

Figure 13-7 Tunnel Ping Network Summary report

Tunnel Ping Network Summary

Source Node: sim72 (35.121.8.72)

Target Node: ALL

Report Generated On: 2019-11-08 12:38 EST

Start Date: 2019-01-21 01:00 EST

End Date: 2019-01-26 00:00 EST

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
sim72 (35.121.8.72)	sim73 (35.121.8.73)	be	4573702	9119412	173655	5059988	0	2025

13.4 Ping Network Site Summary report

13.4.1 Overview

A Ping Network Site Summary report can be run by itself or as a drill-down from a Ping Network Summary report. The report shows the aggregate view of the set of tests for a selected source NE and target NE, aggregated by forwarding class.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Limitations

When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Report inputs

The following table shows the report inputs.

Table 13-7 Ping Network Site Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping , LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-8 Ping Network Site Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database

Table 13-8 Ping Network Site Summary report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.4.2 Example

The following figures show report examples.

Figure 13-8 ETH-CFM Two Way Delay Network Site Summary report

ETH-CFM Two Way Delay Network Site Summary

Source Node: 203.0.113.74

Target Node: [203.0.113.75]

Report Generated On: 2017-08-02 13:30

Start Date: 2017-08-01 13:00

End Date: 2017-08-02 12:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.74:sas:cfm-twoWayDlyTest-1	nc	2004644.459	2163104	0	19124.027	19.83	37
network:203.0.113.74:sas:cfm-twoWayDlyTest-10	nc	2008941.05	2175142	11308	17797	16.84	40
network:203.0.113.74:sas:cfm-twoWayDlyTest-11	nc	2006841.05	2189175	0	17312.4	17.94	40
network:203.0.113.74:sas:cfm-twoWayDlyTest-13	nc	2012410.914	2213350	0	14231.171	20.86	35
network:203.0.113.74:sas:cfm-twoWayDlyTest-14	nc	2009888.781	2182200	0	14179.281	22.66	32
network:203.0.113.74:sas:cfm-twoWayDlyTest-15	nc	0	0	0	0	100	23
network:203.0.113.74:sas:cfm-twoWayDlyTest-3	nc	1986192.444	2190917	10221	23187.417	20.41	36
network:203.0.113.74:sas:cfm-twoWayDlyTest-5	nc	2013836.571	2209998	0	15224.524	16.86	42
network:203.0.113.74:sas:cfm-twoWayDlyTest-8	nc	2008733.41	2144878	0	16009.077	38.1	39
network:203.0.113.74:sas:cfm-twoWayDlyTest-9	nc	0	0	0	0	100	23

Figure 13-9 ICMP Ping Network Site Summary report

ICMP Ping Network Site Summary

Source Node: 203.0.113.74

Target Node: [203.0.113.75]

Report Generated On: 2017-08-10 10:48 EDT

Start Date: 2017-08-09 10:00

End Date: 2017-08-10 09:59

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.74:sas:icmp-ping-15	be	1205052.087	1375019	2950	19150.5	10.88	46
network:203.0.113.74:sas:icmp-ping-16	be	1204125.63	1416248	3136	18886.587	11.24	46
network:203.0.113.74:sas:icmp-ping-26	be	1195154.565	1399228	2417	20440.348	11.07	46
network:203.0.113.74:sas:icmp-ping-27	be	1196998.761	1377580	0	19917.674	11.26	46
network:203.0.113.74:sas:icmp-ping-28	be	0	0	0	0	100	23
network:203.0.113.74:sas:icmp-ping-30	be	1188205	1390244	1844	20280.435	11.86	46

Figure 13-10 VCCV Ping Network Site Summary report

VCCV Ping Network Site Summary							
Source Node: 203.0.113.75		Start Date: 2017-07-31 10:00					
Target Node: [203.0.114.156]		End Date: 2017-08-10 09:59					
Report Generated On: 2017-08-10 10:31 EDT							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:203.0.113.75:sas:vccv-ping-1	be	1176855.6	1345764	0	14691.333	9.82	30

Figure 13-11 LSP Ping Network Site Summary report

LSP Ping Network Site Summary

Source Node: sim72 (35.121.8.72)

Target Node: ALL

Report Generated On: 2019-11-08 12:46 EST

Start Date: 2019-01-21 01:00 EST

End Date: 2019-01-26 00:00 EST

Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.72:sas:lsp-ping-3	be	4917913	9353150	229557	4192661	0	4050

Figure 13-12 Tunnel Ping Network Site Summary report

Tunnel Ping Network Site Summary							
Source Node:	sim72 (35.121.8.72)				Start Date:	2018-11-24 00:00 EST	
Target Node:	ALL				End Date:	2019-09-23 14:59 EDT	
Report Generated On:	2019-09-23 15:23 EDT						
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.72:as:tunnel-ping-1	be	4861568	9441036	154669	5575098	0	1485

13.5 Ping Service Summary report

13.5.1 Overview

Ping Service Summary reports show an aggregated view of supported ping tests on a specified service over a specified time period, grouped by service ID.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping

For Cpipe, only the VCCV Ping test is supported

The following service types are supported:

- Epipe
- Cpipe
- VPLS
- VPRN
- MVPLS

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-9 Ping Service Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping

Table 13-9 Ping Service Summary report inputs (continued)

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	VPLS, VPRN, MVPLS, Epipe, or Cpipe
Service ID Range	Search using partial names or full names. A wildcard (*) will display all service IDs. Search service ID ranges using hyphens, for example, 1-200. Select individual items or click Select All .
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-10 Ping Service Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.

Table 13-10 Ping Service Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Opens a Ping Service Site Summary report of the selected test type: an view of the results of tests on the service. From a Ping Service Site Summary report, open a Ping Service Site report. From a Ping Service Site report: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.5.2 Example

The following figures show report examples.

Figure 13-13 ETH-CFM Two Way Delay Service Summary report

ETH-CFM Two Way Delay Service Summary

Report Generated On: 2017-08-02 15:22 Start Date: 2017-08-01 15:00
End Date: 2017-08-02 14:59

Service	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
EPIPE 2	4466.088	13619	1080	427.294	0	68
EPIPE 6	0	0	0	0	100	92
EPIPE 9	2013360.878	2148631	0	15633.207	15.68	164
EPIPE 10	5219.261	16169	2818	330.5	0	92
EPIPE 21	1200471.466	2190917	2781	14114.983	12.8	116
EPIPE 22	1230185.051	2160326	0	10158.508	12.4	118
EPIPE 23	2010401.643	2189175	0	17403.393	13.61	168
EPIPE 34	4475.265	10680	1055	415.971	0	68
EPIPE 48	2013450.815	2176164	11308	16570.395	13.46	162
EPIPE 49	0	0	0	0	100	90
EPIPE 59	2736.13	13356	1055	300	0	46
EPIPE 66	4453.147	10049	1060	428.235	0	68
EPIPE 107	4449.412	11049	1069	433.088	0	68
EPIPE 137	2010150.841	2168123	0	18486.614	12.33	88
EPIPE 143	686.652	8140	0	74.283	75	184
EPIPE 305	3714.087	7576	892	286.957	0	46
EPIPE 1009	2013910.867	2209998	0	16391.602	13.33	166
EPIPE 1617	0	0	0	0	100	46
EPIPE 3737	2708.783	13962	1020	288.565	0	46
EPIPE 90009	4427.235	11320	1054	415.5	0	68
EPIPE 231213	2008422.52	2166257	0	15879.467	17.11	150
EPIPE 741852963	0	0	0	0	100	88
EPIPE 747574757	2012649.5	2191227	0	15724.355	17.8	152

Figure 13-14 ICMP Ping Service Summary report

ICMP Ping Service Summary							
Report Generated On: 2017-08-10 11:03 EDT				Start Date: 2017-08-09 11:00 End Date: 2017-08-10 10:59			
Service		Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
VPRN	3535	0	0	0	0	100	828
VPRN	4003	1207033.94	1416248	2950	19002.856	10.44	368
VPRN	5666	2270.592	18110	277	244.452	0	1472
VPRN	7000	793482.664	1399228	0	13306.212	28.21	833
VPRN	506060	2071.507	18084	0	298.971	33.33	138

Figure 13-15 VCCV Ping Service Summary report

VCCV Ping Service Summary							
Report Generated On: 2017-08-10 11:10 EDT				Start Date: 2017-07-31 11:00 End Date: 2017-08-10 10:59			
Service		Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
EPIPE	107	2952.667	8650	639	570.367	0	30
EPIPE	3737	1814.467	11820	626	216.067	0	30
MVPLS	174	1375680.05	1780523	0	15789.8	10.07	60
MVPLS	706	1399445.083	1767381	1886	14220.2	9.29	60

13.6 Ping Service Site Summary report

13.6.1 Overview

A Ping Service Site Summary report can be run by itself or as a drill-down from a Ping Service Summary report. The report shows the aggregate view of the set of tests on a selected service.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-11 Ping Service Site Summary report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	MVPLS, VPLS, or Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click Select All .
Service Sites	Both the NE name and its IP address display.
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-12 Ping Service Site Summary report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.

Table 13-12 Ping Service Site Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Opens a Ping Service Site report. From a Ping Service Site report: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.6.2 Example

The following figures show report examples.

Figure 13-16 ETH-CFM Two Way Delay Service Site Summary report

ETH-CFM Two-Way Delay Service Site Summary

Service: **IPPI 34** Start Date: 2017-03-07 13:00
Service Sites: **ALL** End Date: 2017-03-08 12:00
Report Generated On: 2017-03-08 12:02

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.68	203.0.113.68	bc	2000660	4000	0	192.869	0	0
203.0.113.68	203.0.113.68	bc	2000660	4000	0	183.7	0	10

Figure 13-17 ICMP Ping Service Site Summary report

ICMP Ping Service Site Summary

Service: **VPRN 4003** Start Date: 2017-07-31 11:00
Service Sites: **ALL** End Date: 2017-08-10 10:59
Report Generated On: 2017-08-10 11:20 EDT

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.75	be	1203630.952	1416248	2950	19257.47	11.13	168
203.0.113.74	203.0.113.75	ef	1203290.958	1376903	2116	19675.911	11.14	168
203.0.113.75	203.0.113.74	be	1209866.143	1381460	4279	18950.036	9.88	168
203.0.113.75	203.0.113.74	ef	1210389.095	1370666	4700	18631.571	9.78	168

Figure 13-18 VCCV Ping Service Site Summary report

VCCV Ping Service Site Summary

Service: MVPLS 706

Service Sites: ALL

Report Generated On: 2017-08-10 11:14 EDT

Start Date: 2017-07-31 11:00

End Date: 2017-08-10 10:59

Source Node	Target Node	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
203.0.113.74	203.0.113.75	be	1599888.667	1767381	6657	15727.333	10.24	30
203.0.113.75	203.0.113.74	be	1199001.5	1352480	1886	12713.067	9.44	30

13.7 Ping Service Site report

13.7.1 Overview

A Ping Service Site report can be run by itself or as a drill-down from a Ping Service Site Summary report. The report shows the results of a test on the site.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-13 Ping Service Site report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly

Table 13-13 Ping Service Site report inputs (continued)

Prompt	Notes
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	Forwarding classes configured in NSP Classic management
Service Type	VPLS, MVPLS, or Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click Select All .
Source Node	
Target Node	
Result set limit	Number of results to report
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-14 Ping Service Site report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.7.2 Example

The following figures show report examples.

Figure 13-19 ETH-CFM Two Way Delay Service Site report

ETH-CFM Two Way Delay Service Site								
Service Type:	EPIPE						Start Date:	2017-08-08 16:00
Service ID:	107						End Date:	2017-08-09 15:59
Report Generated On:	2017-08-09 16:07 EDT							
Test	Forwarding Class	Avg. Delay (μs)	Max Delay (μs)	Min Delay (μs)	Jitter (μs)	Loss %	Sample Size	
network:203.0.113.69:sas:cfm-twoWayDlyTest-2	be	4600.391	13088	992	432.696	0	23	

Figure 13-20 ICMP Ping Service Site report

ICMP Ping Service Site							
Service Type:	VPRN	Start Date:	2017-07-31 11:00				
Service ID:	4003	End Date:	2017-08-10 10:59				
Report Generated On:	2017-08-10 11:27 EDT						
Test	Forwarding Class	Avg. Delay (μs)	Max Delay (μs)	Min Delay (μs)	Jitter (μs)	Loss %	Sample Size
network:203.0.113.75:sas:icmp-ping-1	ef	1210608.893	1370666	4925	18663.131	9.84	84
network:203.0.113.75:sas:icmp-ping-2	ef	1210169.298	1365920	4700	18600.012	9.73	84

Figure 13-21 VCCV Ping Service Site report

VCCV Ping Service Site							
Service Type:	MVPLS	Start Date:	2017-07-31 11:00				
Service ID:	174	End Date:	2017-08-10 10:59				
Report Generated On:	2017-08-10 11:36 EDT						
Test	Forwarding Class	Avg. Delay (μs)	Max Delay (μs)	Min Delay (μs)	Jitter (μs)	Loss %	Sample Size
network:203.0.114.156:sas:vccv-ping-1	be	1574504.5	1780523	0	16888.267	10.32	30

13.8 Ping Tests Top N Worst Results report

13.8.1 Overview

Ping Tests Top N Worst Results reports show an aggregated view of worst case ping tests between selected NEs over a specified time period, grouped by source and target NE.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Report inputs

The following table shows the report inputs.

Table 13-15 Ping Tests Top N Worst Results report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping , LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Result set limit	Number of results to report
Test Factor	Average delay, maximum delay, minimum delay, jitter, or loss
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 13-16 Ping Tests Top N Worst Results report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	Yes: - Click on a delay result to show a Ping Latency report. - Click on a jitter or loss result to show a Ping Jitter & Loss report.

13.8.2 Example

The following figures show report examples.

Figure 13-22 ETH-CFM Two Way Delay Top N Worst Results report

ETH-CFM Two Way Delay Top 20 Worst Case Results							
Source Node: [35.121.8.155, 35.121.8.158, 35.121.8.185, 35.121.8.65, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Target Node: [35.121.8.155, 35.121.8.158, 35.121.8.185, 35.121.8.65, 35.121.8.66, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Start Date: 2018-04-11 17:00 EDT							
End Date: 2018-05-11 16:16 EDT							
Report Generated On: 2018-05-11 16:16 EDT							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:asicfm-twoWayDlyTest-5	nc	2133981	2301223	0	22563	13	1235
network:35.121.8.75:asicfm-twoWayDlyTest-2	nc	2130820	2280945	0	22594	14	1233
network:35.121.8.75:asicfm-twoWayDlyTest-1	nc	2126440	2275951	0	22657	14	1232
network:35.121.8.75:asicfm-twoWayDlyTest-3	nc	2124323	2294685	0	22303	14	1231
network:35.121.8.74:asicfm-twoWayDlyTest-1	nc	2119221	2287519	0	21125	23	1225
network:35.121.8.74:asicfm-twoWayDlyTest-4	nc	2115733	2278798	0	20332	23	1224
network:35.121.8.74:asicfm-twoWayDlyTest-22	nc	20360	66123	13562	3736	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-25	nc	22832	45214	9523	3199	0	1
network:35.121.8.75:asicfm-twoWayDlyTest-21	nc	20752	52348	4529	3231	0	1
network:35.121.8.75:asicfm-twoWayDlyTest-28	nc	20619	48451	7459	2780	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-31	nc	19794	32190	10845	2702	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-30	nc	19351	32095	11649	2719	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-9	nc	19119	33754	9983	2641	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-34	nc	18445	34517	11102	3005	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-22	nc	17878	33155	9135	2581	0	1
network:35.121.8.75:asicfm-twoWayDlyTest-18	nc	16682	37897	7455	2591	0	1
network:35.121.8.75:asicfm-twoWayDlyTest-9	nc	15775	25542	9599	1405	0	1
network:35.121.8.75:asicfm-twoWayDlyTest-27	nc	15707	37676	6032	3173	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-29	nc	14323	23972	9174	1438	0	1
network:35.121.8.74:asicfm-twoWayDlyTest-11	nc	14208	31625	8325	2611	0	1

Figure 13-23 ICMP Ping Top N Worst Results report

ICMP Ping Top 20 Worst Case Results							
Source Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Target Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.66, 35.121.8.67, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Start Date: 2018-04-11 17:00 EDT							
End Date: 2018-05-11 16:11 EDT							
Report Generated On: 2018-05-11 16:12 EDT							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.74:saasicmp-ping-71	be	1723583	1836966	5692	15328	1	2283
network:35.121.8.74:saasicmp-ping-74	be	1722380	1845820	6294	14982	1	2282
network:35.121.8.74:saasicmp-ping-70	be	1720828	1835828	6305	14984	1	2294
network:35.121.8.74:saasicmp-ping-51	be	1716739	1825974	8178	13598	1	2292
network:35.121.8.74:saasicmp-ping-75	be	1716534	1826469	5480	14399	1	2289
network:35.121.8.74:saasicmp-ping-58	be	1716324	1831004	6844	13578	1	2296
network:35.121.8.74:saasicmp-ping-56	be	1715683	1835837	7191	14226	1	2281
network:35.121.8.74:saasicmp-ping-53	be	1715103	1825646	6477	13314	1	2279
network:35.121.8.74:saasicmp-ping-73	be	1715103	1824938	6844	13938	2	2274
network:35.121.8.74:saasicmp-ping-72	be	1714759	1825007	4899	14359	1	2283
network:35.121.8.74:saasicmp-ping-78	be	1714716	1835443	5951	14576	1	2295
network:35.121.8.74:saasicmp-ping-79	be	1714434	1829258	6014	13895	1	2293
network:35.121.8.74:saasicmp-ping-76	be	1714256	1826883	6981	13746	1	2288
network:35.121.8.74:saasicmp-ping-52	be	1714191	1815209	6098	13691	1	2294
network:35.121.8.74:saasicmp-ping-50	be	1714167	1816726	6609	13792	1	2289
network:35.121.8.74:saasicmp-ping-59	be	1713327	1825897	6664	14193	1	2288
network:35.121.8.74:saasicmp-ping-77	be	1713096	1825198	6754	13942	1	2292
network:35.121.8.74:saasicmp-ping-55	be	1712475	1821864	6596	13508	1	2298
network:35.121.8.74:saasicmp-ping-57	be	1709441	1815567	6603	14142	2	2279
network:35.121.8.74:saasicmp-ping-52	be	1708950	1807259	8518	13188	2	2257

Figure 13-24 VCCV Ping Top N Worst Results report

VCCV Ping Top 20 Worst Case Results							
Source Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Target Node: [35.121.9.156, 35.121.9.158, 35.121.8.185, 35.121.8.65, 35.121.8.68, 35.121.8.69, 35.121.8.74, 35.121.8.75]							
Start Date: 2018-04-11 17:00 EDT							
End Date: 2018-05-11 16:17 EDT							
Report Generated On: 2018-05-11 16:17 EDT							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:sas:vccv-ping-1	be	6185	9389	3420	935	0	1
network:35.121.8.74:sas:vccv-ping-1	be	5580	7557	3003	600	0	1
network:35.121.8.75:sas:vccv-ping-2	be	4039	6139	2863	281	0	1
network:35.121.8.65:sas:vccv-ping-1	be	2058	3338	1657	103	0	1
network:35.121.8.65:sas:vccv-ping-2	af	2027	3305	1625	201	0	1
network:35.121.8.68:sas:vccv-ping-3	be	1943	2258	1634	104	0	1
network:35.121.8.68:sas:vccv-ping-1	be	1806	2000	1675	19	0	1
network:35.121.8.68:sas:vccv-ping-5	be	1239	1498	855	102	0	1
network:35.121.8.68:sas:vccv-ping-2	be	1139	1850	872	51	0	1
network:35.121.8.69:sas:vccv-ping-4	af	1071	1984	829	138	0	1
network:35.121.8.69:sas:vccv-ping-3	be	1048	1177	867	50	0	1
network:35.121.8.68:sas:vccv-ping-4	be	970	1160	850	35	0	1
network:35.121.8.69:sas:vccv-ping-2	af	953	1174	825	54	0	1
network:35.121.8.68:sas:vccv-ping-6	af	918	1155	852	20	0	1
network:35.121.8.69:sas:vccv-ping-1	be	870	879	853	3	0	1

Figure 13-25 LSP Ping Top 100 Worst Case Results report

LSP Ping Top 100 Worst Case Results							
Source Node: sim72 (35.121.8.72), sim73 (35.121.8.73), sim74 (35.121.8.74), sim75 (35.121.8.75)							
Target Node: sim73 (35.121.8.73), sim72 (35.121.8.72), sim75 (35.121.8.75), sim74 (35.121.8.74)							
Start Date: 2019-01-19 01:00 EST							
End Date: 2019-01-26 00:00 EST							
Report Generated On: 2019-11-08 13:58 EST							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.75:sas:lsp-ping-4	be	5090144	9470270	306910	4097871	0	2025
network:35.121.8.74:sas:lsp-ping-2	be	5048242	9297075	303061	4514539	0	2025
network:35.121.8.72:sas:lsp-ping-3	be	4917913	9353150	229557	4192661	0	2025
network:35.121.8.73:sas:lsp-ping-1	be	4436920	9196792	392362	5390620	0	2025

Figure 13-26 Tunnel Ping Top 100 Worst Case Results report

Tunnel Ping Top 100 Worst Case Results							
Source Node: sim72 (35.121.8.72), sim73 (35.121.8.73), sim74 (35.121.8.74), sim75 (35.121.8.75)							
Target Node: sim73 (35.121.8.73), sim72 (35.121.8.72), sim75 (35.121.8.75), sim74 (35.121.8.74)							
Start Date: 2019-01-19 01:00 EST							
End Date: 2019-01-26 00:00 EST							
Report Generated On: 2019-11-08 14:00 EST							
Test	Forwarding Class	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Jitter (µs)	Loss %	Sample Size
network:35.121.8.74:sas:tunnel-ping-3	be	5351585	9325738	443514	5154414	0	2025
network:35.121.8.73:sas:tunnel-ping-2	be	4854094	9116339	358223	4660267	0	2025
network:35.121.8.72:sas:tunnel-ping-1	be	4573702	9119412	173655	5059988	0	2025
network:35.121.8.75:sas:tunnel-ping-4	be	4004067	9370655	149089	4984006	0	2025

13.9 Ping Latency report

13.9.1 Overview

A Ping Latency report can be run by itself or as a drill-down from a Ping Network Site Summary report. The report shows the graph of latency for a selected test during a specified time period.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Limitations

When the report is exported to the RTF file type, some table columns may not display.

Report inputs

The following table shows the report inputs.

Table 13-17 Ping Latency report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay, ICMP Ping, VCCV Ping, LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Test	Number of results to report
Threshold	Specify in bps/Kbps/Mbps/Gbps

Report characteristics

The following table lists the principal report characteristics.

Table 13-18 Ping Latency report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	No

13.9.2 Example

The following figures show report examples.

Figure 13-27 ETH-CFM Two Way Delay Results Latency report

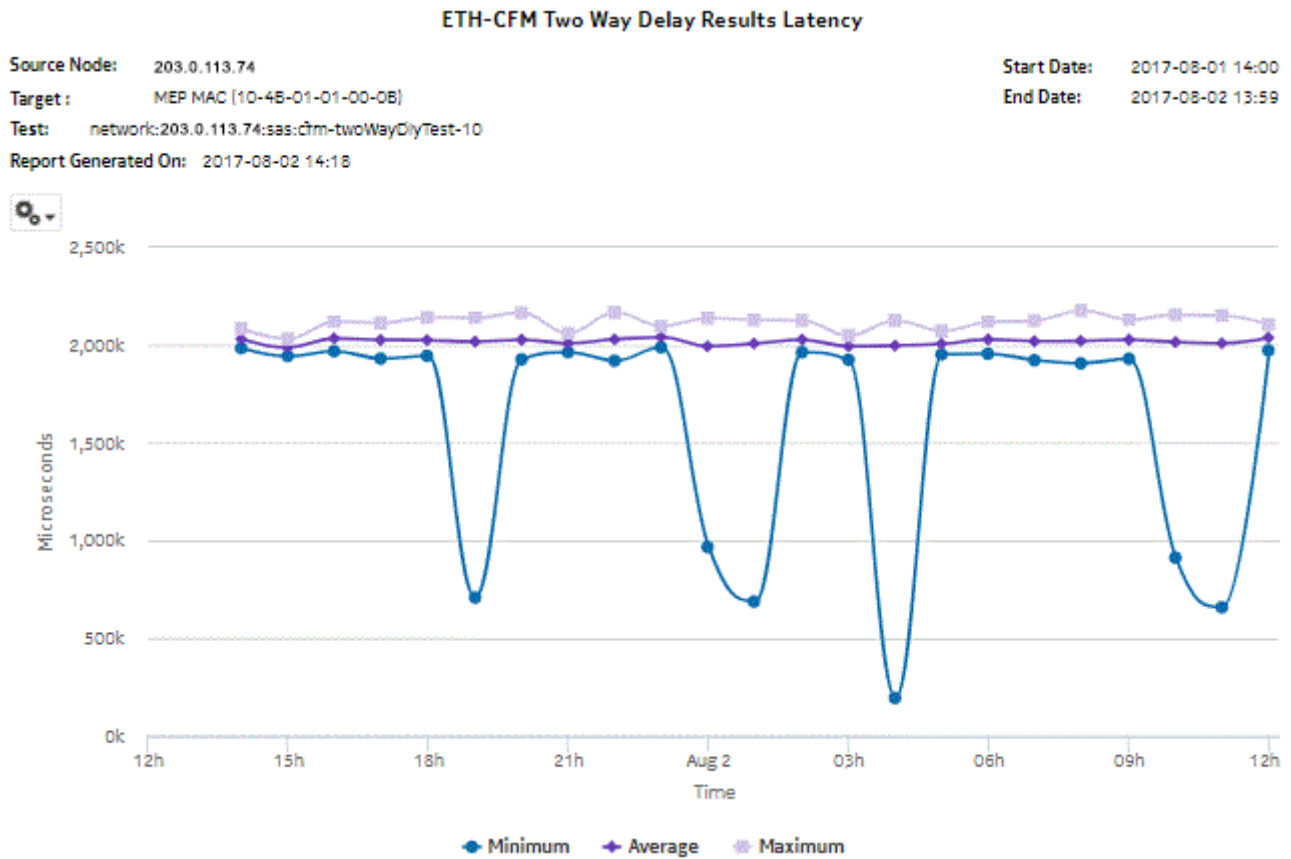


Figure 13-28 ICMP Ping Results Latency report

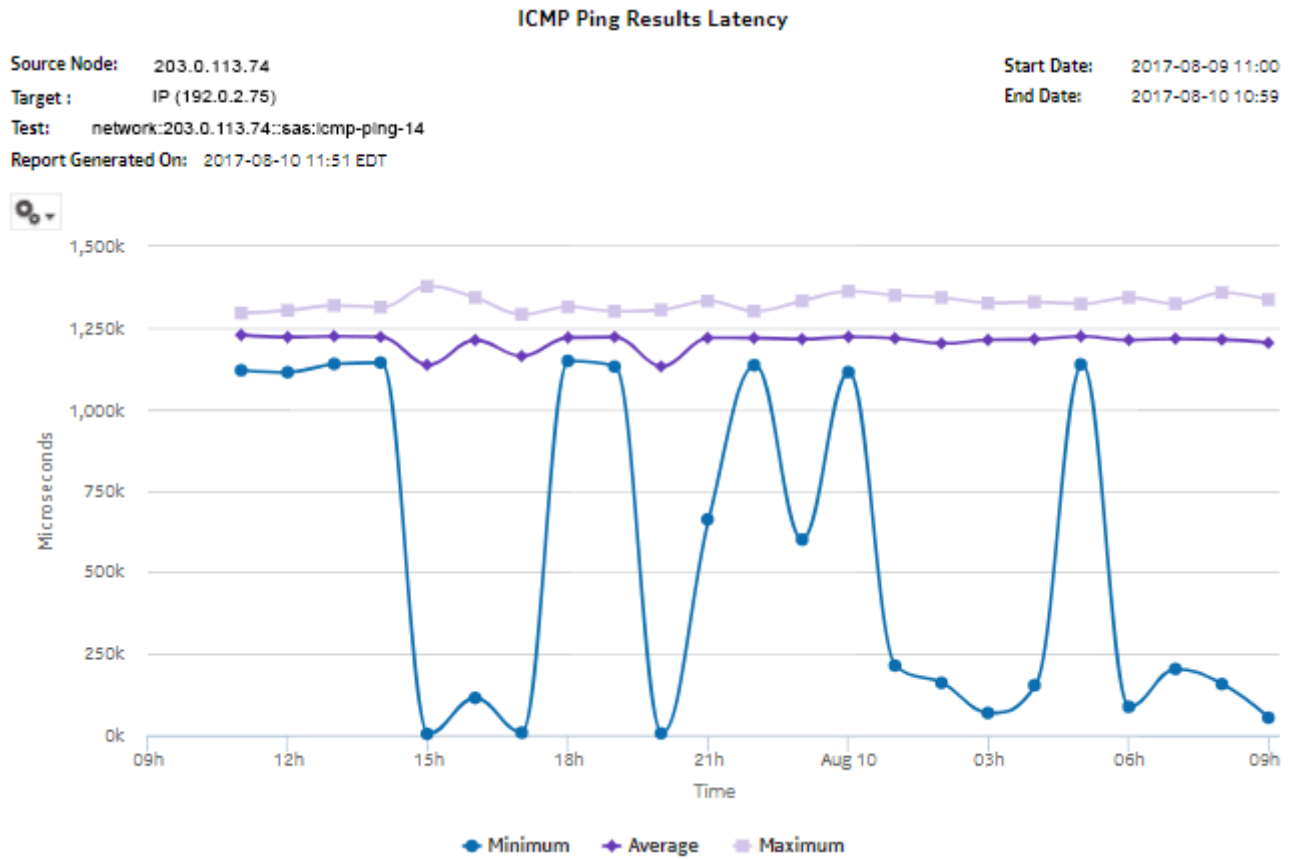


Figure 13-29 VCCV Ping Results Latency report

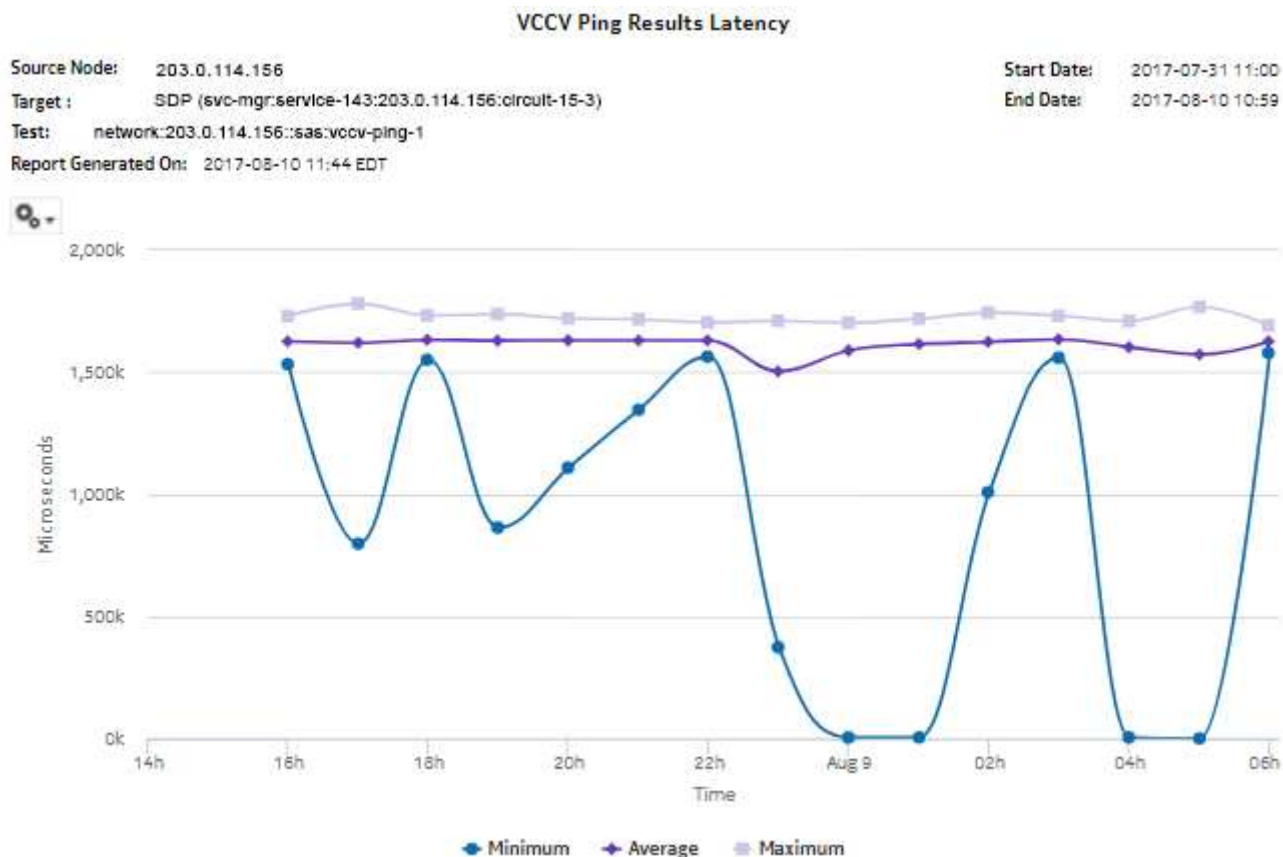


Figure 13-30 LSP Ping Results Latency report

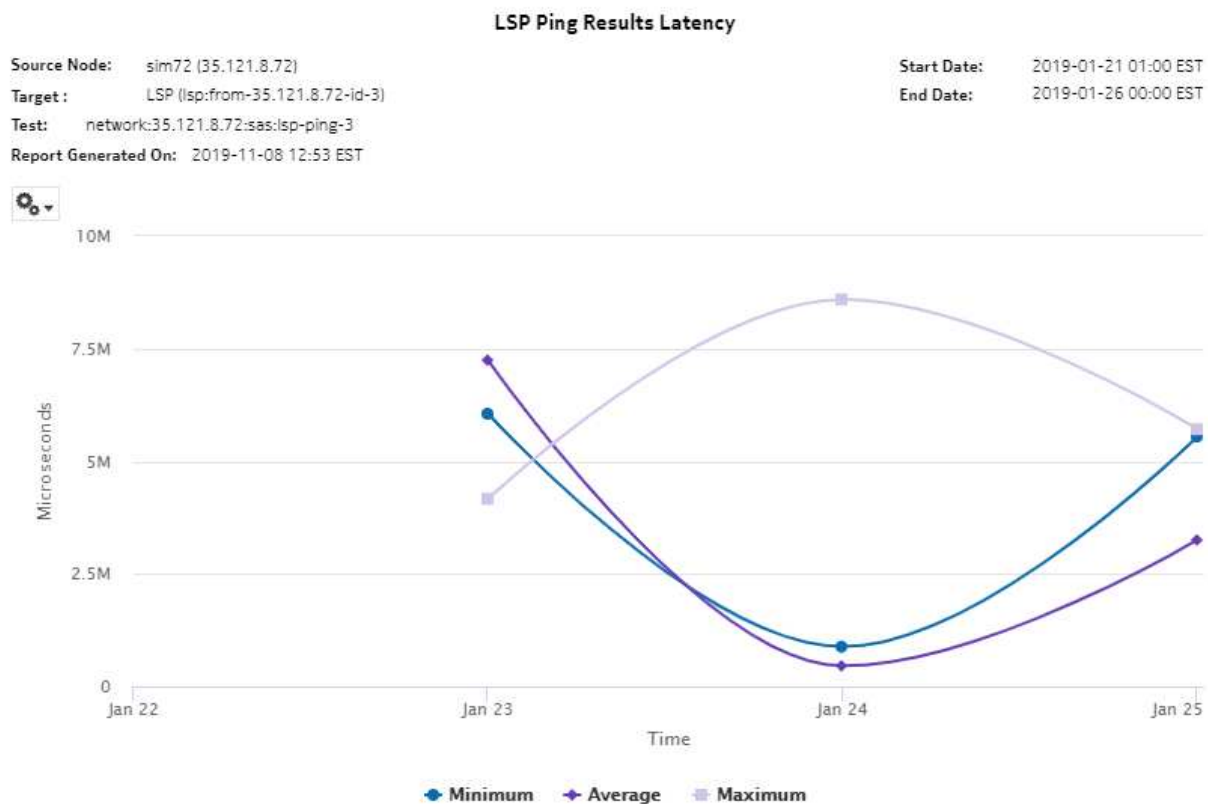
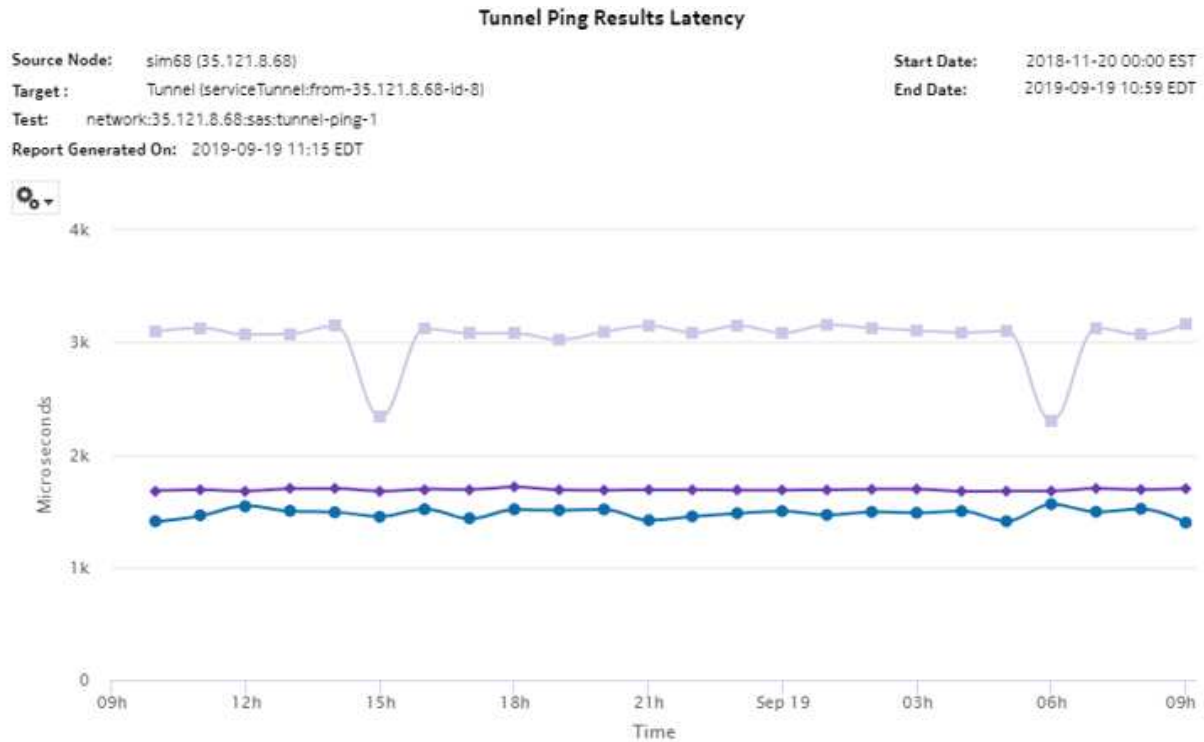


Figure 13-31 Tunnel Ping Results Latency report



13.10 Ping Jitter & Loss report

13.10.1 Overview

A Ping Jitter & Loss report can be run by itself or as a drill-down from a Ping Network Site Summary report. The report shows the graph of jitter and loss for a selected test during a specified time period.

The report includes the following test types:

- ETH-CFM Two-Way Delay
- ICMP Ping
- VCCV Ping
- LSP Ping
- Tunnel Ping

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Limitations

When the report is exported to the RTF file type, some table columns may not display.

Report inputs

The following table shows the report inputs.

Table 13-19 Ping Jitter & Loss report inputs

Prompt	Notes
Test Type	ETH-CFM Two-Way Delay , ICMP Ping , VCCV Ping , LSP Ping, Tunnel Ping
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Forwarding Class	The list of forwarding classes configured in NSP Classic management. Search using partial or full names.
Source Node	Search using partial or full names. Select individual items or click Select All .
Target Node	Both the NE name and its IP address display.
Test	Number of results to report

Report characteristics

The following table lists the principal report characteristics.

Table 13-20 Ping Jitter & Loss report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database

Table 13-20 Ping Jitter & Loss report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M, 7210 SAS-X, 7210 SAS-Mxp, 7210 SAS-R12, 7210 SAS-R6, 7210 SAS-T, 7210 SAS-S, 7210 SAS-Sx, 7210 SAS-K12, 7210 SAS-K30, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 OS 6860, OS 6450, and OS 6900 support ETH-CFM Two-Way Delay and ICMP Ping tests only. 7705 SAR-Hm and 7705 SAR-Hmc support ICMP Ping tests only. Contact Nokia for information about compatibility with specific NE releases.
Drill-down support	No

13.10.2 Example

The following figures show report examples.

Figure 13-32 ETH-CFM Two Way Delay Results Jitter & Loss report



Figure 13-33 ICMP Ping Results Jitter & Loss report

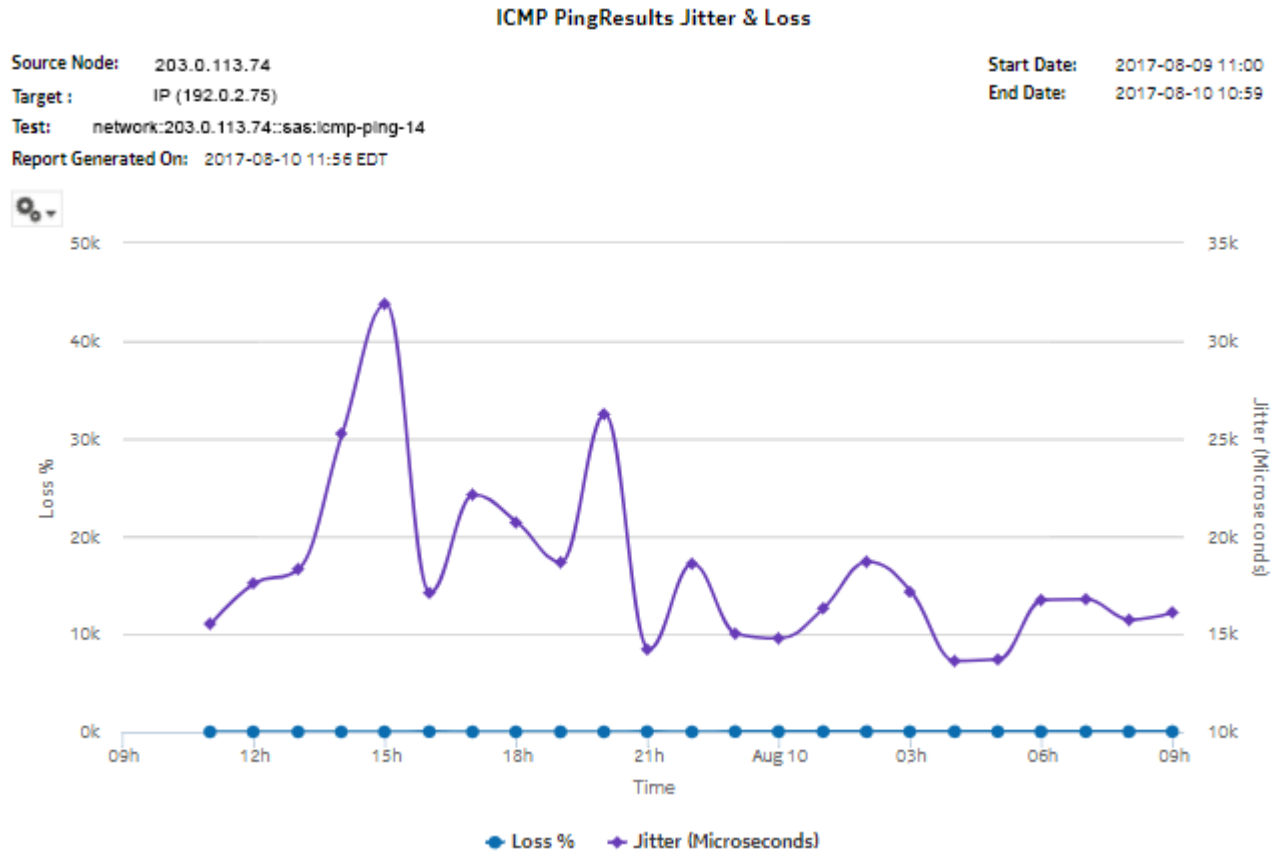


Figure 13-34 VCCV Ping Results Jitter & Loss report

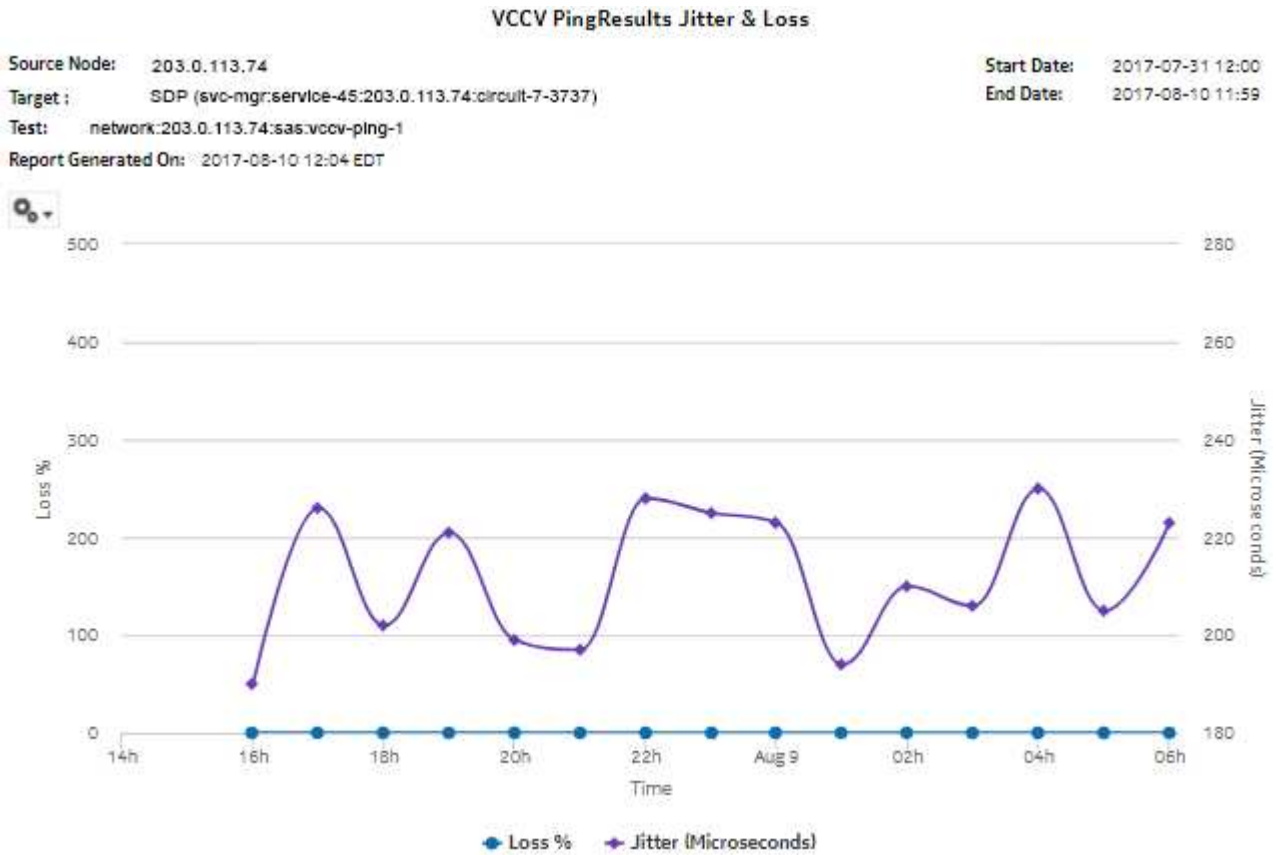
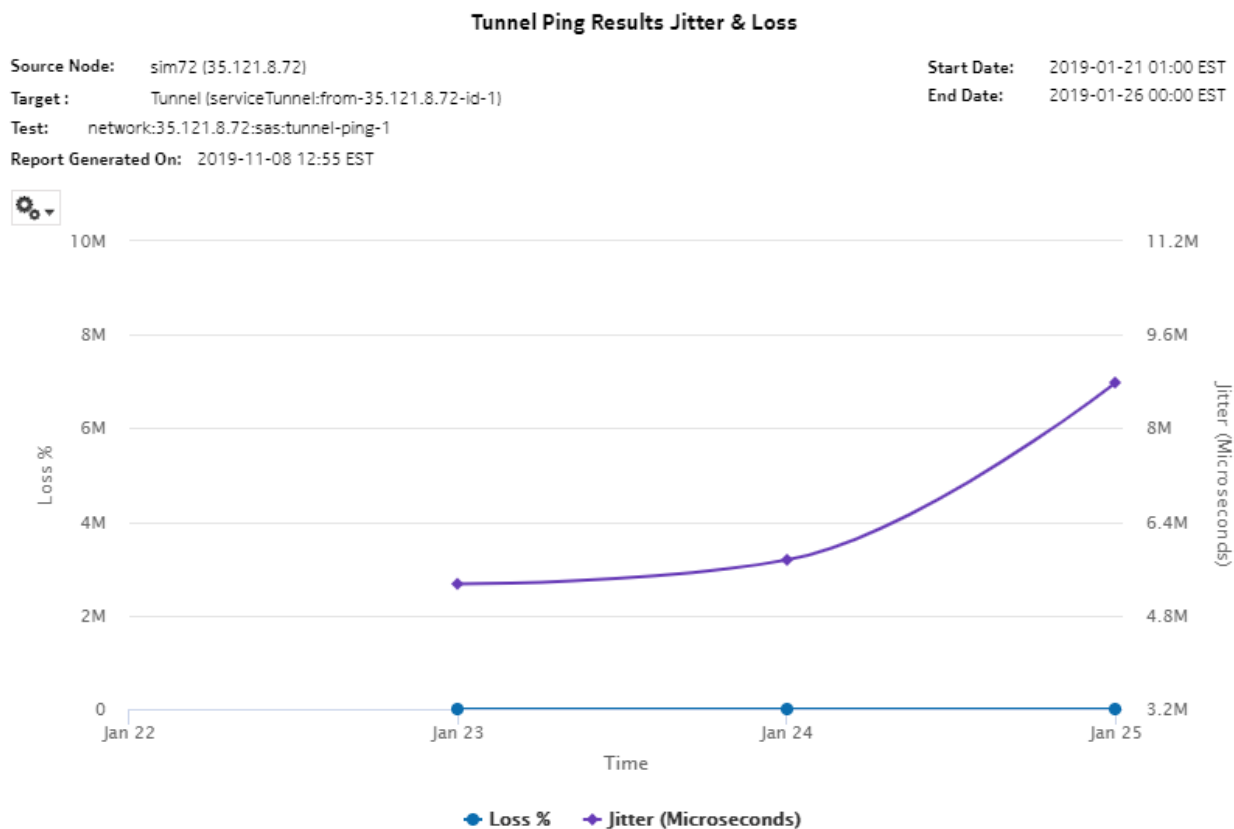


Figure 13-35 LSP Ping Results Jitter & Loss report



Figure 13-36 Tunnel Ping Results Jitter & Loss report



14 Utilization reports

14.1 Utilization reports information overview

14.1.1 General information

Utilization reports provide utilization or uptime information at the NE, port, SAP, service or customer level.

Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

Limitations

Report limitations include:

- Customer specific reports (Customer Utilization Summary and Customer Uptime) may not complete if they are run on customers with more than 100 000 services.
- Changing the graph type of a report, for example, switching from a line chart to a bar chart, can take 30 or more seconds to complete.
- Running customer level reports with output on one page may impact the time required to generate the report. In extreme cases, report generation may fail.
- The 7705 SAR prior to Release 8.0 does not support the Complete Service Ingress Egress and Combined Network Ingress Egress Octets accounting policies. As a result, utilization reports that rely on these accounting policies will not show data for the 7705 SAR pre-Release 8.0.
- The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Drill-down reports

All Utilization reports can be run from the main Utilization reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report.

The following table shows the drill-downs available for Utilization reports. Each level of indentation indicates a drill down.

Table 14-1 Available drill-downs for Utilization reports

From Service Utilization per Port Details:		
• Ping Service Summary		
• Service Utilization		
	Customer Uptime	
	Service Uptime	
		SAP, SDP Uptime Details
Customer Utilization Summary		
	Service Utilization Details	

i **Note:** Using the Show Report On One Page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show Report On One Page option when creating reports.

Aggregation

Utilization reports are available without aggregation (RAW collection) or with user-selected aggregation granularity. RAW collection uses the periodic time from the statistics collection to calculate utilization for periods when statistics are available. Aggregated collection calculates utilization for the requested report duration, regardless of whether statistics data is available for the entire period. If a collection failure occurred during a report interval, the utilization reports collected using RAW and aggregated collection will not match.

14.2 Uptime reports overview

14.2.1 General information

The Uptime reports display downtime in the HH:MM:SS format. The uptime percentage calculations use milliseconds along with the HH:MM:SS information displayed.

Uptime is calculated as follows:

$$\text{Uptime \%} = ([\text{Total Time-Downtime}] / \text{Total Time}) * 100$$

Where

Downtime is the time for which the SAP or service was down

Total Time is the time span defined in the Report Range field, considering any SAP or service creation and deletion events

If a SAP or service creation or deletion occurred within the report range, the total time would be adjusted accordingly.

For example, if the report range is 10:00:00 to 15:00:00 and there is a creation event at 11:00:00 and a deletion event at 12:00:00, the total time would be from 11:00:00 to 12:00:00.



Note: Uptime percentage will be 0 when service/SAP is down and also with no outages. Same is applicable even though service/SAP is excluded.

14.2.2 Prerequisites

The following tasks need to be performed using NSP Classic management for Uptime reports to be created:

- Configure the retention time for assurance events. The default retention time is one week. The maximum retention time for the auxiliary database is one year, which is recommended.
See the *NSP NFM-P Classic Management User Guide* for information about event log policies.
- Enable event logging for the following object types in the Timeline Settings in the NSP.
 - Service
 - Port
 - Site
 - Endpoints
 - Tunnel binding
- Configure the customer; see information in the *NSP NFM-P Classic Management User Guide* about creating a customer profile. Customer names must be unique.
- Populate the maintenance window table in the NSP auxiliary database with details of NE and service maintenance, as described in [14.3 “To add data to the samdb maintenance-window table in an auxiliary database” \(p. 441\)](#).

The report runs if the table is not created or empty; however, in such a case, maintenance windows are treated as down time when availability is calculated.



Note: Customer Utilization Summary and Customer Uptime Summary reports may not complete if they are run on customers with more than 100 000 services.

14.3 To add data to the samdb maintenance-window table in an auxiliary database

14.3.1 Purpose

Perform this procedure to add an NE or service as the target of Analytics reporting to monitor downtime, for example, during a network maintenance window. You add the NE or service information to the custom auxiliary database table named `samdb.analytics_MaintenanceWindow_ct`. This procedure employs the NFM-P custom data tool.

The following is an example of the table format:

Figure 14-1 Example of the `samdb.analytics_MaintenanceWindow_ct` table format

maintenanceType	affectedObject	fullNameAffectedObject	startTime	endTime	description
node	92.168.98.106	network:92.168.98.106	1684230000000	1684240000000	node
bundle	92.168.96.41	network:92.168.96.41:shelf-1:bundle-1	1684230000000	1684240000000	bundle
interface	92.168.98.71	svc-mgr:service-22:92.168.98.71:interface-Mddb_35684352.Branch_1-inner-tag-0-outer-tag-0	1684230000000	1684240000000	interface
lag	92.168.96.163	network:92.168.96.163:lag:interface-1	1684230000000	1684240000000	lag
service	92.168.96.41	svc-mgr:service-1	1684230000000	1684240000000	service
port	92.168.99.20	network:92.168.99.20:shelf-1:cardSlot-1:card:daughterCardSlot-1:daughterCard:port-1	1684230000000	1684240000000	port

14.3.2 Steps

- 1

Log in as the root user on an NFM-P main server station.
- 2

Open a console window.
- 3

Enter the following:

```
# cd /opt/nsp/nms/bin ↵
```
- 4

Use a plain-text editor to create the following file in the directory that holds the source maintenance-window data:
NodeAvailability_Table.csv
- 5

The following define the table columns:



Note: The epoch time must be in milliseconds.

- maintenanceType—node or service
- affectedObject—NE system or site ID, or service name
- fullnameAffectedObjecteither—either:
 - NE FDN, in the format `network:address`
 - NFM-P service ID, in the format `svc-mgr:service_ID`An NFM-P NE properties form lists the NE system address..
The NFM-P Manage Services form lists NFM-P service IDs.
- startTime—maintenance window start; Unix epoch time, in milliseconds
- endTime—maintenance window end; Unix epoch time, in milliseconds
- description—optional object description; displayed as input option

For example:

```
maintenanceType,affectedObject,fullnameAffectedObject,startTime,
endTime,description
node,203.0.113.169,network:203.0.113.169,1681104600000,1681111800000,
Maintenance-1
node,203.0.113.182,network:203.0.113.182,1681129800000,1681138800000,
Maintenance-2
service,N/A,svc-mgr:service-1,1681203600,1681210800,Maintenance-3
```

6

Save and close the file.

7

Enter the following to insert the data from the CSV file into the custom table:

```
# ./customData.bash --importData samdb.analytics_MaintenanceWindow_ct
NodeAvailability_Table.csv ↵
```

You are prompted for the password of the samauxdb user.

8

Enter the password.

The file data is imported to the samdb.analytics_MaintenanceWindow_ct table.

9

Close the console window on the main server station.

10

Log in as the root user on an auxiliary database station.

11

Enter the following:

```
# cd /opt/vertica/bin ↵
```

12

Enter the following:

```
# ./vsq1 -U samauxdb ↵
```

You are prompted for the password of the samauxdb user.

13

Enter the password.

A database console session opens.

14

Enter the following:

```
select * from samdb.analytics_MaintenanceWindow_ct; ↵
```

The table data is inserted, and the table content is displayed.

15

Verify that the table content matches the information provided in the CSV file:

To add data to the custom data maintenance-window table in an auxiliary database

16

When the verification is complete, enter the following:

```
exit ↵
```

The database console session closes.

17

Close the console window on the auxiliary database station.

END OF STEPS

14.4 To add data to the custom data maintenance-window table in an auxiliary database

14.4.1 Purpose

Perform this procedure to add an NE or service as the target of Analytics reporting to monitor downtime, for example, during a network maintenance window. You add the NE or service information to the custom auxiliary database table named `custom_data.analytics_MaintenanceWindow_ct`. This procedure employs the NSP custom data tool.

The following is an example of the table format:

Figure 14-2 Example of the `custom_data.analytics_MaintenanceWindow_ct` table format

maintenanceType	affectedObject	fullNameAffectedObject	startTime	endTime	description
node	92.168.98.106	network:92.168.98.106	1684230000000	1684240000000	node
bundle	92.168.96.41	network:92.168.96.41:shelf-1:bundle-1	1684230000000	1684240000000	bundle
interface	92.168.98.71	svc-mgr:service-22:92.168.98.71:interface-Mddb_35684352.Branch_1-inner-tag-0-outer-tag-0	1684230000000	1684240000000	interface
lag	92.168.96.163	network:92.168.96.163:lag:interface-1	1684230000000	1684240000000	lag
service	92.168.96.41	svc-mgr:service-1	1684230000000	1684240000000	service
port	92.168.99.20	network:92.168.99.20:shelf-1:cardSlot-1:card:daughterCardSlot-1:daughterCard:port-1	1684230000000	1684240000000	port

14.4.2 Steps

1

Log in as the root user on an auxiliary database station.

2

Open a console window.

3

Enter the following:

```
# cd /opt/nsp/nfmp/auxdb/install/custom-data/bin ↵
```

4

Use a plain-text editor to create the following file in the directory that holds the source maintenance-window data:

NodeAvailability_Table.csv

5

The following define the table columns:



Note: The epoch time must be in milliseconds.

- maintenanceType—node or service
- affectedObject—NE system or site ID, or service name
- fullnameAffectedObjecteither—either:
 - NE FDN, in the format network:address
 - NFM-P service ID, in the format svc-mgr:service_ID

An NFM-P NE properties form lists the NE system address.
The NFM-P Manage Services form lists NFM-P service IDs.
- startTime—maintenance window start; Unix epoch time, in milliseconds
- endTime—maintenance window end; Unix epoch time, in milliseconds
- description—optional object description; displayed as input option

For example:

```
maintenanceType,affectedObject,fullnameAffectedObject,startTime,
endTime,description
node,203.0.113.169,network:203.0.113.169,1681104600000,1681111800000,
Maintenance-1
node,203.0.113.182,network:203.0.113.182,1681129800000,1681138800000,
Maintenance-2
service,N/A,svc-mgr:service-1,1681203600,1681210800,Maintenance-3
```

6

Save and close the file.

7

Change the ownership of the file to samauxdb:

```
# chown samauxdb:samauxdb NodeAvailability_Table.csv ↵
```

8

Enter the following to insert the data from the CSV file into the custom table:

```
# ./customData.bash --importData custom_data.analytics_
MaintenanceWindow_ct NodeAvailability_Table.csv ↵
```

You are prompted for the password of the samauxdb user.

To add data to the custom data maintenance-window table in an auxiliary database

9

Enter the password.

The file data is imported to the custom_data.analytics_MaintenanceWindow_ct table.

10

Enter the following:

```
# cd /opt/vertica/bin ↵
```

11

Enter the following:

```
# ./vsq1 -U samauxdb ↵
```

You are prompted for the password of the samauxdb user.

12

Enter the password.

A database console session opens.

13

Enter the following:

```
select * from custom_data.analytics_MaintenanceWindow_ct; ↵
```

The table data is inserted, and the table content is displayed.

14

Verify that the table content matches the information provided in the CSV file.

15

When the verification is complete, enter the following:

```
\q ↵
```

The database console session closes.

16

Close the console window on the auxiliary database station.

END OF STEPS

14.5 Customer Uptime Summary report

14.5.1 Customer Uptime Summary report overview

The Customer Uptime Summary report shows outage information for a customer. The default display is a table showing outage information.

Totals are calculated as follows:

- Uptime percentage (for Totals) is the average of all the uptime percentage for all customers.
- Outages is the sum of all the outages.
- Downtime is the sum of all the downtime.

Subtotals are calculated as follows:

- Uptime percentage is the average of all the services uptime percentage of a customer.
- Outages is the sum of all the service outages.
- Downtime is the sum of all the service downtime.

 **Note:** Nokia recommends that large customers do not use the Show report output on one page option.

 **Note:** The report loads slowly when there are more than 200,000 state change events.

 **Note:** Report launching time will be non-linear with respect to huge data.

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Limitations

When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

To create Customer Uptime Summary reports, enable the event logging using NSP Classic management for the following object types in the Timeline Settings in the NSP:

- Service
- Port
- Site
- Endpoints
- Tunnel binding

Report characteristics

The following table lists the principal report characteristics.

Table 14-2 Customer Uptime Summary report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database
NE types supported	all 7705 SAR variants all 7750 SR and VSR variants all 7450 ESS variants all 7950 XRS variants all 7210 SAS variants all 7250 IXR variants OS 6860, OS 6450, OS 6900
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-2 Customer Uptime Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click Select All .
	Exclude SAP Downtime	When enabled, all SAP-related downtime is zero. The structure of the report and entries in the tables across the Uptime reports do not change. SAP outages are shown, but their downtime is zero (duration is not affected).
	Exclude Services	—
	Exclude SAP	—
	Uptime Threshold %	Identify the threshold percentage
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Service Uptime report for the selected service.	

14.5.2 Example

The following figure shows a report example.

Figure 14-3 Customer Uptime Summary report

Customer Uptime

Start Date:

2017-03-13 01:00:00

End Date:

2017-04-17 00:00:00

Granularity:

Raw Collection Interval

Report Date:

2017-04-17 19:04:44

Customer Name	Customer ID	Service Uptime	#Outages	Downtime
Default customer	1	99.9201 %	46	09:46:01

Customer	Service	Service	Service	OFN	#SAPs	Current	Uptime	#Outages	Downtime
Default	IPIPE 4	4	ipipe	svc-mgr:service-6	12	Up	99.7616 %	4	02:00:00
Default	IPIPE 4	4	ipipe	svc-mgr:service-7	12	Up	99.8212 %	4	01:30:00
Default	EPIPE 3	3	epipe	svc-mgr:service-3	6	Down	99.9281 %	6	03:16:18
Default	IPIPE 4	4	ipipe	svc-mgr:service-4	12	Down	99.9434 %	23	02:34:34
Default	VPRN 1	1	vprn	svc-mgr:service-1	3	Up	99.9867 %	6	00:24:12
Default	VPLS 2	2	vpls	svc-mgr:service-2	4	Up	99.9997 %	3	00:00:55
Default	IES 5	5	ies	svc-mgr:service-5	1	Up	100 %	0	00:00:00
Subtotals							99.9201 %	46	09:46:01
TOTALS							99.9201 %	46	09:46:01

14.6 Service Uptime Summary report

14.6.1 Service Uptime Summary report overview

The Service Uptime Summary report shows uptime information for a service. Service Uptime Summary is the percentage of time that the service was completely up, factoring in outages.

The default display is a table showing outage information. Only SAP and SDP outages are displayed. Overlaps of SAP downtime and SDP downtime are considered in total downtime and percentage uptime calculations.

For example, if the SAP was down from 10:00 to 11:00 and the SDP was down from 10:30 to 11:30, then the overlap of 10:30 to 11 would be considered only once. The total downtime in this case would be 1:30:00 hours. Uptime % would be calculated based on this downtime.

Uptime % is calculated by the events recorded in the assurance_assuranceEvent Table. The current state of the service is taken from the currentState field of the Service table.

Uptime is calculated as follows:

$$\text{Uptime} = (\text{Total Time}) - (\text{Time for which the SAP or Service was down})$$
$$\text{Uptime \%} = (\text{Uptime} / \text{Total Time}) * 100$$

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Limitations

Report limitations include:

- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

To create the Service Uptime Summary reports, enable the event logging using NSP Classic management for the following object types in the Timeline Settings in the NSP:

- Service
- Port
- Site
- Endpoints
- Tunnel binding

Report characteristics

The following table lists the principal report characteristics.

Table 14-3 Service Uptime Summary report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900

Table 14-3 Service Uptime Summary report characteristics (continued)

Characteristic	Value	
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly • Raw Collection Interval
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	Search using partial names or wildcard (%). Select individual items or click Select All .
	Exclude SAP Downtime	When enabled, all SAP-related downtime is zero. The structure of the report and entries in the tables across the Uptime reports do not change. SAP outages are shown, but their downtime and uptime are each zero (duration is not affected).
	Exclude SAP	—
	Threshold (%)	—
	Threshold (seconds)	—
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 14-3 Service Uptime Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Open the SAP, SDP Uptime Details report for the selected SAP.

14.6.2 Example

The following figure shows a report example.

Figure 14-4 Service Uptime Summary report

Service Uptime Summary													
			Start Date:	2023-02-23 21:01:00 IST						End Date:	2023-02-23 23:00:00 IST		
			Report Date:	2023-03-16 19:43:33 IST						Granularity:	Raw Collection Interval		
Customer Name	Object Name	Object Full Name	Service Name	Service Description	Service ID	Service Type	Site Name	Site ID	Current State	Downtime (HH:MM:SS)	First Outage Time	#Outages	Uptime(%)
for_lap1	92.168.97.44 to 92.168.96.219	svc-mgr-service-1: 92.168.97.44:circut-1-17	VPLS 17	N/A	17	VPLS	s168_97_44_acom	92.168.97.44	Up	00:11:57	2023-02-23 21:01	2	89.949
for_lap1	92.168.96.219 to 92.168.97.44	svc-mgr-service-1: 92.168.96.219:circut-1-17	VPLS 17	N/A	17	VPLS	s168_96_219_acpm	92.168.96.219	Up	00:10:42	2023-02-23 22:30	2	91.0057
Test_demo	SAP_20	svc-mgr-service-37: 135.249.210.65 ip-	IES 104	ies_port_20	104	IES	s168_97_251_both	135.249.210.65	Up	00:03:34	2023-02-23 21:33	1	95.9893
Totals										00:26:14		5	92.648 %

14.7 SAP, SDP Uptime Details report

14.7.1 SAP, SDP Uptime Details report overview

The SAP, SDP Uptime Details report shows uptime percentage and downtime for a SAP.

The default display is a set of tables showing outages and maintenance windows.

Use cases

SLA monitoring—Use the report to examine outage patterns, to ensure SLAs are met.

Limitations

Report limitations include:

- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.

Report characteristics

The following table lists the principal report characteristics.

Table 14-4 SAP, SDP Uptime Details report characteristics

Characteristic	Value
Data type	• Configuration, operational state and events for service related objects derived by the system • Maintenance window information provided by the user
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-4 SAP, SDP Uptime Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly • Raw Collection Interval
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	
	Name or name pattern for SAP	
	SAP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.7.2 Example

The following figure shows a report example.

Figure 14-5 SAP, SDP Uptime Details report



14.8 SAP Utilization Details report

14.8.1 SAP Utilization Details report overview

The SAP Utilization Details report shows utilization percentage information for an SAP. This report can be launched on its own or as a drill-down of the Service Utilization Details report.

The default display is a set of time series graphs showing multi-axis line charts for the SAP total, ingress, egress, actual throughput, CIR, PIR, and percentage utilization for the selected SAP.

Queues, meters, and policers values are also shown.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types are supported for this report. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine SAP utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-5 SAP Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-5 SAP Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H Note: 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

14.8.2 Report characteristics

The following table lists the principal report characteristics.

Table 14-6 SAP Utilization Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
NE types supported	all 7210 SAS variants all 7250 IXR variants all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-6 SAP Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Customer	
	Name or name pattern for service	
	Service	
	Name or name pattern for SAP	
	SAP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.8.3 Example

The following figures show report examples.

Figure 14-6 SAP Utilization Details report—Total utilization

SAP Utilization Details			
Start Date:	2019-07-24 20:01:00 IST	End Date:	2019-07-24 21:00:00 IST
Report Date:	2019-09-30 20:03:28 IST	Granularity:	Raw Collection Interval
Customer Name:	Customer_SAP_QOS	Customer ID:	6
Service Name:	svc-mgr:service-211	Service ID:	11
SAP:	1/1/2:0	Service Type:	vpis

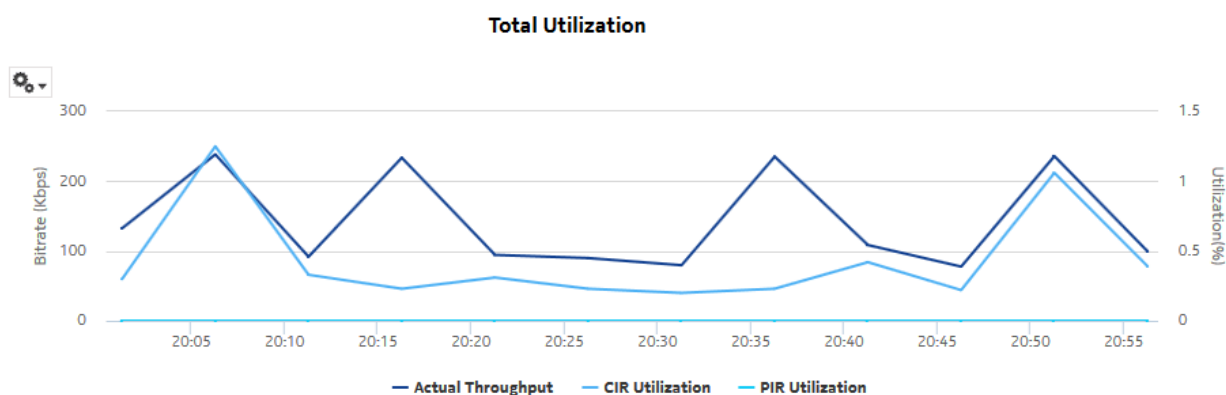


Figure 14-7 SAP Utilization Details report—Ingress utilization

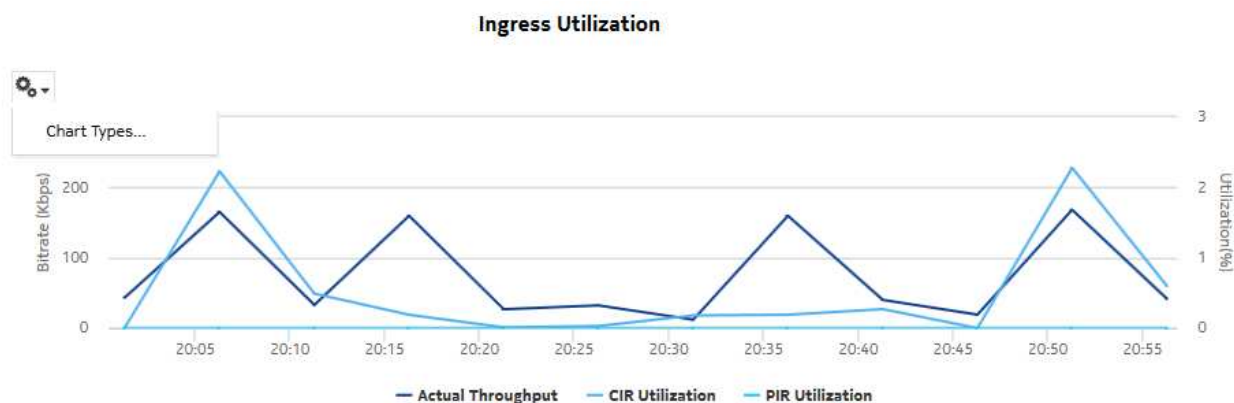
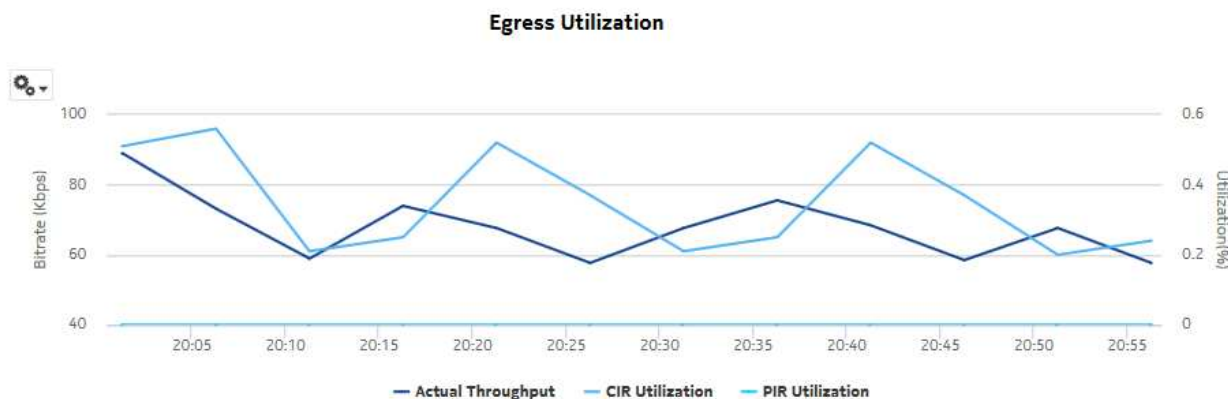


Figure 14-8 SAP Utilization Details report—Egress utilization



14.9 SAP QoS Utilization Details report

14.9.1 SAP QoS Utilization Details report overview

The SAP QoS Utilization Details report shows utilization percentage information for an SAP. This report can be launched on its own or as a drill-down of the Service Utilization Details report.

The report has one time series graph for the selected SAP, direction, and queue, meter, or policer value. The graph displays the actual throughput, CIR, PIR, and percentage utilization.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine SAP QoS utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the CSV file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-7 SAP QoS Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOc- tets	Accounting, file, and log policies	completeSvcInEg policy	7750 SR 7705 SAR 7705 SAR-H 7705 SAR Hm
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc- tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-T 7210 SAS-X 7705 SAR-H Note: 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.

Table 14-7 SAP QoS Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

14.9.2 Report characteristics

The following table lists the principal report characteristics.

Table 14-8 SAP QoS Utilization Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

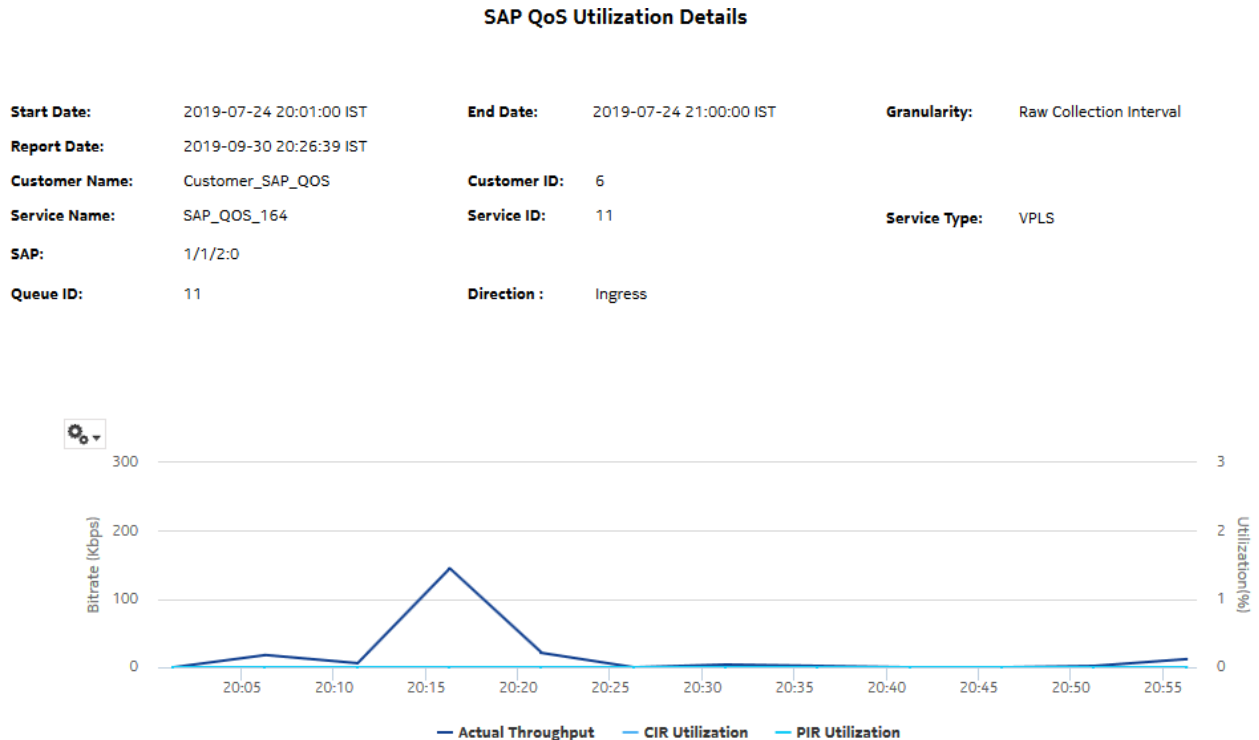
Table 14-8 SAP QoS Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Customer	
	Name or name pattern for service	
	Service	
	Name or name pattern for SAP	
	SAP	
	Direction	Upload, download, or upload and download.
	Queues/Meters/Policers	Queue, Meters, or Policers
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.9.3 Example

The following figure shows a report example.

Figure 14-9 SAP QoS Utilization Details report



14.10 Service and Customer Utilization Summary reports overview

14.10.1 General information

Service and Customer Utilization Summary reports show utilization percentage information for a service or customer.

Note: The utilization data is derived from collected statistics. It will not be an exact match to utilization data available via CLI from the NE.

14.10.2 Prerequisites

The following tasks need to be performed using NSP Classic management for Service and Customer Utilization Summary reports to be created:

- QoS policies must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Classic Management User Guide* for information about QoS policies. The policies must be associated with the SAP on which statistics are to be collected.
- Configure the customer. Customer names must be unique.
- A file policy and a Complete Service Ingress Egress accounting policy must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about creating file and accounting policies.

The file and accounting policies must be assigned to the SAPs that belong to services for which the Utilization reports will be created.

- To view the report for granularities other than raw data, the following aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Note: The reports combine all aggregation tables for both 7750 SR/7705 SAR and 7210 SAS, therefore all the following aggregations need to be enabled to generate a report for either NE type.

- SAP Interface Stats Aggregator Ingress and SAP Interface Stats Aggregator Egress must be enabled for 7750 SR and 7705 SAR NEs.
- Service Ingress Octets Aggregator and Service Egress Octets Aggregator must be enabled for 7210 SAS NEs.
- For raw data, the periodic counter must be enabled from the Periodic Counter Manager; see information in the *NSP NFM-P Statistics Management Guide* about creating and managing periodic accounting statistics calculations

 **Note:** Customer Utilization Summary and Customer Uptime Summary reports may not complete if they are run on customers with more than 100 000 services.

14.11 Customer Utilization Summary report

14.11.1 Customer Utilization Summary report overview

The Customer Utilization Summary report shows utilization percentage information for a customer.

The default display is two tables: the first table shows average ingress and egress utilization. The second shows the actual, ingress, and egress utilization for each service on a customer. By default the tables are sorted by average utilization in decreasing value order (worst first), regardless of ingress or egress direction.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the traffic data is shown in the second table. The percentile calculation is applied to the sum of the traffic, for each service and for the total. For example, if 95 is entered and two services are present, each row in the table shows the 95 percentile value for the sum of traffic on the service. The total value shows the 95 percentile of the sum of traffic for both services. This may not be the same as the sum of the two 95th percentile values. The same total value is shown in the first table for each respective customer.

All queue types are supported in the report.

Utilization results are colored when percentage utilization exceeds user-defined thresholds:

- Yellow coloring indicates that the utilization is equal to or above the warning threshold. The default threshold value is 70%.

- Red coloring indicates that the utilization is equal to or above the critical threshold. The default threshold value is 90%.

The report supports Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-9 Customer Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm all 7705 SAR variants 7750 SR

Table 14-9 Customer Utilization Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-T 7210 SAS-X 7705 SAR-H Note: 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-10 Customer Utilization Summary report characteristics

Characteristic	Value
Data type	- Configuration for service related objects derived by the system - Threshold information provided by the user.
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 14-10 Customer Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click Select All .
	Utilization Threshold Yellow %	—
	Utilization Threshold Red %	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Service Utilization report for the selected service.	

14.11.2 Example

The following figure shows a report example.

Figure 14-10 Customer Utilization Summary report

Customer Utilization			
Start Date:	2017-08-14 01:00:00 EDT	End Date:	2017-08-17 00:00:00 EDT
Report Date:	2017-08-18 17:03:00 EDT	Granularity:	Raw Collection Interval

Customer Name	Customer ID	Avg Ingress Utilization	Avg Egress Utilization
Automation	102	3.79 %	2.71 %

Ingress CIR (Kbps)	Ingress PIR (Kbps)	Ingress Actual (Kbps)	Ingress Utilization (% Actual/PIR)	Egress CIR (Kbps)	Egress PIR (Kbps)	Egress Actual (Kbps)	Egress Utilization (% Actual/PIR)
Customer Name:	Automation	Customer ID:	102				
Service Name:	APIPE 102	Service ID:	102	Service Type:	EPIPE	OFN:	svc-mgr:service-102
165	254	9.6287	3.79 %	134	204	5.5347	2.71 %
Totals		9.6287	3.79 %			5.5347	2.71 %

14.12 Service Utilization Details report

14.12.1 Service Utilization Details report overview

The Service Utilization Details report shows utilization percentage information for a service.

The default display includes both graphs and tables. The graphs are a set of time series multi-axis line charts showing total, ingress, egress, actual throughput, CIR, PIR, and percentage utilization for the selected service.

The tables show CIR, PIR, and percentage ingress and egress utilization. By default, the tables are sorted by average utilization in decreasing value order (worst first). The CIR utilization (%) displays the bandwidth utilization in-profile, and not actual throughput, and it is always less than or equal to the CIR value. For an SR NE, when a policer is specified and the statmode is minimal, allOctets statistics are used to calculate utilization. Therefore, CIR utilization (%) cannot be greater than 100%, and is set to 100% when allOctets statistics are greater than the CIR. For Total and SubTotal rows, there are no specified limits, so utilization can be greater than 100%.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue/policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the traffic data is shown in the second table. The percentile calculation is applied to the sum of the traffic, for each direction and for the total. For example, if 95 is entered and two queues are present, each row in the table shows the 95 percentile value for the sum of traffic on the queue. The total value shows the 95 percentile of the sum of traffic for both queues. This may not be the same as the sum of the two 95th percentile values.

The SubTotal row displays the percentile throughput and utilization of an SAP and the Total row displays the same for a service.

All queue types are supported in the report.

Forwarding Class information is shown only for unicast queues.

The report supports the Rate (kbps) rate type, Percent Port, and Percent Local rate types. The report also supports the port limit and local limit, which are the CIR/PIR values configured as percentages.

The ingress utilization is displayed only when there is a QoS and a forwarding class associated with the SAP.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine service utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-11 Service Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOc- tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc- tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H Note: 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc- tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

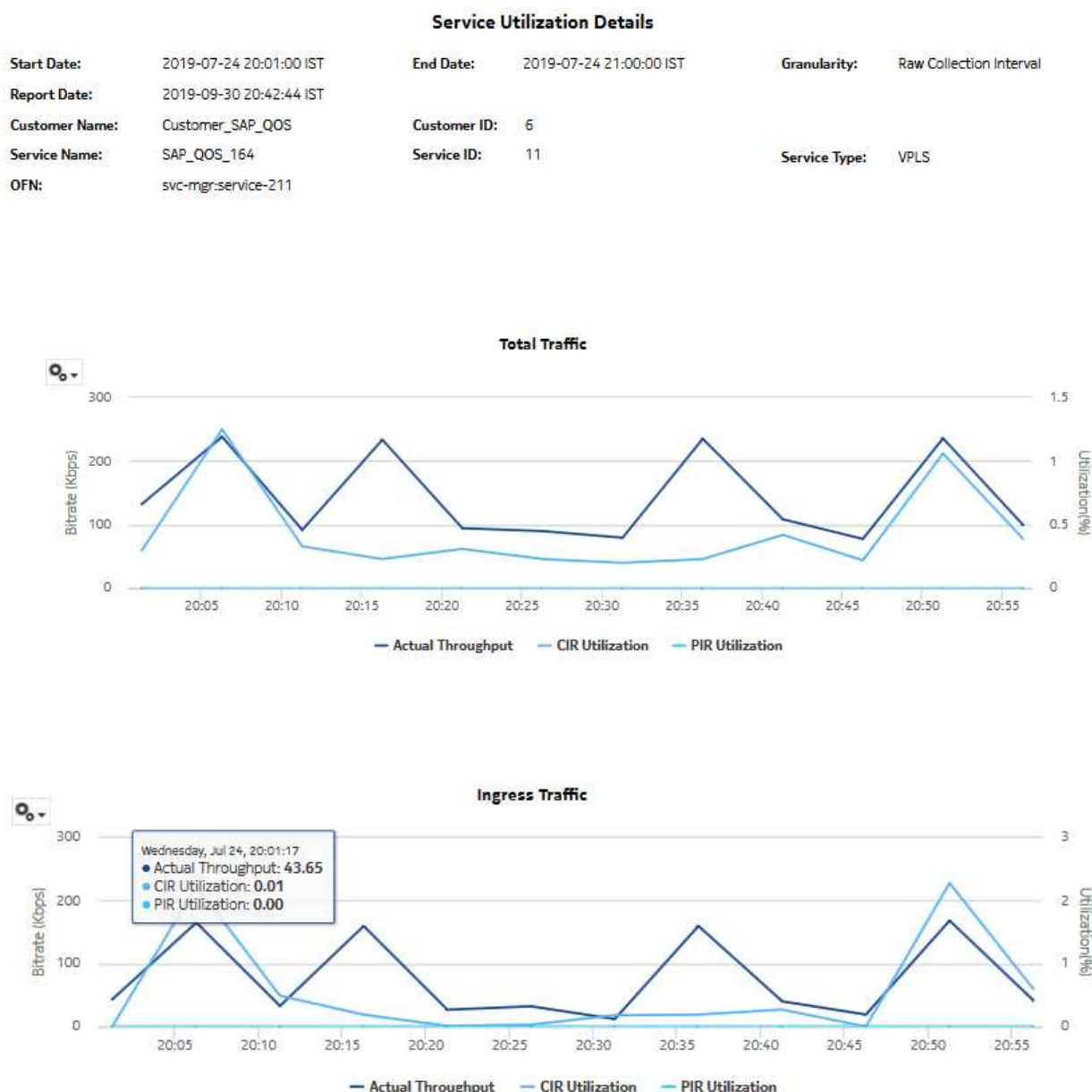
The following table lists the principal report characteristics.

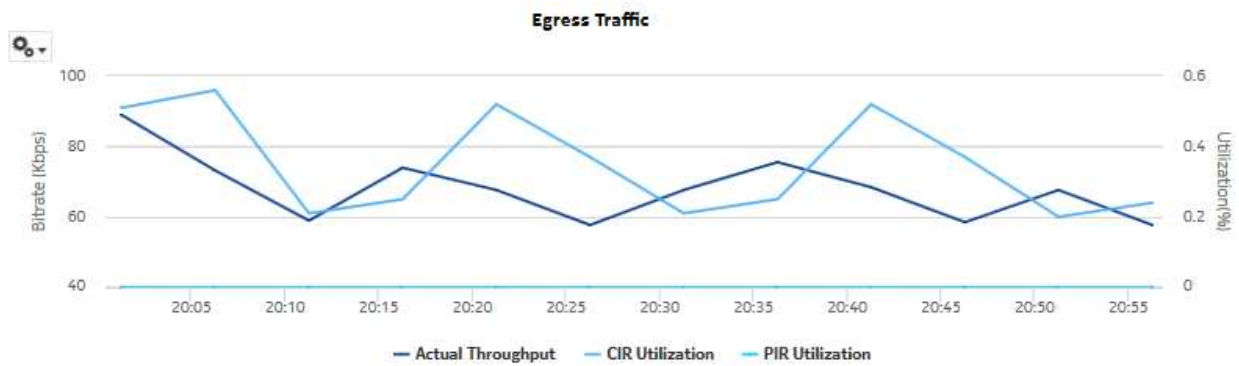
Table 14-12 Service Utilization Details report characteristics

Characteristic	Value	
Data type	• Configuration for service related objects derived by the system • Threshold information provided by the user	
Source database	Auxiliary database	
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer Name	Search using partial names or wildcard (%). Select individual items or click Select All .
	Service Name (or Name Pattern)	
	Utilization Threshold Yellow %	—
	Utilization Threshold Red %	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on a Name to launch an SAP QoS Utilization Details report. • Click on the SAP or Full SAP to launch a Service Utilization Details report.	

14.12.2 Example

The following figures show report examples.





Ingress Utilization

Direction	Queue#	Meter#	Policer#	Name	Forwarding Classes	CIR (Kbps)	PIR (Kbps)	Actual (Kbps) (95 PCTL)	CIR Utilization (95 PCTL)	Utilization (Actual/PIR) (95 PCTL)
SAP: 1/1/2:0				svc-mgr:service-211:35.250.64.164: Full SAP: interface-1/1/2- inner-tag-0-outer-tag-0	Policy ID:	4				
Ingress	1	-	-	queue-1	be	0	10000000	76.802	0	0
Ingress	2	-	-	queue-2	l2	1500	300000	14.5945	0.27	0
Ingress	3	-	-	queue-3	af	3000	6000	16.0788	0.25	0.27
Ingress	4	-	-	queue-4	l1	2000	8000	76.802	3.83	0.96
Ingress	11	-	-	queue-11	ef	0	10000000	76.802	0	0
Ingress	-	-	1	policer-1	nc	100	2200	0	0	0
Ingress	-	-	2	policer-2	h1	0	10000000	76.802	0	0
SubTotal					Ingress:	6600	30316200	166.6231	2.25	0
TOTAL					Ingress:	6600	30316200	166.6231	2.25	0

Egress Utilization										
Direction	Queue#	Meter#	Policer#	Name	Forwarding Classes	CIR (Kbps)	PIR (Kbps)	Actual (Kbps) (95 PCTL)	CIR Utilization (95 PCTL)	Utilization (Actual/PIR) (95 PCTL)
SAP: 1/1/2-0		Full SAP: svc-mgr:service-211:35.250.64.164: interface-1/1/2-inner-tag-0-outer-tag-0		Policy ID:	2	Egress Aggregate Rate Limit PIR:		-1		
Egress	1	-	-	queue-1	be	0	10000000	28.5937	0	0
Egress	2	-	-	queue-2	l2	4200	12000	29.1211	0.42	0.24
Egress	3	-	-	queue-3	af	4500	7000	25.4161	0.38	0.36
Egress	-	-	1	policer-1	h2	337	5679	0	0	0
Egress	-	-	2	policer-2	ef	300	4564	0	0	0
SubTotal					Egress:	9337	10029243	81.5882	0.54	0
TOTAL					Egress:	9337	10029243	81.5882	0.54	0

14.13 Service Utilization per LSP report

14.13.1 Service Utilization per LSP report overview

The Service Utilization per LSP report shows a list of the top LSPs for a selected MPLS interface. The report provides a table with a list of services contained within the LSP, and displays the service's percentage utilization of the LSP's bandwidth sorted in decreasing order. The report can be run on its own or as a drill-down from an Interface Utilization Details report. For each service in the table, you can drill down to the existing Service Utilization report to see a breakdown of traffic on a per queue basis for each SAP in the service.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the PPT or CSV file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting

policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-13 Service Utilization per LSP report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	Counters	NE types
Combined SDP Ingress PacketOctets stats aggregator	svt.PWPortBinding svt.SdpBinding	service.CombinedSdpIngressPacketOctets	Accounting, file, and log policies	combinedSvcSdpInEg	totalOctetsForwarded	210 WBX 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR Hm 7710 SR 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC Note: The 7705 SAR-H is not supported.
Combined SDP Egress PacketOctets stats aggregator	svt.PWPortBinding svt.SdpBinding	service.CombinedSdpEgressPacketOctets	Accounting, file, and log policies	combinedSvcSdpInEg	totalOctetsForwarded	

Report characteristics

The following table lists the principal report characteristics.

Table 14-14 Service Utilization per LSP report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
LSP types supported	Dynamic, P2MP Dynamic, SR TE, Static LSP

Table 14-14 Service Utilization per LSP report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NE	
	NE	
	Name or name pattern for interface	
	Interface	
	Name or name pattern for LSP	
	LSP	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a Name to launch a Service Utilization Details report.	

14.13.2 Example

The following figure shows a report example.

Figure 14-11 Service Utilization per LSP report

Service Utilization Per LSP

Start Date: 2019-08-28 12:00:00 IST **End Date:** 2019-08-31 11:00:00 IST **Granularity:** Raw Collection Interval
Report Date: 2019-09-30 20:19:13 IST
NE ID: 35.250.40.121 **NE Name:** NE121
Interface Name: to112
LSP Name: from121to112

Direction	LSP Name	LSP Bandwidth (Mbps)	Customer Name	Service Name	Service ID	Utilization (%)
Total	from121to112	1000.0	Customer_NFMP	N/A	1	19.81
Ingress	from121to112	1000.0	Customer_NFMP	N/A	1	19.81
Egress	from121to112	1000.0	Customer_NFMP	N/A	1	0.0

**When LSP's bandwidth is 0, the Port's speed is used for display and to calculate utilization.*

14.14 Service Utilization per Port Details report

14.14.1 Service Utilization per Port Details report overview

The Service Utilization per Port Details report shows the utilization of individual services for a selected access port. It is used to identify what services are consuming the majority of the bandwidth on a particular port.

The default display is a table showing average ingress and egress utilization. By default the table is sorted by average utilization in decreasing value order (worst first), regardless of ingress or egress direction.

For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.

For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.

For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

The report supports the port limit and local limit, which are the CIR and PIR values configured as percentages.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine utilization patterns for planning future capacity requirements.

Fault impact analysis—If the port is down or suffering performance issues, use this report to quickly identify the impacted services.

The Rate (kbps) rate type, Percent Port, and Percent Local rate types are supported for this report.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. The accounting policy must be assigned to the SAPs that belong to services for which the Utilization reports will be created. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-15 Service Utilization per Port Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Note: esat ports are not supported
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 14-15 Service Utilization per Port Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H Note: 7210 SAS-E and 7210 SAS-S/Sx are not supported due to NE limitations.
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-16 Service Utilization per Port Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-16 Service Utilization per Port Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%).
	NE Name (or NE Pattern)	Select individual items or click Select All .
	NEs	
	Port Name (or Port Name Pattern)	Search using partial names or wildcard (%). Select individual items or click Select All .
	Port/ LAG	
	Display Service Full Name	Select the check box to show the full names of the services in the table.
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: • Click on a Service Name to launch a Ping Service Summary report. • Click on an Egress Utilization value to launch a Service Utilization Details report. The drill-down from the Service Utilization per Port Details report is only supported when the Service Utilization Details report is performed on a service that is supported by the target report: • Ping Service Summary reports support EPIPE, CPIPE, VPLS, MVPLS, and VPRN	

14.14.2 Example

The following figure shows a report example.

Figure 14-12 Service Utilization per Port Details

Service Utilization per Port Details													
Start Date:	2020-08-20 10:01:00 IST	End Date:	2020-08-20 11:00:00 IST	Granularity:	Raw Collection Interval								
Report Date:	2020-08-24 13:26:12 IST	Port Description:	10/100 Ethernet TX	Port Name:	Port 1/1/5								
NE ID:	35.249.149.25	NE Name:	s168_96_54_Both	Port Mode:	Access								

Customer Name	Customer ID	Service Type	Service Name	Service ID	Service FullName	Ingress CIR (Kbps)	Ingress PIR (Kbps)	Ingress Actual (Kbps)	Ingress Utilization (%Actual/PIR)	Egress CIR (Kbps)	Egress PIR (Kbps)	Egress Actual (Kbps)	Egress Utilization (%Actual/PIR)
vsim_25_cust	13	vpls	VPLS 23	23	svc-mgr:service-6	0	200000	0	0	0	100000	0	0

14.15 Port Forwarding Class Details report

14.15.1 Port Forwarding Class Details report overview

The Port Forwarding Class Details report shows throughput and utilization information for each forwarding class of a selected port or LAG.

The default display is a summary table and a set of multi-axis graphs, showing total bitrate and utilization of the port or LAG, the bitrate of each forwarding class, and any configured thresholds.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port or LAG basis, to plan for capacity requirements.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, table details do not display.
- When the report is exported to the RTF file type, the report does not display completely.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Threshold values work for graphs only, not for the table.

Prerequisites

The following tasks need to be performed using NSP Classic management for Port Forwarding Class Details reports to be created:

- A Network Queue policy must be configured and distributed on the NE.
- The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. The accounting policies must be assigned to the ports or LAGs for which the Forwarding Class Details reports will be created. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-17 Port Forwarding Class Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Complete Network Ingress Packet Octets	equipment.Port ethernetequipment. EthernetPortSpecif- ics lag.Interface	CompleteNetwork- IngressPacketOc- tets	Accounting, file, and log policies	completeNetIngrEg policy	7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS Note: SR variants use the network queue policy to retrieve statistics at the FC level
Complete Network Egress Packet Octets	equipment.Port ethernetequipment. EthernetPortSpecif- ics lag.Interface	CompleteNet- workEgressPack- etOctets	Accounting, file, and log policies	completeNet- IngrEgr policy	7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS Note: SR variants use the network queue policy to retrieve statistics at the FC level

Table 14-17 Port Forwarding Class Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Octets	equipment.Port	NetworkIngressOctets	Accounting, file, and log policies	netIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7850 VSA-8 7850 VSG 7950 XRS VSC Note: SAS NEs use the network policy to retrieve statistics at the FC level; supports meters only
Network Egress Octets	equipment.Port	NetworkEgressOctets	Accounting, file, and log policies	netEgressOctet policy Note: Network policy is not supported for network egress octets to retrieve statistics at the FC level	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7850 VSG 7850 VSA-8 7950 XRS VSC

Report characteristics

The following table lists the principal report characteristics.

Table 14-18 Port Forwarding Class Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-18 Port Forwarding Class Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Port Modes	Select Network or Hybrid. Select individual items or click Select All .
	Port/LAG	Select one radio button
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click Select All .
	Physical Port / LAG	
	KPI	Raw Granularity: • Total Traffic – Utilization • Total Traffic – Bitrate • Egress Traffic – Utilization • Egress Traffic – Bitrate • Ingress Traffic – Utilization • Ingress Traffic – Bitrate Granularities: Minimum, maximum, and average of all KPIs Note: For the SAS NE, the report shows only one direction of data at a time: Either egress traffic or ingress traffic. Note: When you select a single KPI, an extra space between the graph and the table displays in the report.
	Total Threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress Threshold	
	Egress Threshold	

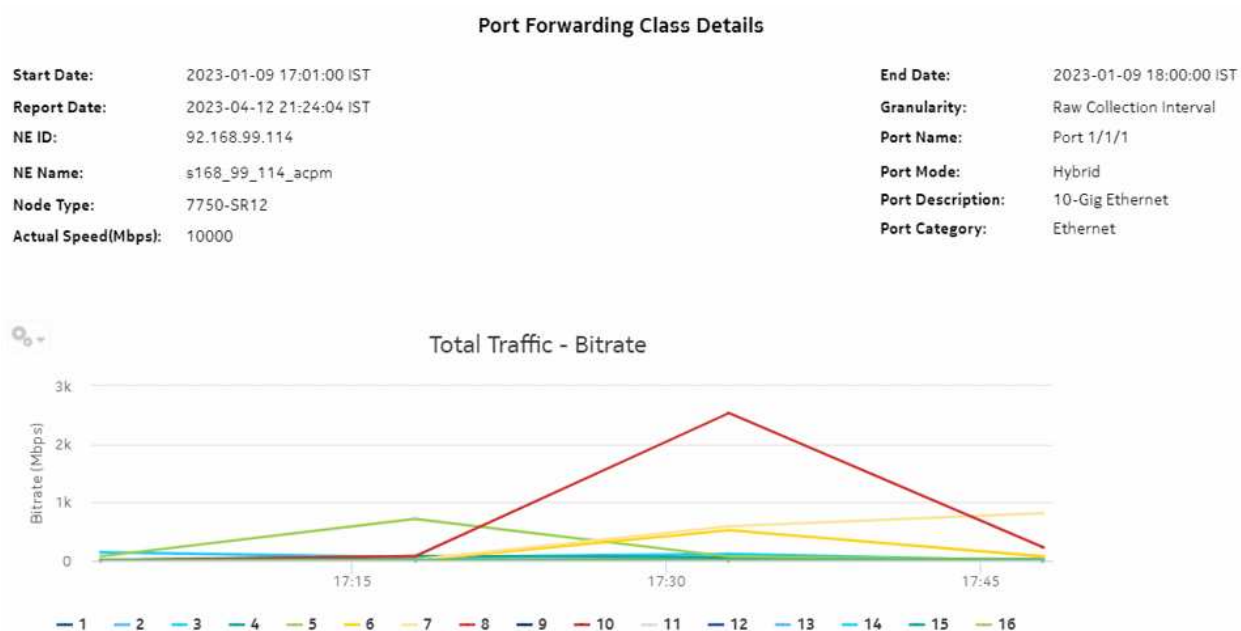
Table 14-18 Port Forwarding Class Details report characteristics (continued)

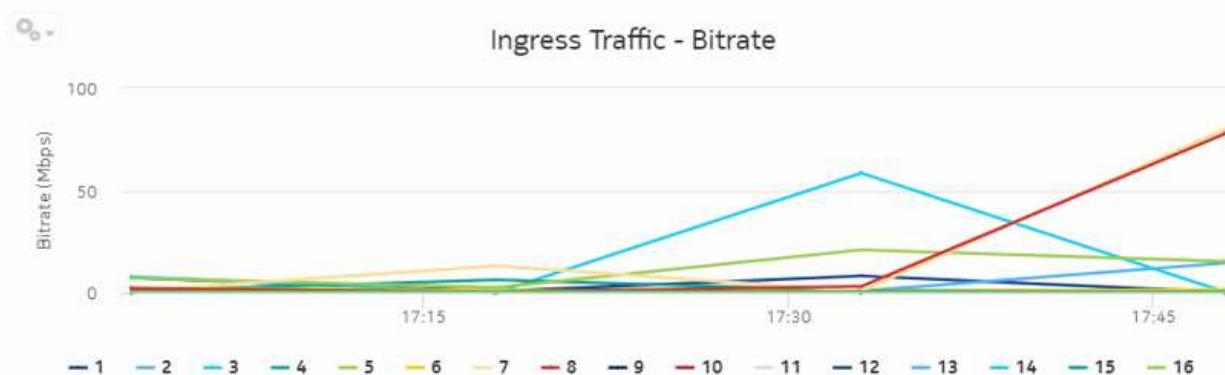
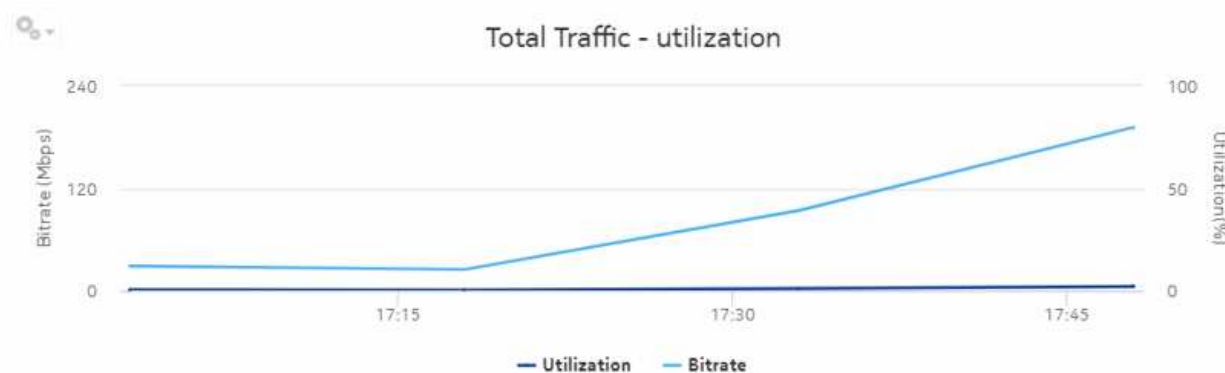
Characteristic	Value	
Report inputs (continued)	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

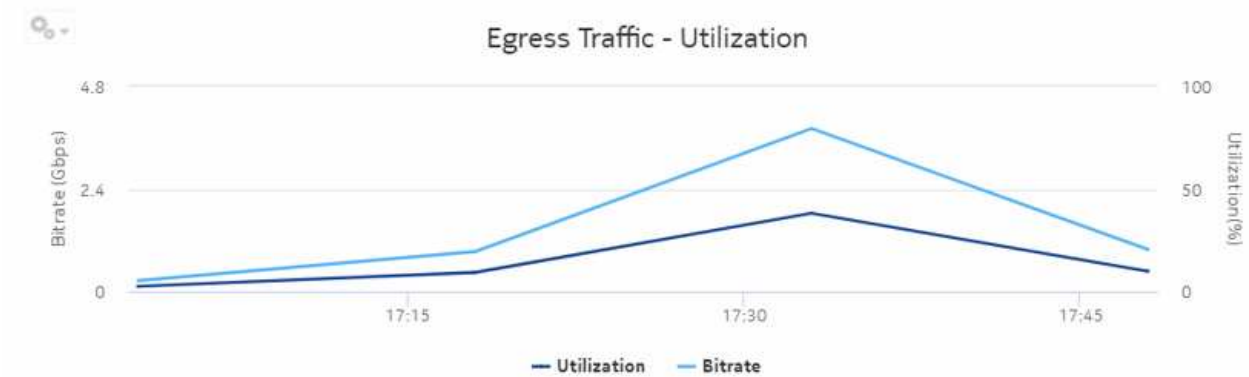
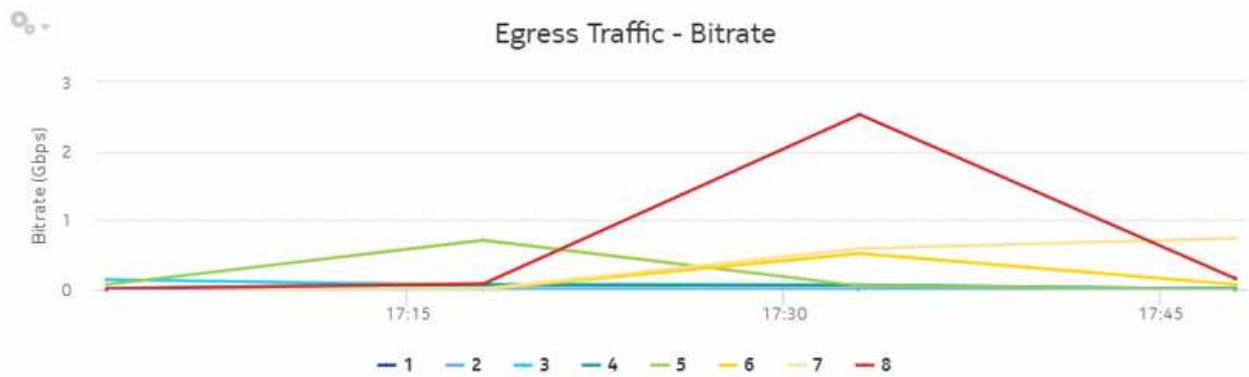
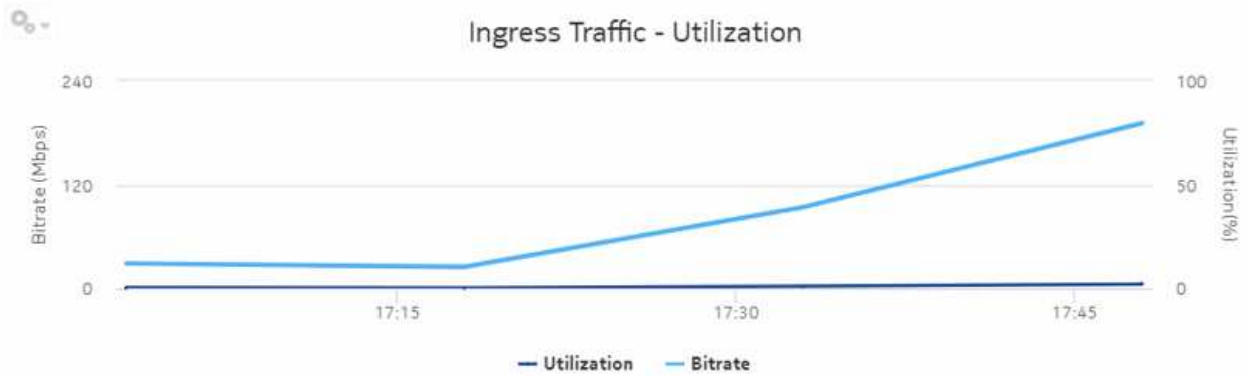
14.15.2 Example

The following figures show a report example.

Figure 14-13 Port Forwarding Class Details report







Queue Id	Forwarding Class	Avg Ingress Utilization(%)	Avg Ingress Throughput(Mbps)	Max Ingress Utilization(%)	Max Ingress Throughput(Mbps)	Max Ingress Time	Avg Egress Utilization(%)	Avg Egress Throughput(Mbps)	Max Egress Utilization(%)	Max Egress Throughput(Mbps)	Max Egress Time
1	94	0.04	4.07	0.08	8.01	1/9/23 5:33 PM	0.03	2.89	0.09	9.10	1/9/23 5:02 PM
2	12	0.04	4.01	0.18	14.82	1/9/23 5:48 PM	0.05	4.94	0.19	15.14	1/9/23 5:48 PM
3	af	0.17	16.60	0.59	59.43	1/9/23 5:33 PM	0.63	62.96	1.36	135.94	1/9/23 5:02 PM
4	11	0.02	2.32	0.06	6.29	1/9/23 5:18 PM	0.35	34.89	0.72	71.92	1/9/23 5:18 PM
5	h2	0.11	11.49	0.21	20.92	1/9/23 5:33 PM	2.06	206.33	7.13	713.43	1/9/23 5:18 PM
6	af	0.01	1.37	0.02	2.07	1/9/23 5:03 PM	1.8	180.10	5.22	521.53	1/9/23 5:33 PM
7	h1	0.04	23.77	0.8	80.26	1/9/23 5:48 PM	3.36	336.26	7.36	735.88	1/9/23 5:48 PM
8	h2	0.01	20.87	0.76	77.97	1/9/23 5:03 PM	6.91	690.67	29.3	2929.76	1/9/23 5:33 PM
9(HQMS)	94	0.0	0.01	0.0	0.02	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
10(HQMS)	12	0.0	0.02	0.0	0.05	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
11(HQMS)	af	0.0	0.01	0.0	0.03	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
12(HQMS)	11	0.0	0.02	0.0	0.04	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
13(HQMS)	h2	0.0	0.03	0.0	0.08	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
14(HQMS)	af	0.0	0.01	0.0	0.03	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
15(HQMS)	h1	0.0	0.01	0.0	0.02	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A
16(HQMS)	h2	0.0	0.02	0.0	0.04	1/9/23 5:48 PM	N/A	N/A	N/A	N/A	N/A

14.16 Interface Overview report

14.16.1 Interface Overview report overview

The Interface Overview report shows an overview of protocol, TOS, host, and conversation traffic for a selected IGP interface.

The default display is a set of graphs showing ingress, egress stacked trends and summaries.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The collection of IPFIX statistics, which are also called system Cflowd or NetFlow v10 statistics, must be enabled; see the *NSP NFM-P Statistics Management Guide*.

To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-19 Interface Overview report prerequisites

Aggregator name	Statistics collection	Details	NE types
Analytics_cflowd_sys_pt_proto_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_pt_proto_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ot_tos_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ot_tos_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ht_if_hip_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ht_if_hip_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS
Analytics_cflowd_sys_ct_if_ip1ip2_r	Flow Statistics collected through a Flow Collector	Analytics_cflowd_sys_ct_if_ip1ip2_r	7250 IXR 7450 ESS 7705 SAR 7750 SR 7950 XRS

Notes:

- Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 14-20 Interface Overview report characteristics

Characteristic	Value
Data type	Statistics
Statistics type	IPFIX
NSP Flow Collector required	Yes
Source database	Auxiliary database
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS

Table 14-20 Interface Overview report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%). Select individual items or click Select All .
	NE (or NE Name Pattern)	
	NE	
	Interface Name (or Name Pattern)	
	Interface	
	Direction	Ingress, Egress, or Both
	Top N	Number of interfaces to report
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.16.2 Example

The following figures show a report example.

Figure 14-14 Interface Overview report—Stacked Protocol Trend - In

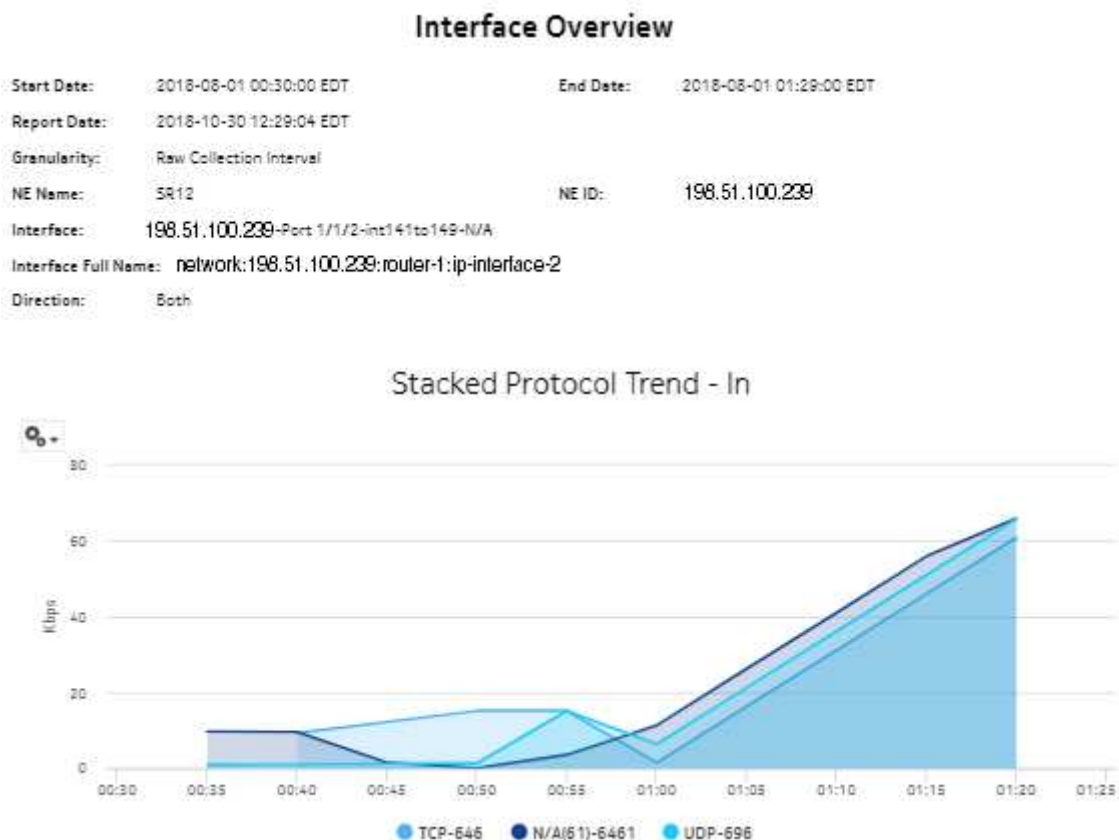


Figure 14-15 Interface Overview report—Stacked Protocol Trend – Out

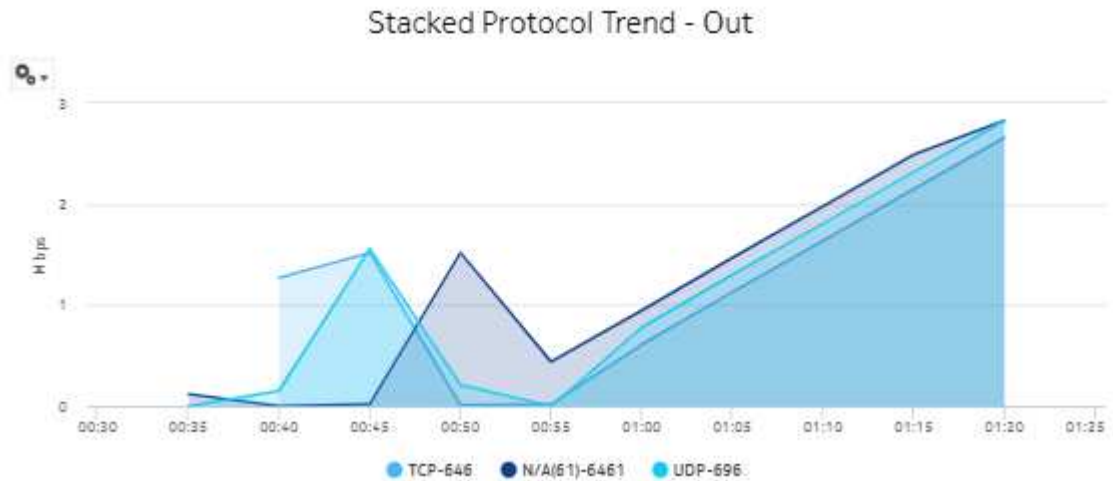


Figure 14-16 Interface Overview report, Stacked TOS Trend – In

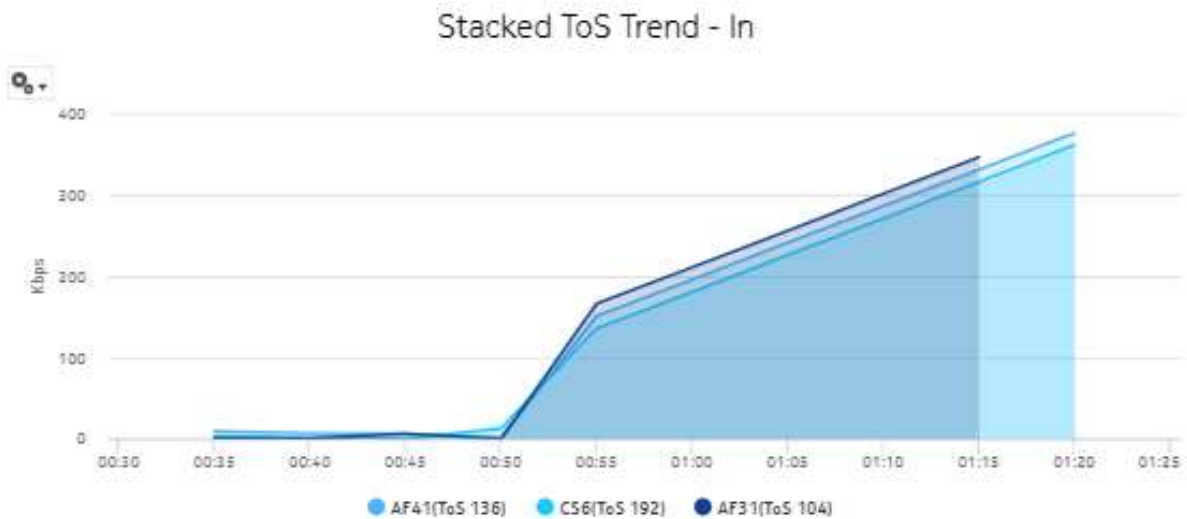


Figure 14-17 Interface Overview report—Stacked TOS Trend – Out

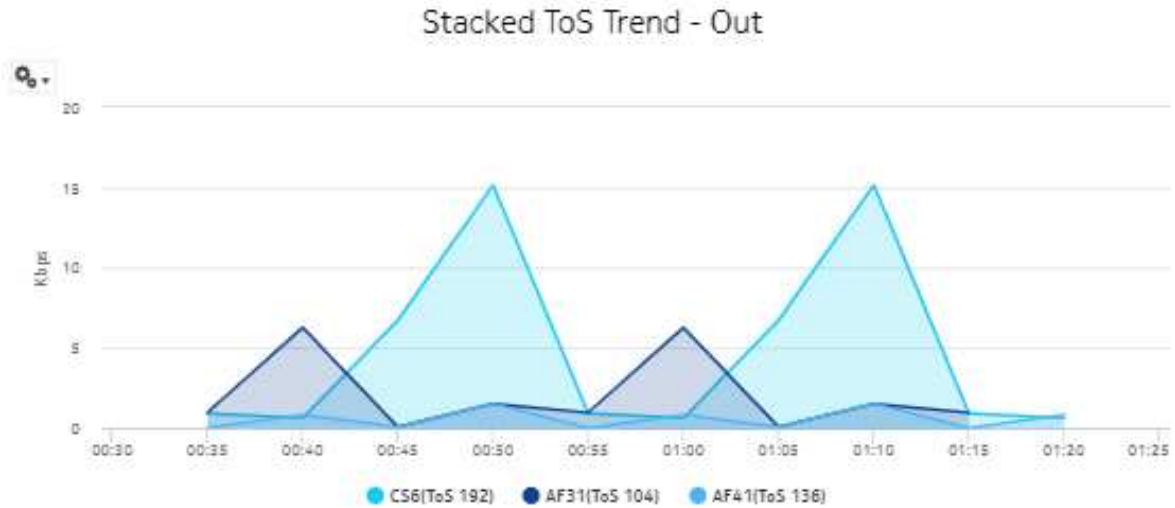


Figure 14-18 Interface Overview report—Host Summary – Volume – From

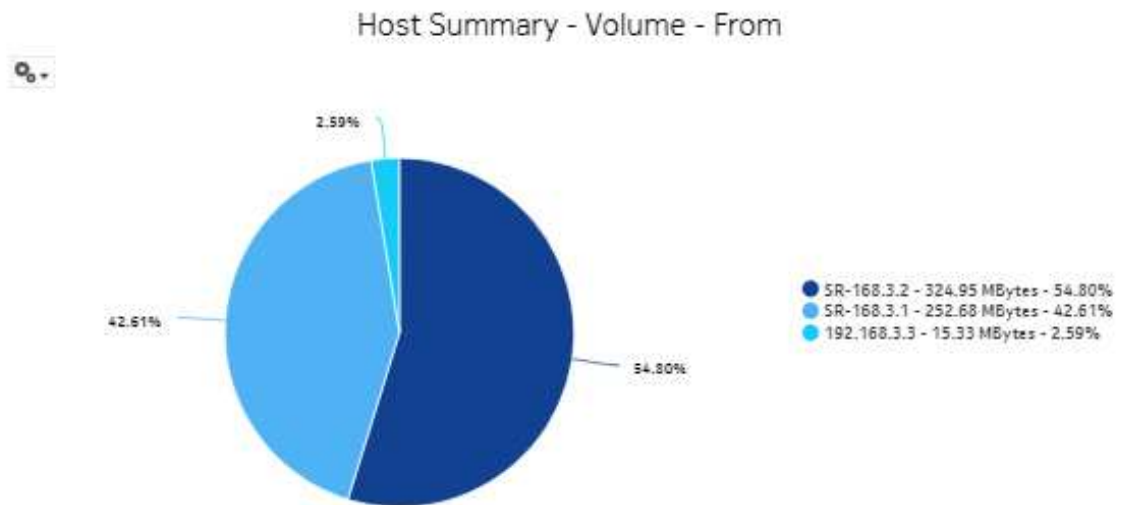


Figure 14-19 Interface Overview report—Host Summary - Volume - To

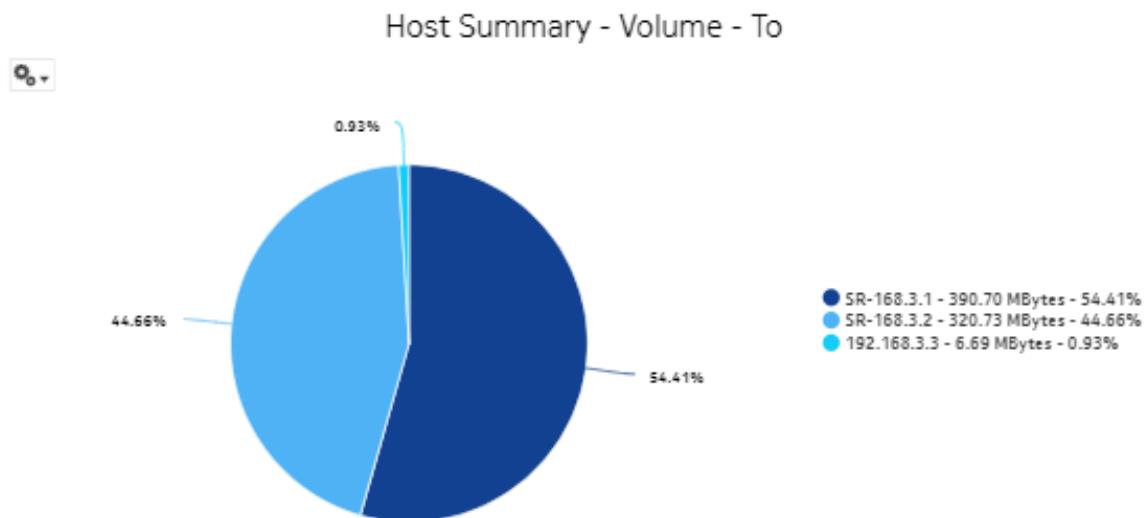
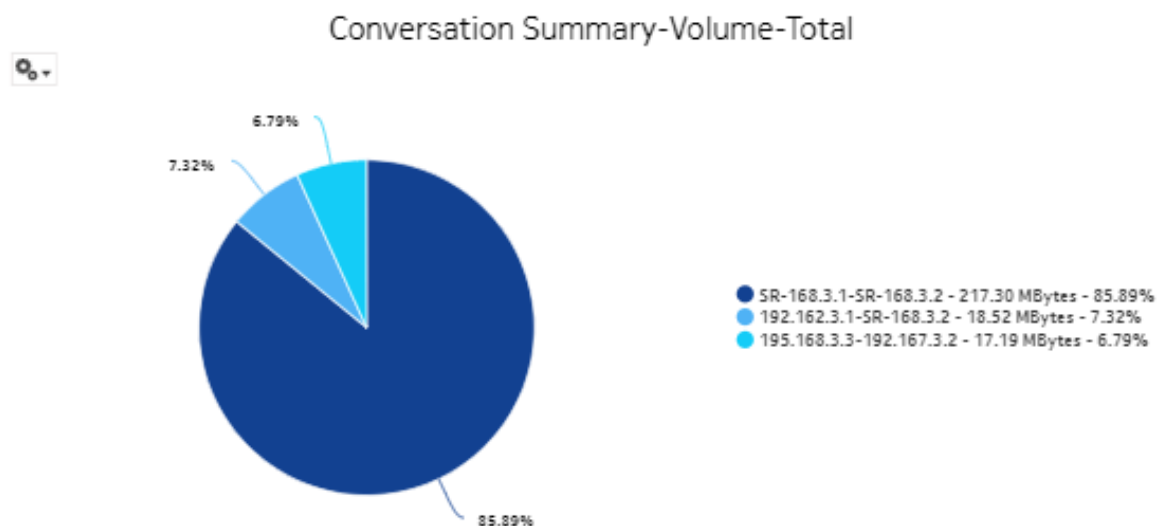


Figure 14-20 Interface Overview report—Conversion Summary - Volume - Total



14.17 Interface Utilization Details report

14.17.1 Interface Utilization Details report overview

The Interface Utilization Details report shows utilization details for a selected IGP interface. The report can be run on its own or as a drill-down from a Link Utilization report.

The default display is a set of graphs and a table showing ingress, egress utilization, reference speeds, and percentage interface consumption. By default the table is sorted by average egress interface consumption in decreasing value order (worst first).

Percentage interface consumption is based on average MPLS interface throughput divided by average LSP throughput.

The results in the table are colored based on interface consumption percentage ranges:

- green: 0% to 20%
- turquoise: 21% to 40%
- blue: 41% to 60%
- purple: 61% to 80%
- red: 81% to 100%

In the graph, all legends will be visible if any of the statistical data is available.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

For an Interface Utilization Details Report to be created for an interface, the [“Prerequisites” \(p. 748\)](#) for a Link Utilization report must be performed.

To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-21 Interface Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Ip Interface Stats Aggregator	rtr.Network Interface	rtr.IpInterfaceStats	Performance statistics	vRtrIfStatsEntry	7250 IXR 7705 SAR-H 7750 SR Note: 7210 SAS is not supported
Ip Interface Additional Stats Aggregator	rtr.Network Interface	rtr.IpInterfaceAdditionalStats	Performance statistics	vRtrIfStatsExtEntry	7250 IXR 7750 SR Notes: 7210 SAS is not supported 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
SAR Ip Interface Stats Aggregator	rtr.Network Interface	rtr.SarIpInterfaceStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm Note: 7210 SAS is not supported
Mpls Interface Stats Aggregator	rtr.Network Interface	mpls.MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Omnisystem NEs

Table 14-21 Interface Utilization Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
MPLS LSP Egress Stats Aggregator	rtr.Network Interface	mpls. MplsLspE- gressStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Note: 7210 SAS is not supported

Report characteristics

The following table lists the principal report characteristics.

Table 14-22 Interface Utilization Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS

Table 14-22 Interface Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node Name (or Node Name Pattern)	
	Nodes	
	Interface Name (or Interface Name Pattern)	
	Interfaces	
	Rank	Value to use for the Top-N LSPs. Max is 1000, default is 10.
	Reference Speed	Interface Speed or Physical Port Speed Notes: • IP-only utilization can be calculated with Interface Speed. • MPLS-only and IP+MPLS calculations can only be calculated if the Reference Speed is Physical Port Speed.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 14-22 Interface Utilization Details report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Click on a Name to launch a Service Utilization per LSP report.

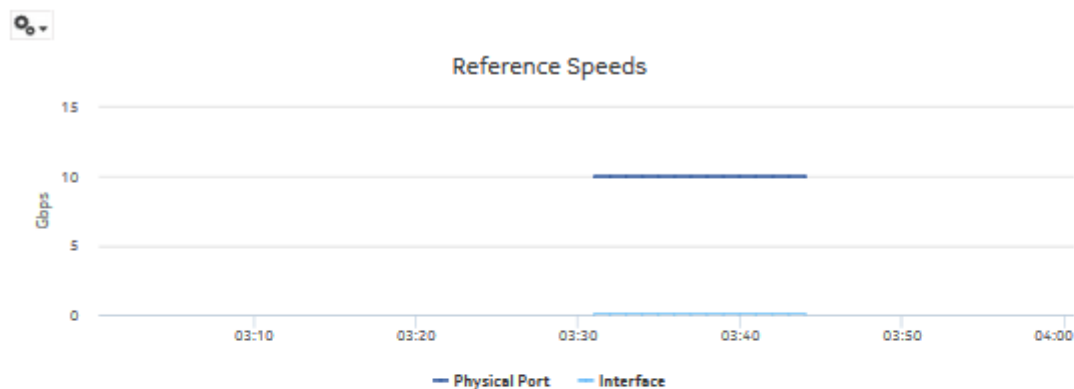
14.17.2 Example

The following figures show a report example.

Figure 14-21 Interface Utilization Details report



Figure 14-22 Interface Utilization Details report, continued



Top 10 LSPs

Lsp Name	Avg Interface Consumption(%)	Max Interface Consumption(%)	Min Interface Consumption(%)
63to86	14.46	29.34	0.0

14.18 Per-site VPN Throughput report

14.18.1 Per-site VPN Throughput report overview

The Per-site VPN Throughput report shows the throughput for L2 and L3 VPNs on a per-site basis.

The report provides a table with a list of sites and displays the source site, destination site, VPN name, L2/L3 name, average and maximum bit rates, and maximum traffic time.

Use cases

Use the report to visualize traffic distribution between different sites in a distributed VPN.

Limitations

Report limitations include:

- When the report is exported to the PPT file type, the table border may not be fully closed.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The Per-site VPN Throughput report requires the NSP Flow Collector. Perform the following:

1. Enable the collection of the IPFIX statistics as per [Table 14-23, “Per-site VPN Throughput report prerequisites”](#) (p. 503).
2. Configure the Flow Collector; see the *NSP Data Collection and Analysis Guide* for information about how to configure NSP flow collection, and the *NSP Statistics Management Guide* for information about how to configure NFM-P AA Cflowd data collection.
3. Enable the analytics_cflowd_sys_vpn_r aggregate.

Table 14-23 Per-site VPN Throughput report prerequisites

Aggregator name	Statistics class	NE types
Analytics_cflowd_sys_vpn_r	Analytics_cflowd_sys_vpn_r	7250 IXR 7705 SAR 7750 SR
Analytics_cflowd_sys_vpn_r_max_time	Analytics_cflowd_sys_vpn_r	7250 IXR 7705 SAR 7750 SR

Notes:

1. **Note:** The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 14-24 Per-site VPN Throughput report characteristics

Characteristic	Value
Data type	IPFIX Traffic Volume flow records
Source database	Auxiliary database
Service types supported	All L2 and L3 services

Table 14-24 Per-site VPN Throughput report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for Source Site	Search using partial names or wildcard (%). Select individual items or click Select All .
	Source Site	
	Name or name pattern for Remote Site	
	Remote Site	
	VPN Type	L2, L3
	Name or name pattern for VPN Name	Search using partial names or wildcard (%). Select individual items or click Select All .
	VPN Name	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.18.2 Example

The following figure shows a report example.

Figure 14-23 Per-site VPN Throughput report

Per-site VPN Throughput					
Start Date:	2021-06-15 04:29:00 EDT		End Date:	2021-06-15 12:28:52 EDT	
Report Date:	2021-06-15 12:28:52 EDT				
Granularity:	Raw Collection Interval		VPN Type:	L2,L3	
Source Site	Destination Site	VPN Name	Average Bitrate (bps)	Max Bitrate (bps)	Max Traffic Time
sim202_173	10.10.10.4	EPIPE 11	46.67	80.0	2021-06-15 20:07:00
sim202_173	10.10.10.4	VPN 22	26.67	26.67	2021-06-15 20:07:00
sim202_173	169.1.1.1	EPIPE 11	66.67	66.67	2021-06-15 20:07:00
sim202_173	192.168.1.1	EPIPE 11	40.0	40.0	2021-06-15 20:07:00
sim202_173	2002:0DB8:85A3:0000:0000:8A2E:0370:7334	EPIPE 11	46.67	80.0	2021-06-15 20:07:00
sim202_173	2002:0DB8:85A3:0000:0000:8A2E:0370:7334	VPN 22	26.67	26.67	2021-06-15 20:07:00
sim202_173	7777:0DB8:85A3:0000:0000:8A2E:0370:7777	EPIPE 11	66.67	66.67	2021-06-15 20:07:00
sim202_173	9002:0DB8:85A3:0000:0000:8A2E:0370:1111	EPIPE 11	40.0	40.0	2021-06-15 20:07:00

14.19 Signaling Trend Analysis report

14.19.1 Signaling Trend Analysis report overview

The Signaling Trend Analysis report provides analysis of LTE signal trends for 7705 SAR-Hm and 7705 SAR-Hmc NEs.

The default display is a set of graphs and a table showing signal strength, power, temperature, memory, and CPU data.

Limitations

When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-25 Signaling Trend Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Cellular Port Signal Stats Aggregator	Card Port Shelf	CellularPortStats	CellularPortstatistics	TIMETRACELLULAR-MIB. tmnxCellularPortStatusEntry	7705 Sar-Hm 7705 Sar-Hmc Note: 7705 SAR-H is not supported. Cellular port statistics and available memory statistics are not supported.
System CPU Usage Stats Aggregator	equipment.SystemStatsHolder	equipment.SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7705 SAR-H 7705 SAR Hm
System Memory Stats Aggregator	equipment.SystemStatsHolder	equipment.SystemMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7705 SAR-H 7705 SAR Hm
Hardware Temperature Stats Aggregator	equipment.BaseCard equipment.CardSlot equipment.CCM equipment.FanTray equipment.ControlProcessor equipment.DaughterCard equipment.MCMCard equipment.PowerSupplyTray equipment.Shelf equipment.SwitchFabricProcessor equipment.XiomCard	equipment.HardwareTemperature	Performance statistics	TIMETRA-CHASSIS-MIB. tmnxHwEntry	7705 SAR-H 7705 SAR Hm
Allocated Memory Stats Aggregator	equipment.SystemStatsHolder	equipment.AllocatedMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAllocate	7705 SAR-H 7705 SAR Hm

Table 14-25 Signaling Trend Analysis report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Available MemoryStats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryS- tats	Performance statistics	TIMETRA- SYSTEM-MIB. sgiMemoryPoolA- vailale	7705 SAR Hm Note: 7705 SAR-H is not supported. Cellular port statistics and available memory statistics are not supported.

Use cases

Capacity planning—Use the report to examine signal patterns for planning future capacity requirements.

Report characteristics

The following table lists the principal report characteristics.

Table 14-26 Signaling Trend Analysis report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

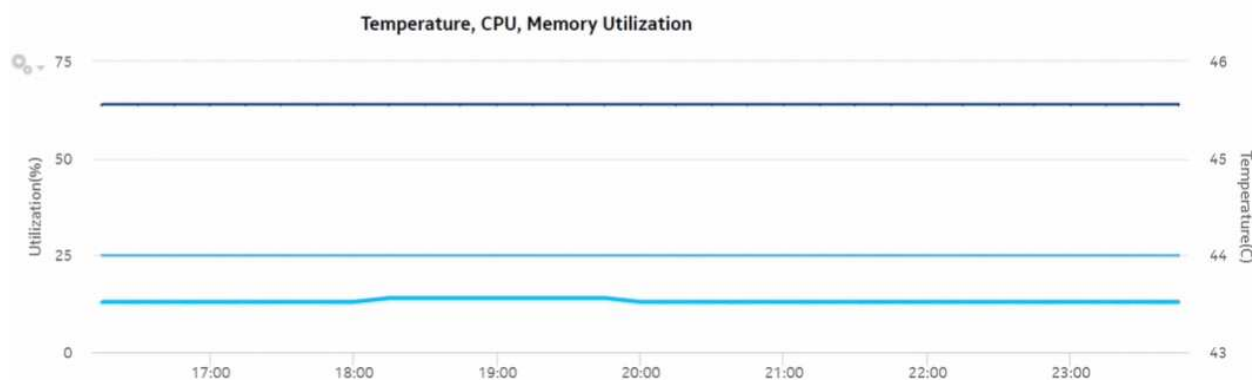
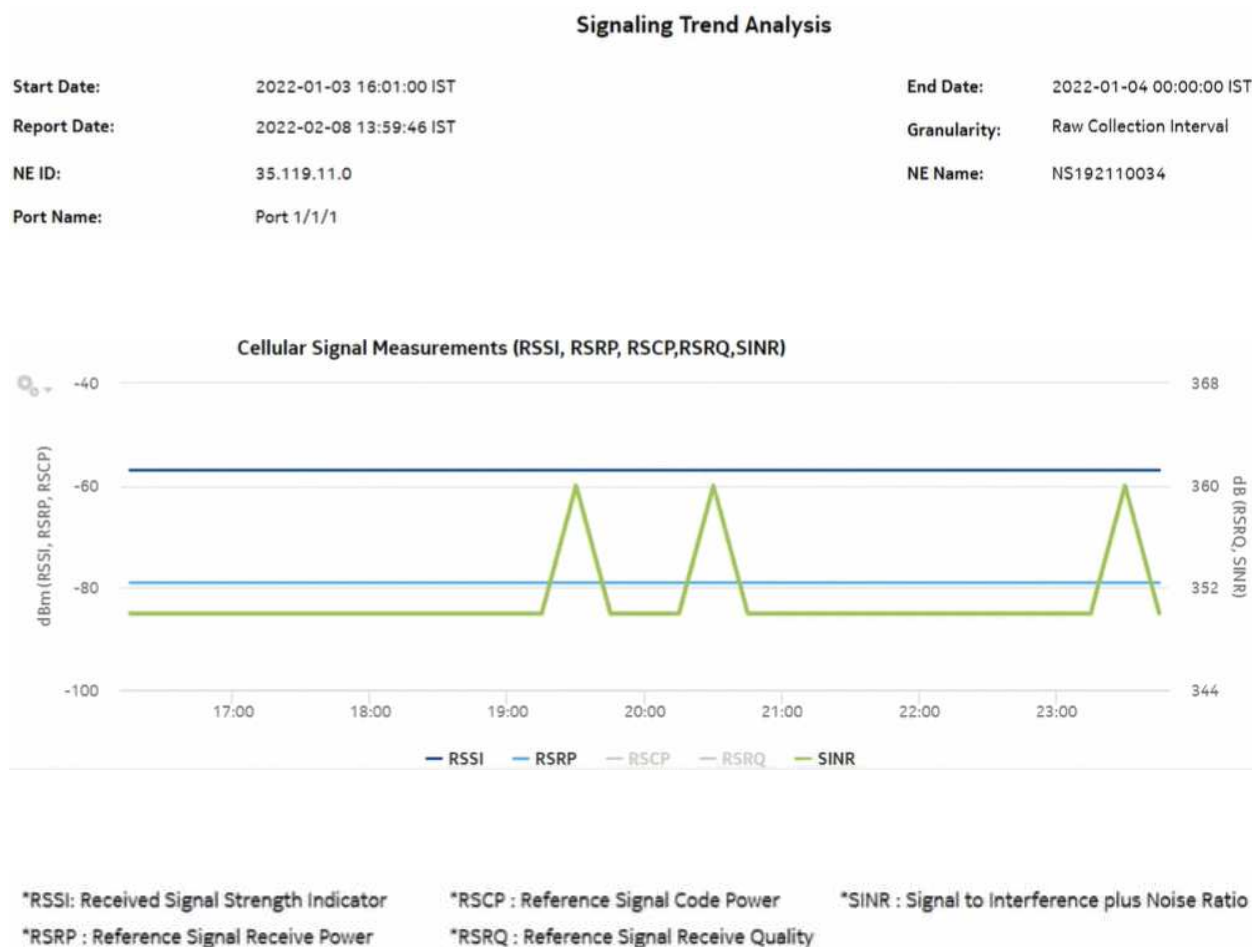
Table 14-26 Signaling Trend Analysis report characteristics (continued)

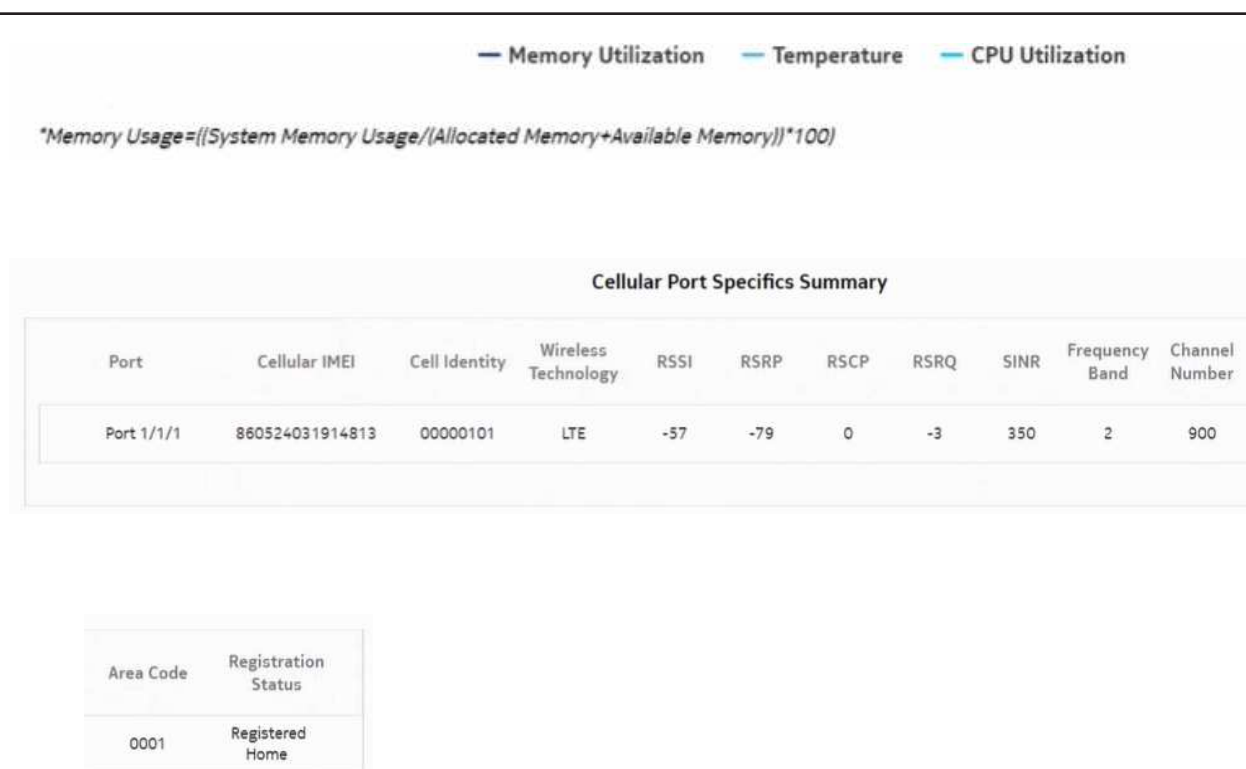
Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Type	7705 SAR-Hm 7705 SAR-Hmc
	Name or name pattern for NE	Search using partial names or wildcard (%).
	NE	
	Port Status	Active All
	Name or name pattern for port	Search using partial names or wildcard (%).
	Cellular port	
	Temperature Unit	Celsius or Fahrenheit
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.19.2 Example

The following figures show report examples. The table below is a single table, but is separated due to its width.

Figure 14-24 Signaling Trend Analysis report





14.20 Top N Packet Drop—Network Ports report

14.20.1 Top N Packet Drop—Network Ports report overview

The Top N Packet Drop—Network Ports report show the top N FECs or queues that are dropping packets. Separate reports are available for access ports and for network ports. The default display is a table showing queue, forwarding class, and ingress, egress, and total packet and octet dropped information.

Note: The report can be run for 7210 SAS NEs that do not support forwarding classes. For these NEs, the report will display N/A in the Forwarding Class and Queue columns.

For 7210 SAS network ports, only one of the following statistics can be collected at one time:

- network ingress octets
- network ingress packets
- network egress octets
- network egress packets

The columns for the statistics not being collected will display -1.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns, to ensure SLAs are met.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the ODS or ODT file type, some data may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-27 Top N Packet Drop—Network Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Complete Network Ingress Packet Octets stats aggregator	equipment.Port ethernetequipment. EthernetPortSpecif- ics lag.Interface	CompleteNetwork- IngressPacketOc- tets	Accounting, file, and log policies	completeNetIngrEg policy	7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
Complete Network Egress Packet Octets stats aggregator	equipment.Port ethernetequipment. EthernetPortSpecif- ics lag.Interface	CompleteNet- workEgressPack- etOctets	Accounting, file, and log policies	completeNet- IngrEgr policy	7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS

Table 14-27 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Octets stats aggregator	equipment.Port	NetworkIngressOctets	Accounting, file, and log policies	netIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC
Network Egress Octets stats aggregator	equipment.Port	NetworkEgressOctets	Accounting, file, and log policies	netEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC

Table 14-27 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Ingress Packets stats aggregator	equipment.Port	NetworkIngress-Packets	Accounting, file, and log policies	netIngressPkt policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-E 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
					7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSA-8 7850 VSG 7950 XRS VSC Note: SAS NEs use the network policy to retrieve stats at the FC level. They support only meters.

Table 14-27 Top N Packet Drop—Network Ports report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Network Egress Packets stats aggregator	equipment.Port	NetworkEgress-Packets	Accounting, file, and log policies	netEgressPkt policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7250 IXR 7450 ESS 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7850 VSG 7850 VSA-8 7950 XRS VSC

Report characteristics

The following table lists the principal report characteristics.

Table 14-28 Top N Packet Drop—Network Ports report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-28 Top N Packet Drop—Network Ports report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Port modes	Choose Network or Hybrid
	Port, LAG, or MC-LAG	Choose Port or LAG
	Name or name pattern for ports	Search using partial names or wildcard (%).
	Physical ports or LAGs or MC LAGs	Search using partial names or wildcard (%). Select individual items or click Select All .
	Top N	Enter the number of results to display. Enter a value between 1 and 100.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.20.2 Example

The following figure shows report examples.

Figure 14-25 Top N Packet Drop—Network Ports report

Top N Packet Drop - Network Ports

Start Date:2018-10-20 18:00:00 EDT

End Date:2018-10-25 17:09:10 EDT

Report Date:2018-10-25 17:09:34 EDT

Granularity:Raw Collection Interval

NE Name	NE ID	Port - LAG	Port Mode	Queue ID	Forwarding Class	Ingress In Profile Packets Dropped	Ingress In Profile Octets Dropped (Bytes)	Ingress Out of Profile Packets Dropped	Ingress Out of Profile Octets Dropped (Bytes)	Egress In Profile Packets Dropped	Egress In Profile Octets Dropped (Bytes)	Egress Out of Profile Packets Dropped	Egress Out of Profile Octets Dropped (Bytes)	Total Packets Dropped	Total Octets Dropped (Bytes)
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	5	h1	1919214	1919746	1851216	1874792	1919204	1884764	1928412	1828816	7634046	7314108
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	4	ef	1923586	1840244	2025996	1922144	1828652	1828670	1830024	1820332	7610260	7422590
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	6	h2	1918420	1821876	1822408	1822912	1915284	1823184	1931692	1823276	7587804	7288228
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	1	af	1906172	1944768	1894760	1877512	1867222	1858750	1862028	1872864	7532182	7351884
s0_2_27_both	192.0.2.27	Port 1/1/10	Network	3	be	1830094	1899408	1830234	1877526	1919204	1827084	1938592	1820136	7518224	7424154

14.21 Top N Packet Drop—Access Ports report

14.21.1 Top N Packet Drop—Access Ports report overview

The Top N Packet Drop—Access Ports report show the top N FECs or queues that are dropping packets. Separate reports are available for access ports and for network ports. The default display is a table showing queue, forwarding class, egress and octet dropped information.

The report can be run for 7210 SAS NEs that do not support forwarding classes. For these NEs, the report displays N/A in the Forwarding Class and Queue columns. For 7210 SAS NEs that do not support egress policies, the statistics displays as -1 and the forwarding class and queue displays as N/A.

For 7750 SR NEs that do not have packet details available, the statistics will display as -1.

It is not mandatory to configure QoS for this report since the default QoS settings apply.

Use cases

SLA monitoring—Use the report to examine traffic drop patterns, to ensure SLAs are met.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 14-29 Top N Packet Drop—Access Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOc- tets	Accounting, file, and log policies	completeSvcInEg policy	7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc- tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx, 7210 SAS-T 7210 SAS-X 7705 SAR-H
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOc- tets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx, 7210 SAS-T 7210 SAS-X 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-30 Top N Packet Drop for Access port report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	Prompt	Notes
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Port modes	Choose Access or Hybrid
	Port, LAG, or MC-LAG Port or LAG	Choose Port, LAG, or MC-LAG
	Name or name pattern for ports	Search using partial names or wildcard (%). If an MC LAG is selected, the report will show a column with the name of the MC LAG.
	Physical ports or LAGs Physical ports or LAGs or MC LAGs	Search using partial names or wildcard (%). Select individual items or click Select All .
	Top N	Enter the number of results to display. Enter a value between 1 and 100.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

14.21.2 Example

The following figure shows report examples.

Figure 14-26 Top N Packet Drop - Access Ports

Top N Packet Drop - Access Ports																	
Start Date:		2018-10-18 17:00:00 EDT								End Date:		2018-10-25 16:54:10 EDT					
Report Date:		2018-10-25 16:54:28 EDT								Granularity:		Row Collection Interval					
NE Name	NE ID	Port- LAG	Description	Customer ID	Customer Name	Service ID	Service Name	SAP ID	SAP Name	Queue	Forwarding Class	In Profile Packets Dropped	Out Of Profile Packets Dropped	All Packets Dropped	In Profile Octets Dropped (Bytes)	Out Of Profile Octets Dropped (Bytes)	All Octets Dropped (Bytes)
60.2.27.106h	188.0.2.27	Port 1/1/11	10-GigEthernet	1	Default customer	101	ARIP2 101	5/1/27:11	svc-mgr/service-101:188.0.2.27 : Interface-1/1/11-inner-tag-C-router-	queue-12	12	12101	9314	20415	2242	2161	4504
60.2.27.106h	188.0.2.27	Port 1/1/11	10-GigEthernet	1	Default customer	101	ARIP2 101	5/1/27:11	svc-mgr/service-101:188.0.2.27 : Interface-1/1/11-inner-tag-C-router-	queue-14	be	1305	1295	2601	19751	1365	21129

14.22 Emulated Service Details report

14.22.1 Emulated Service Details report overview

The Emulated Service Details report shows the jitter buffer depth, asymmetry, underruns, overruns, and errored seconds details for the service endpoints.

The Emulated Service Details report is a multi-element report with the following:

- column Spline timeline with depth and delay ADC
- time series graph with Cem Sap measurements
- time series graph with errored seconds
- bar graph timeline with jitter buffer asymmetry for the emulated service
- table with emulated service error counts

The Increasing Intervals value does not have to be contiguously increasing intervals, the increases can be scattered across the reporting period.

This report can be run on its own or launched from the Top-N Worst Emulated Services report.

Use cases

Synchronization management—Monitoring of services and their health in terms of network synchronization, with identification of services needing further investigation or maintenance based on three jitter buffer asymmetry KPIs.

Limitations

Report limitations include:

- When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.

- When the report is exported to the DOCX or RTF file type, the report does not align properly.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the RTF file type, some table columns may not display.
- This report does not support SAPs with SCADA ports.

Prerequisites

- CEM SAP statistics must be enabled via MIB policy.
- To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 14-31 Emulated Service Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
CEM SAP Aggregator	service. L2AccessInterface	service. CemSapStats	Performance statistics	sapCemStatsEntry	7210 SAS-M 7250 IXR R6 7450 ESS 7705 SAR 7705 SAR-H 7750 SR Note: 7705 SAR-Hm and 7705 SAR-Hmc are not supported
CEM SAP ADC Aggregator	service. L2accessInterafce	service. CemSapADCStats	Performance statistics	samCemADCStat- sEntry	7705 SAR 7705 SAR-H

Report characteristics

The following table lists the principal report characteristics.

Table 14-32 Emulated Service Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 14-32 Emulated Service Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%).
	Customer	Select individual items.
	Name or name pattern for service	Search using partial names or wildcard (%).
	Service	Select individual items.
	KPI Threshold	Specify the threshold value for: • Ingress Dropped Packets • Ingress Forwarded Packets • Egress Overruns Packets • Egress Jitter Buffer Depth Packets • Egress Underruns Packets • Egress Dropped Packets • Egress Errored Seconds
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

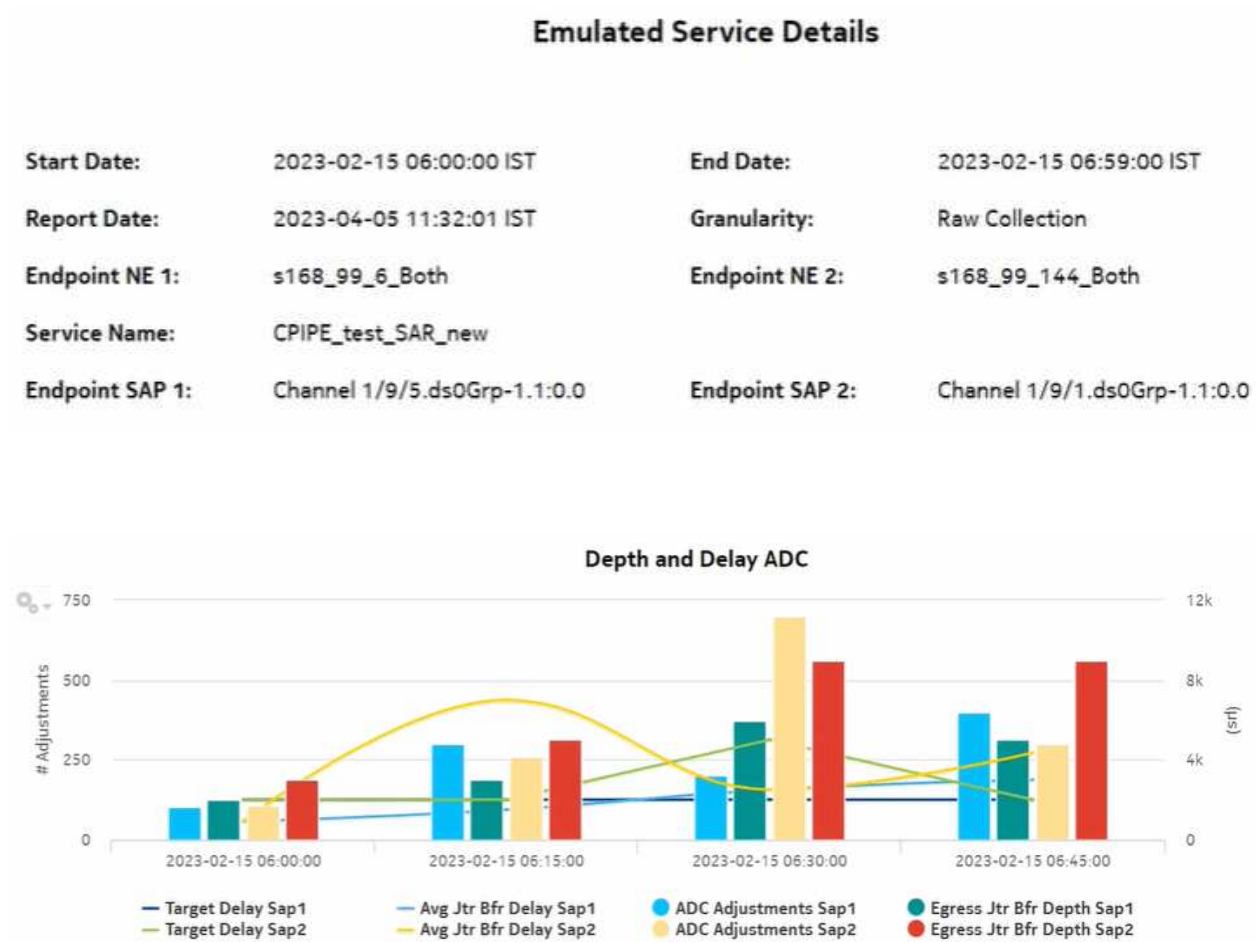
Notes:

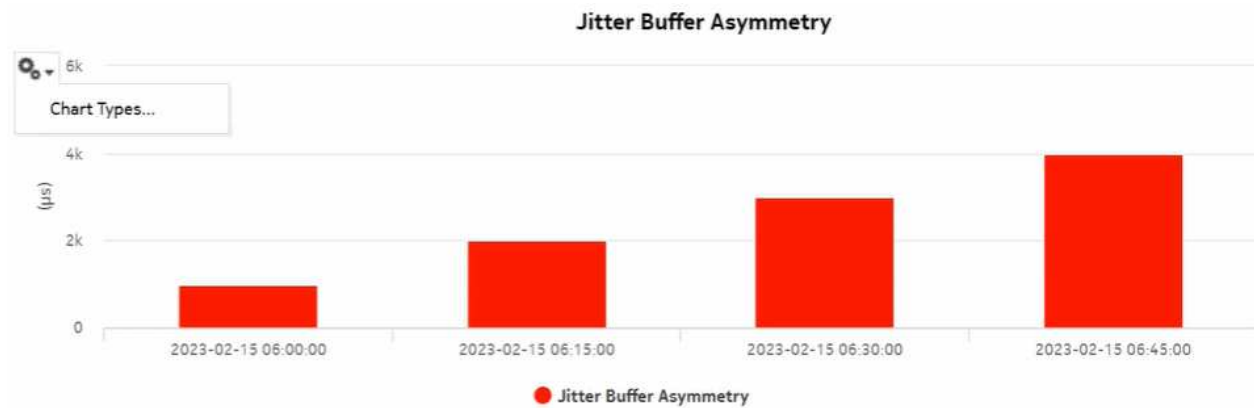
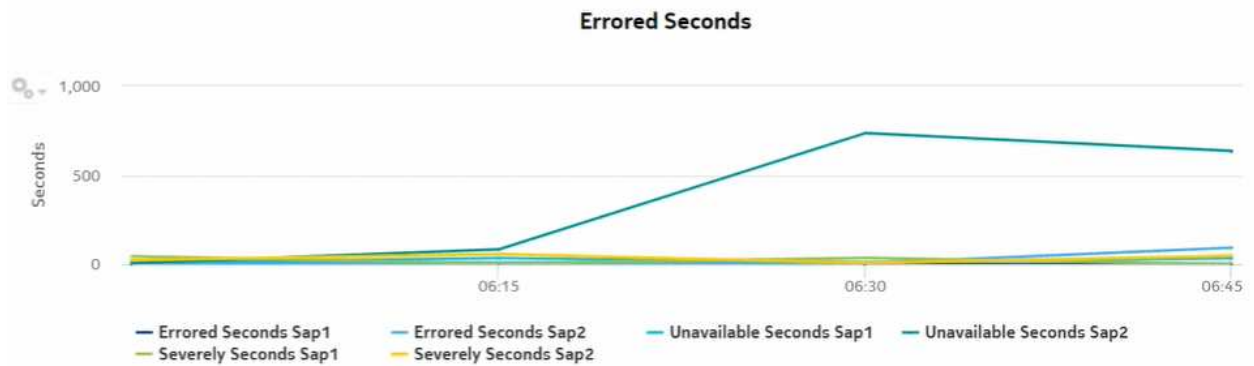
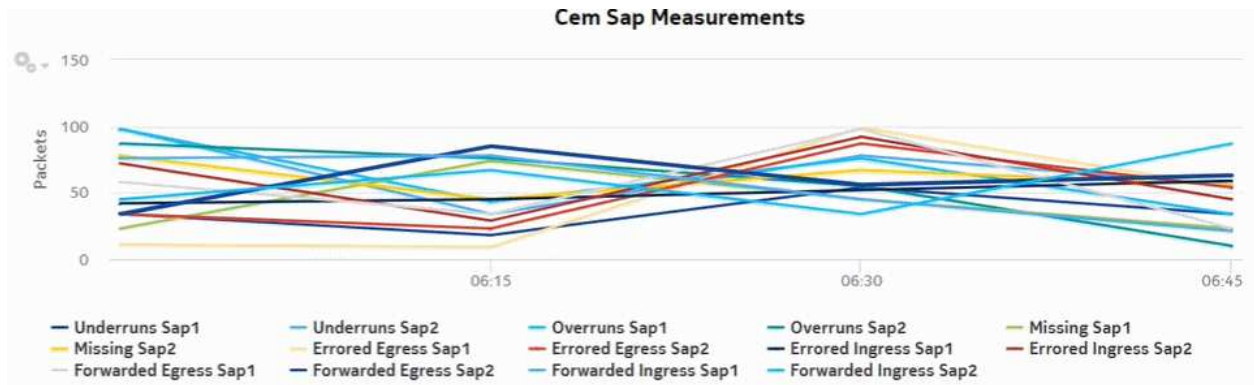
1. The 7705 SAR-Hm and 7705 SAR-Hmc are not supported.

14.22.2 Example

The following figure shows a report example.

Figure 14-27 Emulated Service Details report





Emulated Service Error Counts									
Customer Name	Service Name	Service ID	Endpoint NE Name	Endpoint SAP Name	Egress Forwarded (Packets)	Egress Dropped (Packets)	Egress Missing (Packets)	Egress Reordered Forwarded (Packets)	Egress Underruns (events)
Default customer	CPIPE_test_SAR_new	19	s168_99_6_Both	Channel 1/9/5.ds0Grp-1.1:0.0	213	173	165	244	15
Default customer	CPIPE_test_SAR_new	19	s168_99_144_Both	Channel 1/9/1.ds0Grp-1.1:0.0	238	198	246	0	15

Egress Underruns (Packets)	Egress Overruns (events)	Egress Overruns (Packets)	Egress Misordered Dropped (Packets)	Egress Malformed Dropped (Packets)	Egress LBit Dropped (Packets)	Egress Error (Seconds)	Egress Severely Errored (Seconds)	Egress Unavailable (Seconds)	Egress Failure Count (events)	Ingress Forwarded (Packets)	Ingress Dropped (Packets)
140	218	251	202	269	235	4	82	83	281	220	198
266	31	228	204	249	189	106	132	1457	110	233	238

Egress Jtr Bfr Depth (Packets)
16
26

14.23 Top N Worst Emulated Services report

14.23.1 Top N Worst Emulated Services report overview

The Top N Worst Emulated Services report is a tabular report that lists the emulated services (Cpipe) with the worst jitter buffer asymmetry.

Jitter buffer asymmetry is the difference in the jitter buffer depth at the two SAP endpoints at a moment in time (statistics collection interval). The jitter buffer asymmetry index is a value in the 0 to

100 range where 100 is the theoretical worst jitter buffer asymmetry (maximum jitter buffer asymmetry) for each interval in the report range. The formula is:

$$\text{sum (asymmetry for each interval in the range) / (\# intervals * max jitter buffer depth) * 100}$$

Jitter buffer asymmetry persistence is a value in the 0 to 100 range, where 100 is the theoretical worst persistence value. This value indicates how consistently the asymmetry is at an unacceptable level. A single spike of asymmetry is typically less of a concern than a persistent condition of asymmetry. The formula is:

$$\text{Count (\# intervals asymmetry} \geq 2) / \# \text{ intervals * 100}$$

The table is sorted in descending order with the asymmetry index first, then asymmetry persistence.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, the report may not export or display properly.
- This report does not support SAPs with SCADA ports.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 "How do I configure analytics aggregation?" \(p. 30\)](#).

Table 14-33 Top N Worst Emulated Services report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
CEM SAP Aggregator	service.L2AccessInterface	service.CemSapStats	Performance statistics	sapCemStatsEntry	7210 SAS-M 7250 IXR R6 7450 ESS 7705 SAR 7705 SAR-H 7750 SR Note: 7705 SAR-Hm and 7705 SAR-Hmc are not supported
CEM SAP ADC Aggregator	service.L2accessInterafce	service.CemSapADCStats	Performance statistics	sapCemADCStatsEntry	7705 SAR 7705 SAR-H

Use cases

Synchronization management—Monitoring of services and their health in terms of network synchronization, with identification of services needing further investigation or maintenance based on three jitter buffer asymmetry KPIs.

Report characteristics

The following table lists the principal report characteristics.

Table 14-34 Top N Worst Emulated Services report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Customers	
	Name or name pattern for service	
	Service	
	Top N	Number of interfaces to report.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on service name to drill down to the Emulated Service Details report.	

14.23.2 Example

The following figure shows a report example.

Figure 14-28 Top N Worst Emulated Services report

Top N Worst Emulated Services							
Start Date:		2023-04-03 18:00:00 IST			End Date:		2023-04-03 18:59:00 IST
Report Date:		2023-04-04 22:37:46 IST			Granularity:		Raw Collection Interval
Customer Name	Service Name	Service ID	Endpoint 1 NE Name	Endpoint 1 SAP Name	Endpoint 2 NE Name	Endpoint 2 SAP Name	Jitter Buffer Asymmetry Index (0-100)
QA_MTN_Cust_desc	cpipe_dha	2	s168_99_6_Both	svc-mgr:service-15:92.168.99.6:interface-1/9/7.ds1e1_1.	s168_99_144_Both	svc-mgr:service-15:92.168.99.144:interface-1/9/7.	56.25

Jitter Buffer Asymmetry Persistence (0-100)	Jitter Buffer Asymmetry Increasing Intervals (#)	ADC Adjustments (#)	Avg Deviation	Max Deviation Time
100.00	2	6300	1725.00	4/3/23 6:45 PM

15 Wavence reports

Overview

15.1 Wavence reports overview

15.1.1 General information

Wavence reports consist of both inventory and utilization reports based on Wavence NEs managed by the NFM-P.

Limitations

The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Wavence inventory reports

15.2 Wavence inventory reports overview

15.2.1 General information

The inventory reports provide hardware configuration details at the card and port levels. Results are colored when percentage of ports used exceeds user-defined thresholds:

- Yellow coloring indicates that the utilization is equal to or above the warning threshold. The default threshold value is 70%.
- Red coloring indicates that the utilization is equal to or above the critical threshold. The default threshold value is 90%.



Note: The report input options list all NEs that are compatible with Inventory reports, not only the NEs that are present. A report can only be generated on NEs found in the network.

Use cases

Network planning—Use the reports to plan for the acquisition of new hardware when required.

Prerequisites

Before an inventory report can be created, the NEs must be managed using NSP Classic management.

15.3 License Inventory Summary report

15.3.1 License Inventory Summary report overview

The License Inventory Summary report shows a cumulative summary of license(s) present on Wavence NEs managed on NMS. Based on the input controls chosen, suitable license results are shown.

For capacity licenses, a cumulative comparison of the number of radios is performed. Several capacity licenses may be present in the system. The comparison is done by summing all of the radio directions in the capacity licenses with the license string, and comparing it with the total number of radios configured.

Limitations

When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Prerequisites

Before a license inventory summary report can be created, the NEs must be managed using NSP Classic management. Input fields for the license inventory summary report are retrieved from the NSP database. If the license data is modified using NSP Classic management, you must rerun the report to get the updated data.

Report characteristics

The following table lists the principal report characteristics.

Table 15-1 License Inventory Summary report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI.	
	Support is limited to NEs found in the network.	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	License Types	Search using partial names or wildcard (%). At least one license type must be entered.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the License Details report for the selected NE.	

15.3.2 Example

The following figures show a report example.

Figure 15-1 License Inventory Summary report



License Inventory Summary

Report Date : 2025-01-21 10:39:11 CST

License Types : 1588BC, 1588TC, 5+L1LAG, AES, BNM, IGP, NCF, PTB, Ring, TDM2Eth, Y10G, YCAmmW, YCAuW, YHCS, YHLsHP, YHQAM, YTRX2, YUnlOpt, YXPIC, YYL3VPN, YmodAdp, YCapUXXXX, YCapXXX

Static

License Type	Number of Nodes
AES Radio Encryption	305
TDM over Ethernet service	299
1588 Boundary or Ordinary Clock	297
L1 LAG with more than 4 radio ports	254
Ethernet Ring Protection	299
Packet Throughput Booster	294
NetConf License	70
1588 Transparent Clock	301
Y.1731 Bandwidth Notification feature	277
Interior Gateway Protocol	255

Dynamic

License Type	Number of Nodes	Number of Radios/Interfaces/Services (Aggregated)
User Ethernet interfaces at 10Gb per second port rate enabled	303	606
Links in carrier aggregation, mixing E-Band (millimeter) and traditional (microwaves)	294	7465
UBT-S, UBT-T and UBT-m 80GHz with selected modulation > 1024QAM and > 64QAM	300	8831
Links in carrier aggregation, mixing different traditional (microwaves) frequencies	293	7504
UBT-m 80GHz with CS > 500MHz	297	8789
Radio interfaces restricted to unlicensed radio profile	2	2
Radio interfaces in Adaptive Modulation	308	8885
UBT-T with both channels enabled	301	8796
Radio interfaces with XPIC (MPT-HLS, MPT-HLC)	297	7549
VPN services can be activated	272	17290
Radio interfaces in High Power (MPT-HLS)	290	7493

Capacity

UBT/MPT Capacity (Mbps)	Number of Nodes	Number of Radios (Aggregated)	Type
100	1	1	MPT
300	1	1	MPT
160	2	2	UBT
10000	276	7205	UBT
10000	3	90	MPT
50	8	30	UBT
1500	196	5782	UBT
2000	6	151	UBT
300	8	153	UBT
3000	284	8482	UBT
800	293	8676	UBT
1000	244	7140	UBT
600	7	152	UBT
400	8	153	UBT
500	300	8827	MPT
100	17	481	UBT
40	9	104	MPT
5000	11	330	UBT
200	6	151	UBT

15.4 License Details report

15.4.1 License Details report overview

The License Details report shows details of a particular license present on Wavence NEs managed on NMS. Based on the input controls chosen suitable license results are shown.

License Details at a particular license string level shows the relevant NE/s containing the license string (MSS-8/MSS-4/MSS-1/MSS-O).

Limitations

- When the report is exported to the ODS or ODT file type, the logo does not display.
- When the report is exported to the ODS or ODT file type, some data may not display.

Prerequisites

Before a license details report can be created, the NEs must be managed using NSP Classic management. Input fields for the license details report are retrieved from the NSP database. If the license data is modified, you must rerun the report to get the updated data.

Report characteristics

The following table lists the principal report characteristics.

Table 15-2 License Details report characteristics

Characteristic	Value	
Data type	NE configuration information	
Source database	NSP database	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI.	
	Support is limited to NEs found in the network.	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	License Types	Search using partial names or wildcard (%). At least one license type must be entered.
	Capacity	Select the capacity values corresponding to the selected license from drop-down menu.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the License Details report for the selected NE.	

15.4.2 Example

The following figure show a report example.

Figure 15-2 License Details report

 License Details Report Date : 2025-01-21 17:55:39 GMT Radio Type : UBT License Type: YCapUXXXX						
Site ID	Site Name	Number of Radios	Interface Used	Interface Available	Capacity (Mbps)	Description
10.0.1.2	MSS8_132	30	0	30	800	Up to 30 Radio Interfaces with 800
10.0.1.2	MSS8_132	30	1	29	1000	Up to 30 Radio Interfaces with
10.0.1.2	MSS8_132	30	0	30	1500	Up to 30 Radio Interfaces with
10.0.1.2	MSS8_132	30	0	30	3000	Up to 30 Radio Interfaces with
10.0.1.2	MSS8_132	30	0	30	10000	Up to 30 Radio Interfaces with
10.0.7.138	MNIATH242-IDU138	30	0	30	800	Up to 30 Radio Interfaces with 800
10.0.7.138	MNIATH242-IDU138	30	0	30	1000	Up to 30 Radio Interfaces with
10.0.7.138	MNIATH242-IDU138	30	0	30	1500	Up to 30 Radio Interfaces with
10.0.7.138	MNIATH242-IDU138	30	0	30	3000	Up to 30 Radio Interfaces with
10.0.7.138	MNIATH242-IDU138	30	1	29	10000	Up to 30 Radio Interfaces with
10.100.208.1	MNIATH108 - NE01 MSS_8_1	30	0	30	800	Up to 30 Radio Interfaces with 800
10.100.208.1	MNIATH108 - NE01 MSS_8_1	30	0	30	3000	Up to 30 Radio Interfaces with

15.5 Radio Link Inventory report

15.5.1 Radio Link Inventory report overview

The Radio Link Inventory report shows the radio links on the selected NEs, along with the frequency, capacity and utilization of radio and MWA links and the frequency and temperature of MWA links. The report displays both main and spare channels; spare channels are marked with the SPARE label in the Slot/Port column. Wavence and SAR nodes must be discovered using NSP Classic management; MWA links are supported on SAR nodes, and radio links on Wavence nodes.

Note: When you enter a search term that returns zero links, you can still load a report for the links in the network. Port and LAG member details are displayed for mnemonics with UBT and MPT radio ports. For LAGs, mnemonics are displayed as NA, as there are no mnemonics.

Prerequisites

Collection of Ethernet Aggr Tx statistics must be enabled to collect Tx utilization. The Current Utilization (%) column displays a red 0.0 value if no statistics have been collected for the port, LAG, or LAG members.

Limitations

Report limitations include:

- Exporting the report to Doc format does not show the full content of the report.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the DOCX file type, the report is spread across multiple pages even if the “Show report output on one page” option is enabled.

Report characteristics

The following table lists the principal report characteristics.

Table 15-3 Radio Link Inventory report characteristics

Characteristic	Value
Data type	Radio
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC Note: The 7705 SAR-H is not supported.
	Support is limited to NEs found in the network.

Table 15-3 Radio Link Inventory report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Name or Name Pattern for the Radio Link	Search using partial names or wildcard (%).
	Radio link	Select up to 1000 radio links to display in the report. If you do not select any links, then the report displays network-wide radio links.
	Distance unit	Choose whether to display distances in kilometres or miles for Wavence nodes.
	Filter	Displays information about the parameters, which can be filtered based on the following attributes: This includes • Tx Frequency (Ghz) • Rx Frequency (Ghz) • Max Capacity (Mbps) • Min Capacity (Mbps) • Current Capacity (Mbps) • Current Utilization (%) To generate a Radio link inventory report on a MWA link, Filter and distance unit must be none and value must be empty.
	Value	Specify the value using required expressions (>100k or <100M) based on the attributes selected in the Filter parameter. To generate a Radio link inventory report on a MWA link, Filter and distance unit must be none and value must be empty.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

15.5.2 Example

The following figure shows a report example.

Figure 15-3 Radio Link Inventory report

NOKIA

Radio Link Inventory

Report Date : 2025-01-21 17:52:37 GMTFilter : None

Radio Link	NE ID	NE Name	Port	Frequency (Ghz)	Temperature (C)	Protection	Operational State	Transmit State	Software State
SAR-72(Port 1/3/3)-SAR-62(Port 1/3/3)									
	172.0.0.62	SAR-62	Port 1/3/3	6.00	31.00	One Plus Zero	InService	No Mute	Ok
	172.0.0.72	SAR-72	Port 1/3/3	6.00	30.00	One Plus Zero	InService	No Mute	Ok

15.6 Feature and Capacity Inventory report

15.6.1 Feature and Capacity Inventory report overview

The Feature and Capacity Inventory report consists of feature inventory and capacity inventory tables.

The feature inventory table counts the following items for the selected snapshot date:

- radios
 - radio types
 - MSS types
 - features
 - NEs
- ref radios
 - difference of radios
 - ref nodes
 - difference of nodes

The capacity inventory table lists the UBT or MPT type, its capacity and number of radios, number of ref radios, and difference of radios for the selected snapshot date.

You can compare the selected snapshot date against another snapshot to display the difference between the two snapshots.

Use cases

Capacity planning—Use the report to examine capacity and features which are licensed.

Limitations

Report limitations include:

- When using a reference snapshot that contains data for features or capacities that are absent from any of the selected snapshot dates, rows in the table output may appear malformed (for example, displaying N/A in the Snapshot Date column).

- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).
- When the report is exported to the ODS or ODT file type, the logo does not display.
- When the report is exported to the ODS or ODT file type, some data may not display.

Prerequisites

Before a feature and capacity inventory report can be created, the Wavence NE and ports must be discovered using NSP Classic management, and features and capacity must be scheduled.

Calculations

This section describes how the capacity and feature license values are calculated for this report. The following table lists the port feature licenses and the requirements for a port to be counted as using the licensed feature. If a feature is enabled on any channel, then the port is counted as using that feature, except where noted.

License	Description
XPIC	Number of ports with XPIC enabled
modAdp	Number of ports with Adaptive Modulation enabled
HCS	Number of ports with channel spacing greater than 500MHz
HQAM	Number of ports using HQAM. The threshold depends on the UBT • UBT-m: 128QAM/256QAM • UBT-S/S2, UBT-T: 2048QAM/4096QAM UBT-C is not included.
PTB	Number of ports with Packet Throughput Booster enabled
AES	Number of ports with AES Encryption enabled
TRX2	Number of ports using TRX2. UBT-T are counted only if both channels are enabled
TDM2Eth	Only UBT ports which are part of a CrossConnect backhaul service with a CEM to Eth profile are counted. If the same port is used in two different services, it will be counted twice.
CA	Total number of LAG members. Port usage is calculated using the primary port in the LAG. MPTs are also considered.

The following table lists the node feature licenses, and the requirements for a node to be counted as using the licensed feature.

License	Description
L3VPN	Total number of sites used for an L3 service, grouped by node type.

License	Description
Ring	Number of ring instances created, grouped by node type.
1588TC	Number of nodes with 1588TC enabled
1588BC	Number of nodes with 1588BC enabled
IGP	Number of nodes with an OSPF Site that has an administrative state of Up
BNM	Number of nodes with one or more BNM entries enabled.
Core Protection	Number of nodes with core card protected.
RTU Synchronous Ethernet	Number of nodes with Sync-E enabled.
10G	Number of nodes containing a UBT port with speed 10G.

The following table lists the capacity licenses for each UBT type and the capacity range.

UBT Type	From	Till	License
UBT-m	0	1000	yyCapU1000
UBT-m	1001	1500	yyCapU1500
UBT-m	1501	2000	yyCapU2000
UBT-m	2001	3000	yyCapU3000
UBT-m	3001	4000	yyCapU4000
UBT-m	4001	5000	yyCapU5000
UBT-m	5001	6000	yyCapU6000
UBT-m	6001	Above	yyCapU10000
UBT-S/S2	0	50	yyCapU0050
UBT-S/S2	51	100	yyCapU0100
UBT-S/S2	101	160	yyCapU0160
UBT-S/S2	161	200	yyCapU0200
UBT-S/S2	201	300	yyCapU0300
UBT-S/S2	301	400	yyCapU0400
UBT-S/S2	401	600	yyCapU0600
UBT-S/S2	601	800	yyCapU0800
UBT-S/S2	801	Above	yyCapU1000
UBT-T	0	300	yyCapU0300
UBT-T	301	400	yyCapU0400
UBT-T	401	600	yyCapU0600
UBT-T	601	800	yyCapU0800

UBT Type	From	Till	License
UBT-T	801	1000	yyCapU1000
UBT-T	1001	1500	yyCapU1500
UBT-T	1501	Above	yyCapU2000
UBT-C	0	50	yyCapU0050
UBT-C	51	100	yyCapU0100
UBT-C	101	160	yyCapU0160
UBT-C	161	200	yyCapU0200
UBT-C	201	300	yyCapU0300
UBT-C	301	400	yyCapU0400
UBT-C	401	600	yyCapU0600
UBT-C	601	800	yyCapU0800
UBT-C	801	Above	yyCapU1000

Report characteristics

The following table lists the principal report characteristics.

Table 15-4 Feature and Capacity Inventory report characteristics

Characteristic	Value
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, Wavence-SA, Wavence NIM
	Support is limited to NEs found in the network.

Table 15-4 Feature and Capacity Inventory report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Snapshot date	Calendar date or relative date (for example, two days ago) and time. Do not specify more than ten snapshot dates.
	Reference snapshot date	Snapshot date to compare the selected snapshot against
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.6.2 Example

The following figure shows a report example using a single snapshot date.

Figure 15-4 Feature and Capacity Inventory report

Feature and Capacity Inventory

Report Date : 2021-05-24 14:25:39 IST

Snapshot Date : 12-MAY-2021

Feature Inventory

Snapshot Date	Feature	Radio Type	MSS Type	Number of Radios	Number of Nodes
2021-05-12 09:30:03					
	modAdp	UBT-C	N/A	2	0
	modAdp	UBT-S	N/A	2	0
	L3VPN	N/A	MSS-8	0	4
	modAdp	UBT-T	N/A	5	0
	10G	N/A	MSS-8	0	1

Capacity Inventory

Snapshot Date	Capacity	Radio Type	Number of Radios
2021-05-12 09:30:03			
	50.0	UBT-S	2
	50.0	UBT-C	2
	300.0	UBT-T	5

The following figure shows a report example using a reference snapshot date.

Figure 15-5 Feature and Capacity Inventory report with reference snapshot



Feature and Capacity Inventory

Report Date : 2023-03-21 17:08:19

Snapshot Date : 2023-03-21 16:30:00

Reference Snapshot Date : 2023-03-21 15:30:00

Feature Inventory

Snapshot Date	Feature	Radio Type	MSS Type	Number of Radios	Number of Ref Radios	Difference of Radios	Number of Nodes	Number of Ref Nodes	Difference of Nodes
2023-03-21 16:30:00									
	10G	N/A	MSS-4	0	0	0	1	1	0
	modAdp	UBT-T	UBT-SA	5	5	0	0	0	0
	10G	UBT-m	UBT-SA	1	1	0	0	0	0
	RTU Synchronous Ethernet	UBT-S	UBT-SA	2	2	0	0	0	0
	modAdp	UBT-m	N/A	7	7	0	0	0	0
	Ring	N/A	MSS-8	0	0	0	9	9	0
	CA	MPT-HQAM	MSS-8	16	16	0	0	0	0
	1588TC	N/A	MSS-8	0	0	0	12	12	0

Capacity Inventory

Snapshot Date	Capacity	Radio Type	Number of Radios	Number of Ref Radios	Difference of Radios
2023-03-21 16:30:00					
	300.0	UBT-T	9	9	0
	10000.0	UBT-m	7	7	0
	2000.0	UBT-T	31	31	0
	1000.0	UBT-S	8	8	0
	800.0	UBT-S	4	4	0
	1000.0	UBT-T	2	2	0
	50.0	UBT-S	3	3	0
	1500.0	UBT-T	1	1	0
	1000.0	UBT-m	1	1	0

15.7 Synchronization Report

15.7.1 Synchronization Report overview

The Synchronization Report table lists the data for switch criteria and status for the selected NEs for the selected snapshot date.

Use cases

Network planning—Use the report to examine network wide Synchronisation settings and plan for synchronisation over networks.

Limitations

Report limitations include:

- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.

Report characteristics

The following table lists the principal report characteristics.

Table 15-5 Synchronization Report characteristics

Characteristic	Value
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-I/I2, Wavence UBT-T XP, Wavence NIM, 9500-MPR-A Chassis 1, 9500-MPR-E Chassis 1, 9500-MPR-A Chassis 4, 9500-MPR-E Chassis 4, 9500-MPR-A Chassis 8, 9500-MPR-E Chassis 8 Note: The 7705 SAR-H is not supported.

Table 15-5 Synchronization Report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	NE Types	Lists all Wavence NE Types
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click Select All .
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.7.2 Example

The following figures show a report example.

Figure 15-6 Synchronization Report

The screenshot displays the Synchronization Report interface. On the left, the 'Options' panel includes sections for 'NE Types' (with 'Wavence MSS-8' selected), 'Name or name pattern for NE' (set to '%'), and 'NEs' (with two items selected). The main area shows the 'Synchronization' report with a 'Report date' of 2022-12-21 16:04:29 BT. Below this is the 'Synchronization Configure Table'.

		Primary Source				Secondary Source				Sync In		Sync Out					
NE Id	NE Name	Type	Role	Interface	User Label	Type	Switch Status	Switch Criteria	Interface	User Label	Type	Switch Status	Switch Criteria	Frequency	State	Frequency	State
135.250.64.156	MSS-156	Wavence MSS-8	Master	N/A-port N/A	N/A	Free Run Local Oscillator	N/A	N/A	N/A-port N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	N/A
135.250.64.158	NE_158	Wavence MSS-8	Master	N/A-port N/A	N/A	N/A	N/A	N/A	N/A-port N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	N/A

Wavence Data Communication Network (DCN) reports

15.8 Radio Port Config report

15.8.1 Radio Port Config report overview

The Radio Port Config report shows the detailed information of a port, LAG, routing protocol, shortest path for the selected NEs along with the protection information on the port/LAG.

Use cases

Use the report to examine the radio configurations on a port and a LAG based on the selected NE.

Report characteristics

The following table lists the principal report characteristics.

Table 15-6 Radio Port Config report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	A maximum of first 1000 entries from the available list of NEs are displayed. Select individual NEs or click Select All .
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.8.2 Example

The following figures show a report example.

Figure 15-7 Radio Port Config report

Radio Port Config														
Report Date : 2020-10-08 20:34:41 IST														
Loopback IP	Site Name	Slot	Port	LAG	LAG Member	Port Label	Remote IP	PPP RF	Routing Protocol	OSPF Area	OSPF Address	Protect	Stand by Slot	Stand by Port
192.169.204.26	BA0013_MSS4_1	4	1	0	0	BA0494H3_188L01	192.169.204.2	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.30	BA0006_MSS4_1	4	1	0	0	267.BA0494V4L01	192.169.204.10	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.38	BA0023_MSS4_1	4	1	0	0	BA0006V3-214L01	192.169.204.34	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.204.38	BA0023_MSS4_1	4	2	0	0	BA0310H2_340L01	192.169.204.42	Enabled	OSPF	1	4.94.1.1	N/A	N/A	N/A
192.169.220.134	BA0018_MSS4_1	4	1	0	0	BA0068V4_237L01	192.169.220.130	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.138	BA0022_MSS4_1	4	1	0	0	BA0068H4_310L01	192.169.220.130	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.138	BA0022_MSS4_1	4	2	0	0	BA0492_V2L1	192.169.220.150	Enabled	OSPF	1	0.68.1.1	N/A	N/A	N/A
192.169.220.34	BA0003_MSS4_1	4	1	0	0	BA0601V2_233L01	192.169.220.2	Enabled	OSPF	1	6.1.1.1	N/A	N/A	N/A
192.169.246.38	BA0024_MSS4_1	4	1	0	0	BA0131V2_55L01	192.169.246.2	Enabled	OSPF	2	1.31.1.1	N/A	N/A	N/A

15.9 Static Routes report

15.9.1 Static Routes report overview

The Static Routes report shows the detailed information of the route traversed, destination, gateway and the interface type for the selected NEs.

Use cases

Use the report to examine the static route defined on a selected NE.

Report characteristics

The following table lists the principal report characteristics.

Table 15-7 Static Routes report characteristics

Characteristic	Value
Source database	NSP database
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.

Table 15-7 Static Routes report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	A maximum of first 1000 entries from the available list of NEs are displayed. Select individual NEs or click Select All .
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.9.2 Example

The following figures show a report example.

Figure 15-8 Static Routes report

Static Routes

Report Date : 2020-10-08 20:38:01 IST

Loopback IP	Site Name	Destination	IP Mask	Gateway	Interface Type
192.169.204.38	BA0023_MSS4_1	192.169.204.232	255.255.255.248	192.169.204.137	Next Hop
192.169.207.6	BA0041_MSS4_1	192.169.207.124	255.255.255.252	192.169.207.5	Next Hop
192.169.218.10	BA0179_MSS4_1	192.169.218.240	255.255.255.248	192.169.218.9	Next Hop
192.169.222.30	BA0143_MSS4_1	192.169.222.248	255.255.255.248	192.169.222.29	Next Hop

15.10 TMN In Band Details report

15.10.1 TMN In Band Details report overview

The TMN In Band Details report shows the detailed information of the network IP, routing protocol, and OSPF address for the selected NEs (managed through the common protocols using the network itself as a medium), and OSPF area.

Use cases

Use the report to examine the TMN in band details for ports based on the selected NEs and the OSPF area.

Report characteristics

The following table lists the principal report characteristics.

Table 15-8 TMN In Band Details report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.	
Report inputs	Prompt	Notes
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click Select All .
	OSPF Area	Select the OSPF area for which the report is to be generated.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.

Table 15-8 TMN In Band Details report characteristics (continued)

Characteristic	Value
Drill-down support	No

15.10.2 Example

The following figures show a report example.

Note: The OSPF Area and OSPF Address are represented by N/A when the static routing protocol is used.

Figure 15-9 TMN In Band Details report

The screenshot shows the Nokia NSP Analytics interface. The top bar includes the Nokia logo, 'NSP Analytics', and 'User: admin'. Below this is a 'Repository' dropdown and a 'REPOSITORY TOP' link. The main content area is titled 'TMN In Band Details' and shows a report for '2023-02-22 11:26:38 IST'. The report includes a table with the following columns: Loopback IP, Site Name, Slot, Port, VLAN ID, TMN IP, Mask, Protocol, OSPF Area, OSPF Address, and Working Mode. The table contains 15 rows of data, including entries for MSS-61, UBT-t basso radioss 93, NE 133, NE 21 MSS E, MSS NE3 UBT Bench, and various NPR_Router and Node_A entries.

Loopback IP	Site Name	Slot	Port	VLAN ID	TMN IP	Mask	Protocol	OSPF Area	OSPF Address	Working Mode
10.48.245.61	MSS-61	4	8	884	8.8.4.2	255.255.255.248	OSPF	0	0.0.0.0	Enabled
10.48.245.61	MSS-61	3	8	883	8.8.3.2	255.255.255.248	OSPF	0	0.0.0.0	Enabled
151.98.146.93	UBT-t basso radioss 93	1	0	450	192.168.222.194	255.255.255.248	OSPF	1	5.0.0.8	Disabled
172.26.64.133	NE 133	1	1	4079	192.168.101.133	255.255.255.0	OSPF	1	0.0.0.2	Enabled
172.26.65.21	NE 21 MSS E	1	1	4080	172.26.65.21	255.255.255.240	OSPF	2	0.0.0.2	Enabled
172.26.65.3	MSS NE3 UBT Bench	1	0	4080	172.26.65.3	255.255.240.0	OSPF	1	null	Enabled
172.26.66.1	NPR_Router	1	2	450	172.26.66.245	255.255.255.252	OSPF	2	0.0.0.15	Disabled
172.26.66.1	NPR_Router	1	1	4002	172.26.66.249	255.255.255.248	OSPF	2	0.0.0.15	Enabled
172.26.66.1	NPR_Router	1	2	4002	172.26.66.249	255.255.255.248	OSPF	2	0.0.0.15	Enabled
172.26.66.25	Node_A	1	2	4002	172.26.66.250	255.255.255.248	OSPF	1	0.0.0.15	Enabled
172.26.66.25	Node_A	1	1	4002	172.26.66.250	255.255.255.248	OSPF	1	0.0.0.15	Enabled

15.11 TMN Out of Band Details report

15.11.1 TMN Out of Band Details report overview

The TMN Out of Band Details report shows the detailed information of the network IP, routing protocol, and OSPF address for the selected NE (by having an access server that is connected to a management port of each controlled device), and OSPF area.

Use cases

Use the report to examine the TMN out of band details for port/interface based on the selected NEs and the OSPF area.

Report characteristics

The following table lists the principal report characteristics.

Table 15-9 TMN Out of Band Details report characteristics

Characteristic	Value	
Source database	NSP database	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT SA, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Name or name pattern for NEs	Enter the name pattern of the NE.
	NEs	Up to 1000 entries from the available list of NEs are displayed. Select individual NEs or click Select All .
	OSPF Area	Select the OSPF area for which the report is to be generated.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.11.2 Example

The following figures show a report example.

 **Note:** The OSPF Area and OSPF Address are represented by N/A when the static routing protocol is used.

NOKIA NSP Analytics User: admin

Repository **REPOSITORY TOP**

TMN Out of Band Details Data refreshed 2023-02-22 at 11:23:33

Options

* NE types
Others

Name or name pattern for NEs

NEs
Available: 90 Selected: 1

Search list...

- 10.159.168.101 {10.159.168...}
- 10.159.168.102 {10.159.168...}
- 10.159.168.118 {10.159.168...}
- 10.159.60.80 {10.159.60.80 ...}
- 10.159.60.81 {10.159.60.81 ...}
- 10.159.60.94 {10.159.60.94 ...}
- 135.238.236.225 {135.238.2...}
- 151.98.146.118 {151.98.146...}
- 151.98.146.119 {151.98.146...}
- 1588 node A {151.98.146.14...}

☒ All ☒ None ☒ Invert

Apply Reset Save

Back

TMN Out of Band Details

Report Date: 2023-02-22 11:23:33 IST OSPF Area: 0.0.1.2/N/A

**TMN Ports are represented by the value "9"*

Loopback IP	Site Name	Slot	Port	TMN IP	Mask	Protocol	OSPF Area	OSPF Address	Working Mode
10.48.245.44	MSS-44	1	4	10.48.245.44	255.255.255.0	Static Routing	N/A	N/A	Enabled
10.48.245.44	MSS-44	1	9	10.0.1.2	255.255.255.0	Static Routing	N/A	N/A	Enabled

Wavence utilization reports

15.12 Wavence utilization reports overview

15.12.1 General information

Utilization reports provide utilization or uptime information at the NE, port, SAP, service, or customer level.



Note: Changing the graph type of a report, for example, switching from a line chart to a bar chart, can take 30 s or more to complete.



Note: Running customer level reports with output on one page may impact the time required to generate the report. In extreme cases, report generation may fail.

15.13 Advanced Stats Analysis report

15.13.1 Advanced Stats Analysis report overview

The Advanced Stats Analysis report shows the peak and average statistics of the UBT radio NEs along with the peak utilization, peak throughput, average utilization, and average throughput values.

Use cases

Capacity planning—Use the report to highlight ports crossing the threshold for a given time range with specified number of occurrences.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 15-10 Advanced Stats Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG	Peak Throughput Average Throughput Peak Link Utilization Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (24Hr) Peak And Average Throughput and Link Utilization History Data Stats (15 min)	opticsIMPeakAndAverageHistory-DataEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8 Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-11 Advanced Stats Analysis report characteristics

Characteristic	Value
Data type	Statistics
NSP flow collector required	No
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8

Table 15-11 Advanced Stats Analysis report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Granularity	Aggregation types: • 15 Minutes • 24 Hours
	Statistics	Statistics types: • Peak Throughput • Average Throughput • Peak Link Utilization • Average Link Utilization
	Threshold (Mbps or %)	Specify the threshold value.
	Minimum Number of Occurrences	Specify the number of occurrences.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.13.2 Example

The following figure shows a report example.

Figure 15-11 Advanced Stats Analysis Report

Advanced Stats Analysis				
Start Date:	2019-07-22 23:59:59 IST	End Date:	2019-07-23 11:06:06 IST	
Report Date:	2019-07-23 11:06:06 IST	Granularity:	15 Minutes	
Site Name	Site Id	Port	Time	Peak Throughput (Mbps)
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:45:02	173.24
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 09:45:05	169.14
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:15:03	168.91
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:15:02	168.90
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 06:15:04	168.89
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:30:04	168.88
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:00:05	168.88
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 05:00:05	168.88
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 11:00:04	168.87
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 10:30:02	168.87
MSS 8 NE2 UBT Bench	192.0.2.2	Port 3/3	2019-07-23 06:00:06	168.87
MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	2019-07-23 05:30:04	168.87

15.14 Bandwidth Usage report

15.14.1 Bandwidth Throughput Summary report overview

The Bandwidth Throughput Summary report shows bandwidth utilization by specified radio or Ethernet ports configured as a part of the link across the Wavence NEs. The default display is a set of time series graphs for Rx and Tx Throughput and Rx and Tx summary. You can select a link to use as a baseline on the graph, either the same link or a different link from the data set.

The Bandwidth Throughput Summary report at the link level shows the Rx and Tx throughput on a per link basis for the available Ethernet or Radio ports. The corresponding graphs are plotted for Rx and Tx Throughput within the selected single link.

Note: The report tooltip cannot display large numbers of links. If the data displayed in the tooltip extends past the viewable area, refer to the report instead of the tooltip.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns based on the radio or Ethernet traffic in a network and to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

Table 15-12 Bandwidth Throughput Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Ingress Stats Bandwidth Aggregator Wavence Egress Stats Bandwidth Aggregator	Port LAG	Ethernet	Ethernet Aggregate Rx Stats (15Min) Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintRxEntry ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-13 Bandwidth Throughput Summary report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA

Table 15-13 Bandwidth Throughput Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Name or name pattern for links	Enter the name pattern of the link
	Links	Select individual items or click Select All .
	Enable Baseline	Select the check box to enable baseline support.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report range	Length of time to be reported, in hours or days
	Baseline Definition	Sub-aggregation types: • None (raw data): Raw + Hour of Day, Raw + Hour of Day + Day of Week • Hourly: Hour of Day, Hour of Day + Day of Week + Hour of Day + Day of Month • Daily: Day of Week, Day of Week + Month of year, Day of Month, Day of Month + Month of year • Monthly: Month of year
	Baseline Links	Select individual items or click Select All .
	Tx Threshold	Specify value (Mbps)
	Rx Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value

Table 15-13 Bandwidth Throughput Summary report characteristics (continued)

Characteristic	Value
Drill-down support	No

15.14.2 Example

The following figures show a report example.

Figure 15-12 Bandwidth Throughput Summary Report—Tx Throughput

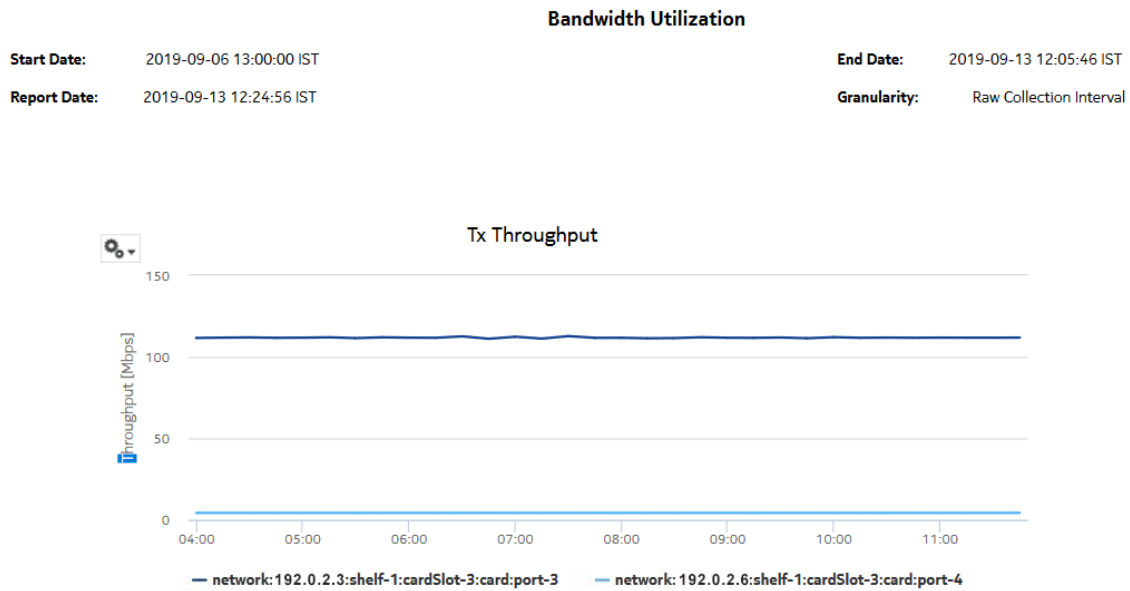


Figure 15-13 Bandwidth Throughput Summary Report—Rx Throughput

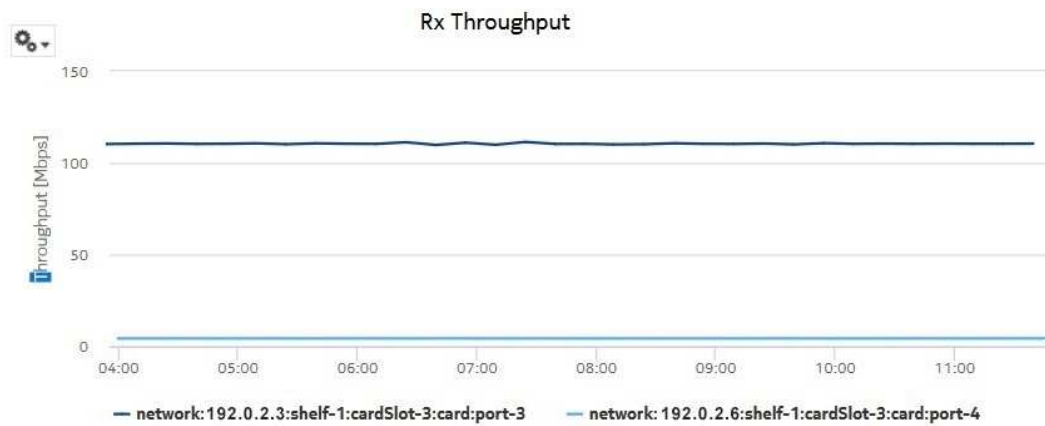


Figure 15-14 Bandwidth Throughput Summary Report—Tx Summary

Tx Summary						
Link Name	Site Name	Site Id	Port Name	Average Throughput (Mbps)	Minimum Throughput (Mbps)	Maximum Throughput (Mbps)
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 3/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 4/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97

Figure 15-15 Bandwidth Throughput Summary Report—Rx Summary

Rx Summary						
Link Name	Site Name	Site Id	Port Name	Average Throughput (Mbps)	Minimum Throughput (Mbps)	Maximum Throughput (Mbps)
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 3/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/3	101.76	1.83	112.97
MSS 8 NE3 UBT Bench (Port 3/3)-MSS 8 NE2 UBT Bench(Port 4/3)						
	MSS 8 NE3 UBT Bench	192.0.2.3	Port 3/4	101.76	1.83	112.97

Figure 15-16 Bandwidth Throughput Summary Report with Baseline—Tx Throughput

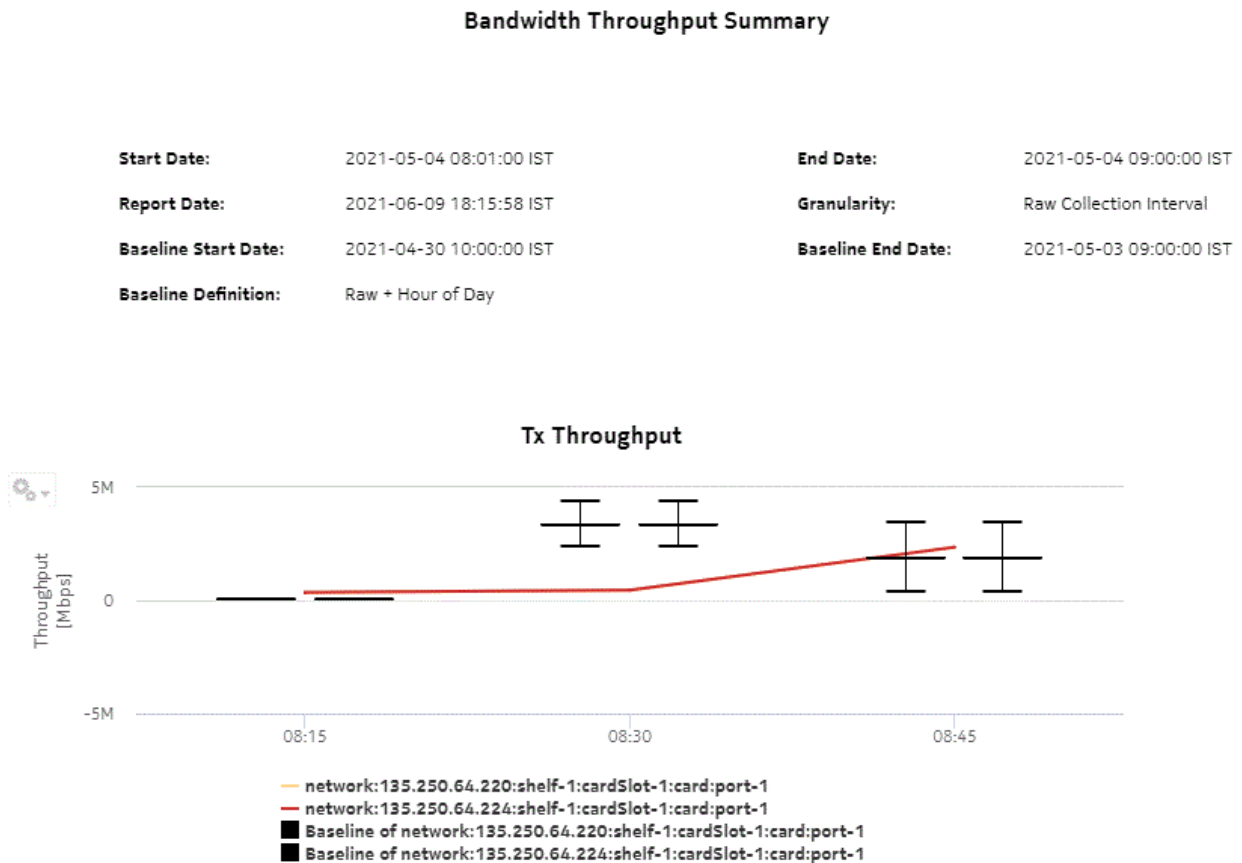
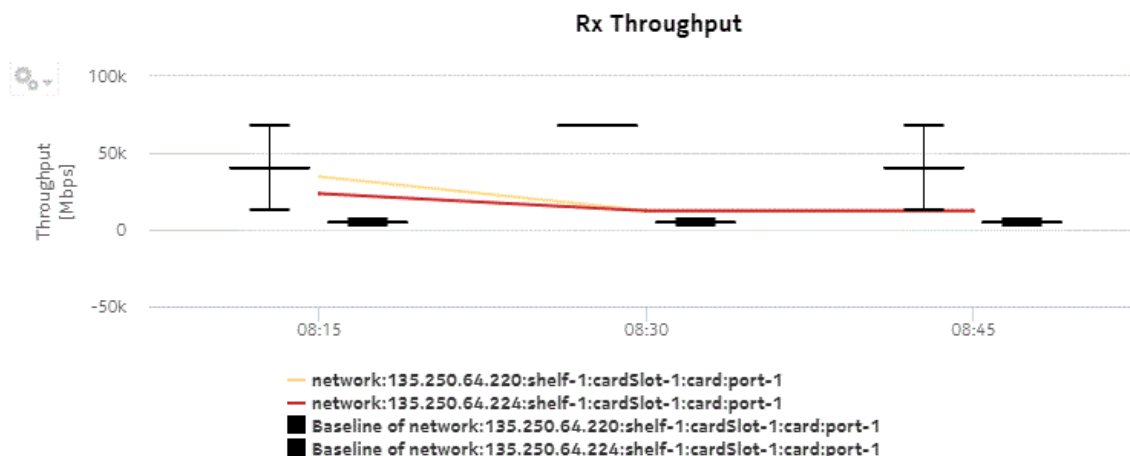


Figure 15-17 Bandwidth Throughput Summary Report with Baseline—Rx Throughput



15.15 Bandwidth Throughput with Forecast report

15.15.1 Bandwidth Throughput with Forecast report overview

The Bandwidth Throughput with Forecast report shows bandwidth utilization by specified radio or Ethernet ports configured as a part of the link across the Wavence NEs with forecasting data. The default display is a set of time series graphs for Rx and Tx Throughput.



Note: The report generation takes approximately 49 to 50 s to complete.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns based on the radio or Ethernet traffic in a network and to plan for capacity requirements.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “How do I configure the Analytics session time zone?” (p. 31) for more information about configuring the session time zone.

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To

view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 15-14 Bandwidth Throughput with Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Ingress Stats Bandwidth Aggregator Wavence Egress Stats Bandwidth Aggregator	Port LAG	Ethernet	Ethernet Aggregate Rx Stats (15Min) Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintRxEntry ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-15 Bandwidth Throughput with Forecast report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA

Table 15-15 Bandwidth Throughput with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Name or name pattern for links	Enter the name pattern of the link
	Links	Select individual link
	Tx Threshold	Specify value (Mbps)
	Rx Threshold	
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value
Drill-down support	No	

15.15.2 Example

The following figures show a report example.

Figure 15-18 Bandwidth Throughput with Forecast report—Tx Throughput

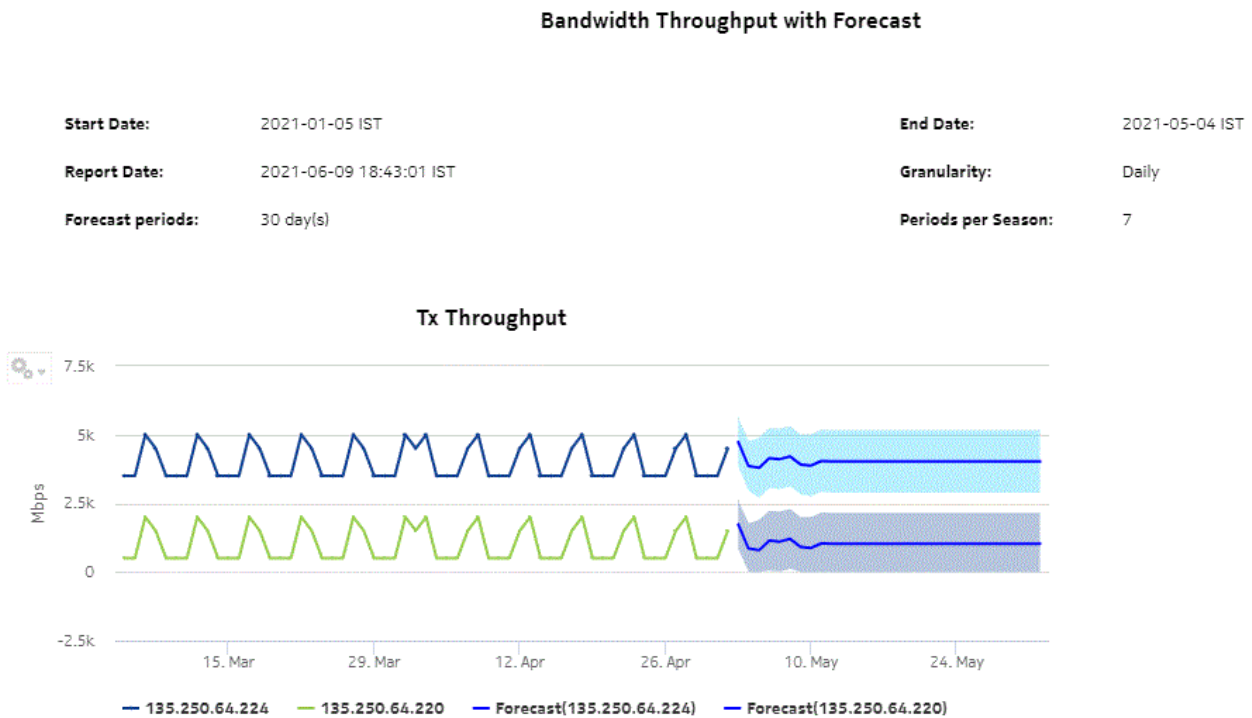
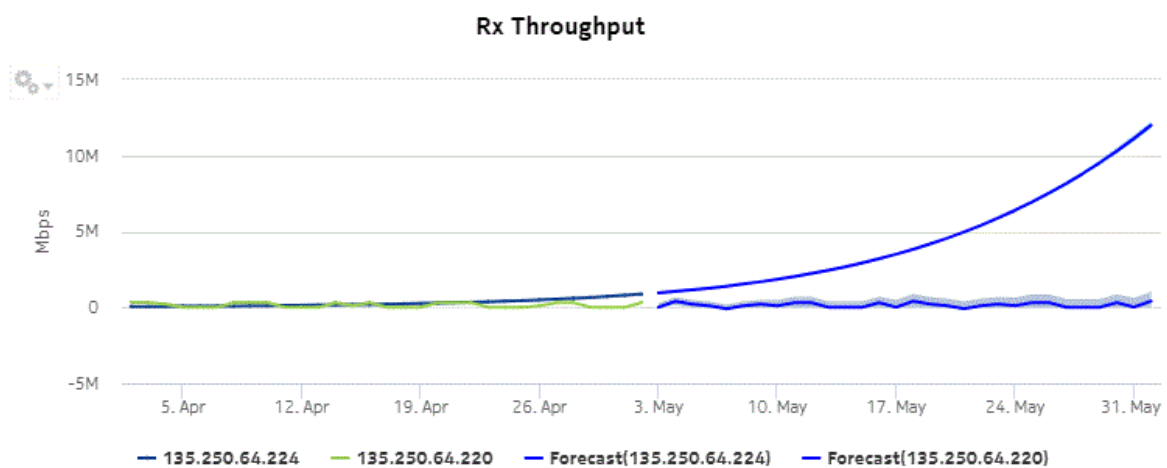


Figure 15-19 Bandwidth Throughput with Forecast report—Rx Throughput



15.16 Link Budget Calculation report

15.16.1 Link Budget Calculation report overview

The Link Budget Calculation report provides the details on radio link deviations, based on the Install/Design and Actual RSL values per MPT/UBT basis, for selected time range and granularity. The report lists the number of deviations and details on the links for Actual vs Design and Actual vs Install dB values.

The default display is a set of tables for 1+0 and 1+1, 2+0 and 2+2, and N+0 and N+N radio links providing details including Site A, Site B, Radio Link Name, Link Distance (km/mile), Site ID, Port, Design RSL (dBm), Installed RSL (dBm), Actual RSL (dBm), and Number of deviations for the selected inputs.

Click on the number of deviations on the selected radio link to drill down to the Link Budget Calculation details report. The default display is a time-series chart with Actual vs Design and Actual vs Install dB values. The values are plotted on the time slots in the time range and presented in a table with details like Date, Time, Actual vs Design RSL deviation, and Actual vs Installed RSL deviation.

Note: The coordinates are displayed as parameters on the General tab of the Node Properties form.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).

Prerequisites

The following tasks need to be performed using NSP Classic management for a Link Budget Calculation Report to be created:

- NEs with radio links need to be discovered. The path distance (user configurable between kilometer or miles) is calculated based on the latitude and longitude coordinates discovered from the NE. The NSP discovers the Wavence radio links automatically and builds this report based on the adjacency information.
Radio RSL is supported only for MPT/UBT radio ports and not supported for radio modem ports.
- To update the Installed RSL value on the associated radio ports, the Radio RSL retrieval operation must be completed for the NEs with radio links.
See the *Wavence statistics support* chapter of the *Wavence Device Support Guide* for information about configuring link budget calculation statistics.
- The Install RSL value must be updated per MPT/UBT after the Radio RSL retrieval operation is successfully completed on the NE.

- The Design RSL value must be manually entered on the radio ports that are part of the radio links from the radio tab.
- The Radio RSL Hop History Data 15 Min PM must be enabled for the radio ports that are part of radio links, to be included in the analytics reporting.
- The Radio RSL Hop History 24 Hr PM must be enabled for the radio ports for generating report on 24 h granularity.

i **Note:** For reports with more than 1000 pages, use the multipage display option to shorten loading times. Large reports can take from thirty seconds to several minutes to load, depending on the number of entries.

Use case

Use the Link Budget Calculation report to identify the deviations with respect to Design vs Install vs Actual RSL on a per MPT/UBT level on the radio link.

Report characteristics

The following table lists the principal report characteristics.

Table 15-16 Link Budget Calculation report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8

Table 15-16 Link Budget Calculation report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Actual vs Design threshold (dB)	Accepts values greater than 0.1
	Actual vs Install threshold (dB)	
	Number of Deviations	Accepts integer values
	Granularity	15 Minutes and 24 Hours
	Distance Unit	Select the unit for the path distance to display on the report. Unit types: • Kilometer • Mile
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered
	Reset	Resets all the parameters to default value
Drill-down support	Yes—This report can only be launched from the main report. Click on the Link Name to launch the Radio Link Inventory report.	

15.16.2 Examples

The following figures show report examples.

Figure 15-20 Link Budget Calculation report

NOKIA Link Budget Calculation Start Date: 2022-09-08 08:00:00 IST End Date: 2022-09-08 09:00:00 IST Report Date: 2023-01-20 19:01:51 IST Actual vs Design Threshold: 5.0 dB Granularity: 15 Minutes Actual vs Install Threshold: 0.2 dB									
1+0 and 1+1									
Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
UBT-m SA 20(Port 1/1)-UBT-m SA 19(Port 1/1)	0								
		151.98.176.20	UBT-m SA 20	Port 1/1	to_19	23.0	12.0	-34.8	4
		151.98.176.19	UBT-m SA 19	Port 1/1	to_20	43.0	30.0	-40.6	3
N+0 and N+N									
Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
MSS8 NE4 UBT Bench(LAG 1)-MSS8 NE3 UBT Bench(LAG 1)	0								
		172.26.65.4	MSS8 NE4 UBT Bench	Port 5/5	HQAM to NE3	-22.4	-41.6	-23.6	4
		172.26.65.3	MSS8 NE3 UBT Bench	Port 5/5	HQAM to NE4	0.0	0.0	-24.2	0
2+0 and 2+2									
Link Name	Link Distance (km)	NE ID	NE Name	Port	User Label	Design RSL (dBm)	Installed RSL (dBm)	Actual RSL (dBm)	Number of Deviations
MSS 172(Port 3/5)-MSS 171 (Port 3/5)	30.64								
		135.238.236.171	MSS_171	Port 3/5 Ch-B	UBT-T_18GHz	0.0	0.0	-41.0	0
		135.238.236.171	MSS_171	Port 3/5 Ch-A	UBT-T_18GHz	0.0	0.0	-40.3	0
		135.238.236.172	MSS_172	Port 3/5 Ch-B	UBT-T_18GHz	0.0	-41.9	-39.9	4
		135.238.236.172	MSS_172	Port 3/5 Ch-A	UBT-T_18GHz	0.0	-43.4	-40.7	4

Figure 15-21 Link Budget Calculation report, continued.

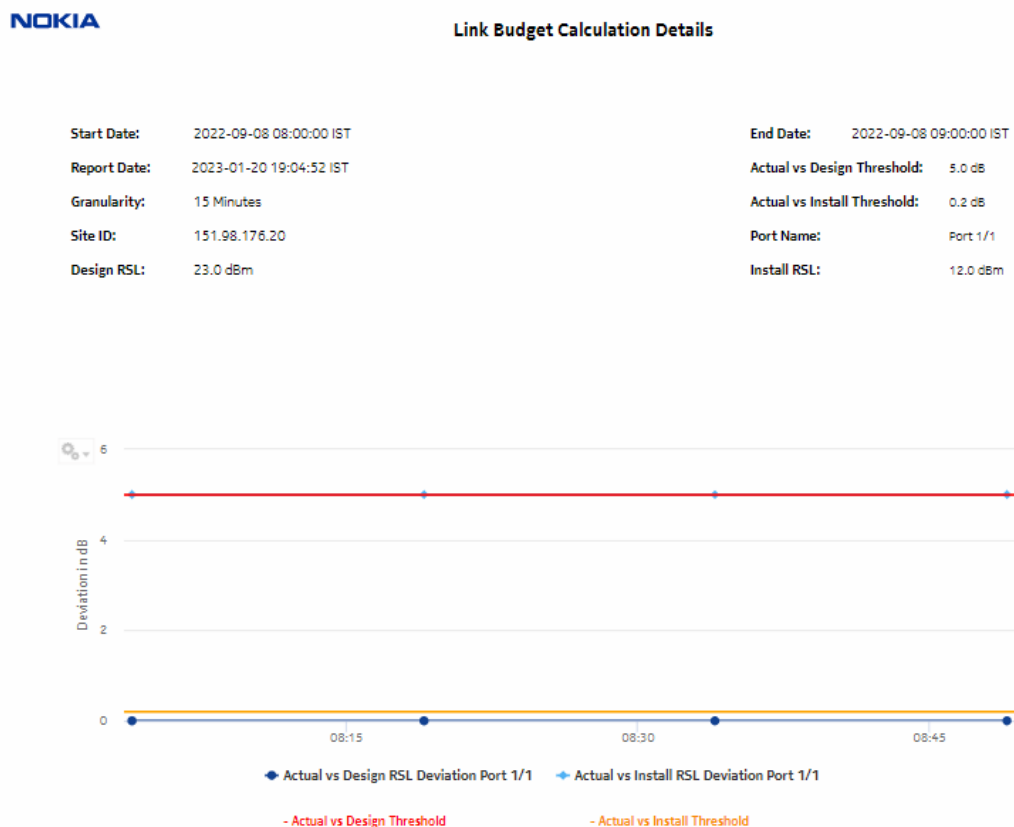


Figure 15-22 Link Budget Calculation Details report

DateTime	Actual vs Design RSL Deviation (dB)	Actual vs Install RSL Deviation (dB)	Actual RSL(dBm)
2022-09-08 08:49:00	0.00	5.00	-34.80
2022-09-08 08:34:00	0.00	5.00	-34.80
2022-09-08 08:19:00	0.00	5.00	-34.80
2022-09-08 08:04:00	0.00	5.00	-34.80

15.17 Link Unavailability Summary report

15.17.1 Link Unavailability Summary report overview

The Link Unavailability Summary report shows high-level information about the unavailable seconds of the associated port or LAG on a radio and MWA link. The operator can select multiple radio links and MWA links for the selected interval. The Link Unavailability Summary report can be generated based on radio and MWA links between the NEs of the respective ports or LAGs.

Use cases

Capacity planning—Use the report to examine the unavailable seconds based on the radio link between the NEs of the respective ports or LAGs.

Limitations

Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).

Prerequisites

To create the Link Unavailability Summary report, enable the Hop History Data Statistics by selecting the Product Name as 'Wavence SM' using NSP Classic management.

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-17 Link Unavailability Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG UBT	G.826	Hop History Data stats (15Min)	opticsIMPdhFrame-HopHistoryDataEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC

Report characteristics

The following table lists the principal report characteristics.

Table 15-18 Link Unavailability Summary report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-O, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC

Table 15-18 Link Unavailability Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Links	Select individual links or click Select All .
	Unavailability Seconds Threshold	Specify the value in seconds
	Show threshold violations only	Select to see threshold violations only.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Open the Link Unavailability Details for the selected NE.	

15.17.2 Example

The following figures show a report example.

Figure 15-23 Link Unavailability Summary report

NOKIA

Link Unavailability Summary

Start Date: 2022-08-22 04:00:00 IST **End Date:** 2022-12-02 13:38:48 IST

Report Date: 2022-12-06 15:48:55 IST

1+0/1+1/2+0/2+2

Link Name	Link Distance(km)	Site ID	Port	Unavailable Seconds
UBTmSA_149(Port 1/1)-UBTmSA_143(Port 1/1)	0.0			
		135.238.236.148	Port 1/1	98479
		135.238.236.149	Port 1/1	0
Total Unavailable Seconds				98479

Figure 15-24 Link Unavailability Summary Report, continued

N+0/N+N

Link Name	Link Distance(km)	Site ID	Port	Unavailable Seconds
NE_158(LAG 2)-MSS-156(LAG 1)	0.0			
		135.250.64.156	Port 3/1	234
		135.250.64.158	Port 3/1	899
Total Unavailable Seconds				1133

15.18 Link Unavailability Details report

15.18.1 Link Unavailability Details report overview

The Link Unavailability Details report shows the month wise details of unavailable seconds for the associated ports or LAGs on a radio link and MWA link. The Link Unavailability Details report can be generated based on the link selected in the summary report.

Use cases

Capacity planning—Use the report to examine the unavailable seconds based on the radio link between the NEs of the respective ports or LAGs.

Prerequisites

To create a Link Unavailability Details report, you must enable the Hop History Data Statistics by selecting the Product Name as 'Wavence SM' using NSP Classic management.

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-19 Link Unavailability Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG UBT	G.826	Hop History Data stats (15Min)	opticsIMPdhFrame-HopHistoryDataEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC

Report characteristics

The following table lists the principal report characteristics.

Table 15-20 Link Unavailability Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	Prompt	Notes
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Links	Select individual links or click Select All .
	Unavailability Seconds Threshold	Specify the value in seconds
	Show threshold violations only	Select to see threshold violations only.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.18.2 Example

The following figures show a report example.

Figure 15-25 Link Unavailability Details report

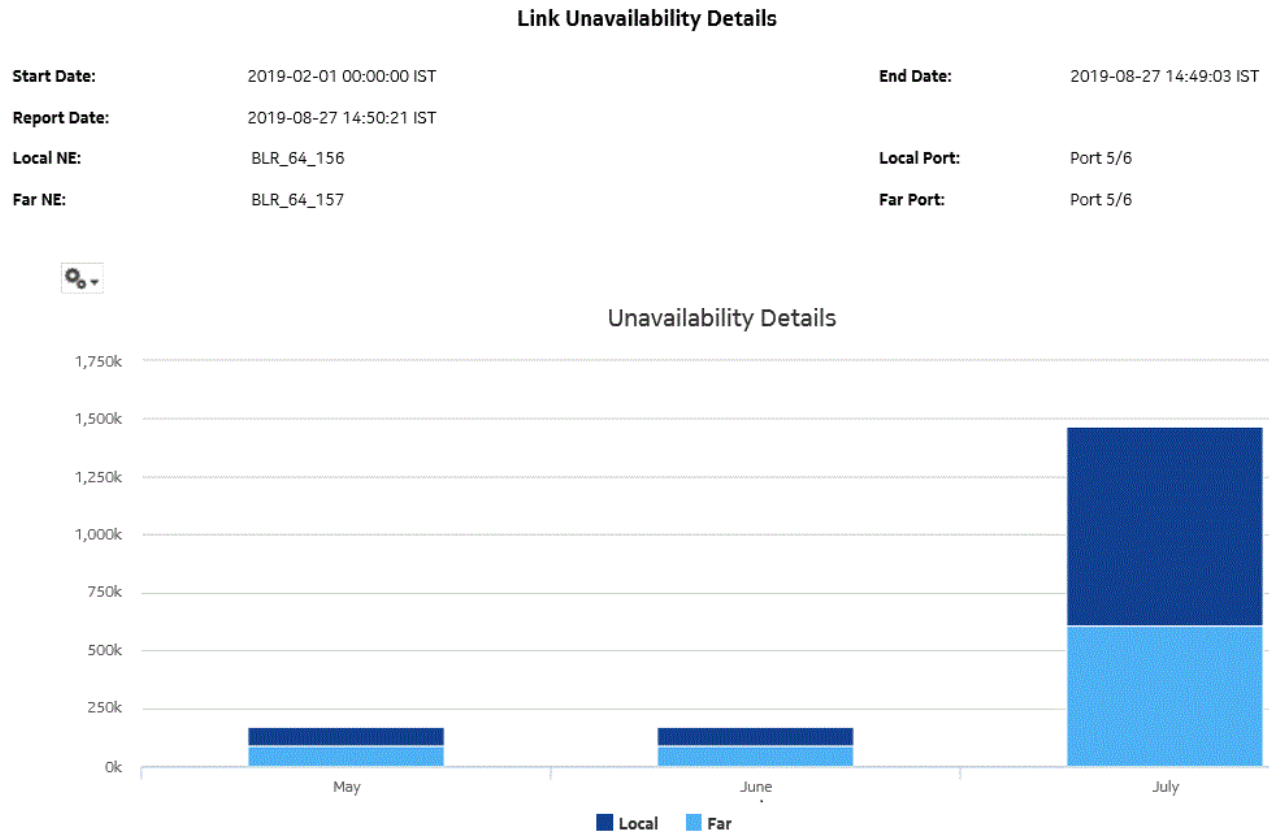


Figure 15-26 Link Unavailability Details report, continued

Month	Local UAS	Far UAS
May	86399	86399
June	85966	86400
July	863991	604793
Total	1036356	777592

15.19 Quarterly Traffic Analysis report

15.19.1 Quarterly Traffic Analysis report overview

The Quarterly Traffic Analysis report shows the daily Peak Utilization and daily Peak Throughput for each radio port averaged over one quarter. The report can be generated on a per-quarter basis, Q1, Q2, Q3, or Q4 of the selected year.

Use cases

Capacity planning—Use the report to examine the quarterly traffic based on the daily Peak Utilization and daily Peak Throughput per radio port on the given network and to plan for capacity requirements.

Limitations

When the report is exported to the DOCX file type, some data may not display or the table may not align properly.

Prerequisites

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Table 15-21 Quarterly Traffic Analysis report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Not applicable	Port LAG	Peak Throughput Average Throughput Peak Link Utilization Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (24Hr)	opticsIMPeakAndAverageHistory-DataEntry	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8 Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-22 Quarterly Traffic Analysis report characteristics

Characteristic	Value	
Statistics type	Radio Equipment	
NSP flow collector required	No	
NE types supported	Wavence MSS-4, Wavence MSS-8, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Duration	Report is generated based on the selected quarter of the year.
	Year	Select the year from the drop-down menu.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

15.19.2 Example

The following figure shows a report example.

Figure 15-27 Quarterly Traffic Analysis report

Quarterly Traffic Analysis					
Start Month:		2019-07 IST		End Month:	
Report Date:		2019-07-23 11:23:23 IST		Quarter:	
				3	
Site Id	Site Name	Port	Port Usage	Average Peak Throughput (Mbps)	Average Peak Utilization (%)
192.0.2.1	MSS 8 NE1 UBT Bench	Port 5/5	UBT-S	192.08	79.15
192.0.2.5	MSS 8 NE5 UBT Bench	Port 3/5	UBT-T	320.12	31.45
192.0.2.2	MSS 8 NE2 UBT Bench	Port 3/3	UBT-T	276.42	27.25
192.0.2.3	MSS 8 NE3 UBT Bench	Port 3/3	UBT-T	260.40	25.36
192.0.2.4	MSS 8 NE 4 UBT Bench	Port 1/7	UBT-T	225.81	22.18

15.20 Radio Equipment Health Monitoring Summary report

15.20.1 Radio Equipment Health Monitoring Summary report overview

The Radio Equipment Health Monitoring Summary report shows the detailed information of the power voltage, current, and temperature values of the ports associated on the radio link. The operator can select multiple radio links for the selected temperature unit. The default unit for temperature is Celsius. The Radio Equipment Health Monitoring Summary report can be generated based on the radio links between the NEs of the respective ports or LAGs.

Use cases

Capacity planning—Use the report to examine the power voltage, current and temperature values based on the radio link between the NEs of the respective ports or LAGs.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

Perform the following tasks using NSP Classic management to create a Radio Equipment Health Monitoring Details report:

- enable the UBT/MPT Equipment Measurement (MPR) statistics by selecting the Product Name as 'Wavence SM'
- enable the Wavence MPT STATS Aggregator to view the report for granularities other than raw data

Report characteristics

The following table lists the principal report characteristics.

 **Note:** The value of -99 means the data value is not available.

Table 15-23 Radio Equipment Health Monitoring Summary report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.

Table 15-23 Radio Equipment Health Monitoring Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Links	Select individual links or click Select All .
	Temperature Unit	Celsius or Fahrenheit
	Temperature Threshold	Specify the value using expression like >,<,<=,>=.
	Power Threshold	
	Current Threshold	
	Voltage Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Open the Radio Equipment Health Monitoring Details Report for the select NE.	

15.20.2 Example

The following figures show a report example.

Figure 15-28 Radio Equipment Health Monitoring Summary report

Radio Equipment Health Monitoring Summary

Start Date: 2019-01-01 00:00:00 IST

End Date: 2019-08-27 14:40:56 IST

Report Date: 2019-08-27 14:41:05 IST

Granularity: Raw Collection Interval

Temperature Threshold: C

Power Threshold:

Current Threshold:

Voltage Threshold:

1+0/1+1

NE Name	NE ID	Port	Power Avg(W)	Power Max(W)	Current Min(A)	Current Max(A)	Temperature Min (C)	Temperature Max (C)	Voltage Min (V)	Voltage Max(V)
BLR_64_156	192.0.2.1	Port 5/6	43.25	53.0	0.61	0.69	25.0	45.0	41.0	53.0
BLR_64_157	192.0.2.1	Port 5/6	44.83	48.0	0.62	0.69	41.0	45.0	41.0	48.0
Total Power Consumed			88.08	101.0						

Figure 15-29 Radio Equipment Health Monitoring Summary report, continued

N+0/N+N

NE Name	NE ID	Lag-Port	Power Avg(W)	Power Max(W)	Current Min(A)	Current Max(A)	Temperature Min (C)	Temperature Max(C)	Voltage Min (V)	Voltage Max(V)
BLR_64_156	192.0.2.5	LAG 2tester	44.5	48.0	0.63	0.69	35.0	48.0	20.0	50.0
BLR_64_156	192.0.2.5	LAG 2tester	50.58	54.0	0.61	0.69	41.0	47.0	40.0	48.0
BLR_64_156	192.0.2.5	LAG 2tester	48.75	59.0	0.61	0.69	41.0	47.0	41.0	52.0
Total Power Consumed			143.83	161.0						
BLR_64_157	192.0.2.1	LAG 2tester	44.67	49.0	0.61	0.69	41.0	46.0	41.0	47.0
BLR_64_157	192.0.2.1	LAG 2tester	45.58	58.0	0.61	0.68	41.0	54.0	41.0	45.0
BLR_64_157	192.0.2.1	LAG 2tester	54.83	60.0	0.61	0.69	12.0	45.0	25.0	56.0
Total Power Consumed			145.08	167.0						

15.21 Radio Equipment Health Monitoring Details report

15.21.1 Radio Equipment Health Monitoring Details report overview

The Radio Equipment Health Monitoring Details report shows the detailed port information of the power voltage, current and temperature values of the selected port. The default unit for temperature is Celsius. The report can be generated based on the port selected in the details report.

Use cases

Capacity planning—Use the report to examine the power voltage, current and temperature values on NEs of the respective ports.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

The following tasks must be performed using NSP Classic management to create a Radio Equipment Health Monitoring Details report:

- enable the UBT/MPT Equipment Measurement (MPR) by selecting the Product Name as 'Wavence SM'
- enable the Wavence MPT STATS Aggregator to view the report for granularities other than raw data

Report characteristics

The following table lists the principal report characteristics.

 **Note:** The value of -99 means the data value is not available.

Table 15-24 Radio Equipment Health Monitoring Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.	
Report inputs	Prompt	Notes

Table 15-24 Radio Equipment Health Monitoring Details report characteristics (continued)

Characteristic	Value	
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Port	Select a port from the drop-down list
	Temperature Unit	Celsius or Fahrenheit
	Temperature Threshold	Specify the value using expression like >,<,<=,>=.
	Power Threshold	
	Current Threshold	
	Voltage Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	No	

15.21.2 Example

The following figure shows a report example.

Figure 15-30 Radio Equipment Health Monitoring Details report

Radio Equipment Health Monitoring Details

Start Date:	2022-09-23 19:00:00 IST	End Date:	2022-09-23 20:00:00 IST
Report Date:	2022-10-21 10:53:43 IST	Granularity:	Raw Collection Interval
Temperature Threshold:	C	Power Threshold:	
Current Threshold:		Voltage Threshold:	
NE Name:	135.250.64.198	NE ID:	135.250.64.198
Port:	Port 3/5	User Label:	Towards_SR12

*The value of -99 means the data value is not available

Date	Power(W)	Current(A)	Temperature(C)	Voltage(V)
2019-07-19 08:55:00	45.0	0.68	44.0	45.0
2019-07-19 08:50:00	46.0	0.69	44.0	42.0
2019-07-19 08:45:00	48.0	0.61	45.0	42.0
2019-07-19 08:40:00	43.0	0.62	42.0	41.0
2019-07-19 08:35:00	41.0	0.63	41.0	43.0
2019-07-19 08:30:00	42.0	0.64	44.0	44.0
2019-07-19 08:25:00	48.0	0.65	45.0	48.0

15.22 Radio Performance per Link report

15.22.1 Radio Performance per Link report overview

The Radio Performance per Link report shows a comprehensive view of Adaptive Modulation, RSL, and performance parameters.

Use cases

Capacity planning—Use the report to examine the radio performance summary for the endpoints of the links.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

The exported filename for this report is Radio_Performance_Link_Details.

Prerequisites

At least one of the statistics listed in the following table must be enabled on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.

Note: When the QAM values are 0, the ACM graph only displays a legend. Colors differentiate between QAMs, and not objects within a QAM.

Table 15-25 Radio Performance per Link report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: - RSL - G.826 - ACM For SAR with PMC: - G.826 - ACM - Radio Analogue	For Wavence, at least one of: - RSL Hop History Data stats (24Hr) - Hop History Data stats (24Hr) - Adaptive Modulation History data stats (24Hr) For SAR with PMC: - Hop History Data stats (24Hr) - Adaptive Modulation History data stats (24Hr) - Radio Analogue stats (24Hr)	For Wavence, at least one of: - opticsIMRSLHopHistoryDataEntry - opticsIMPdhFrameHopHistoryDataEntry - opticsIMAdaptive-ModulationHistoryDataEntry - ethAggrMaintTxEntry For SAR with PMC: - opticsIMPdhFrameHopHistoryDataEntry - opticsIMAdaptive-ModulationHistoryDataEntry - aluMwRadioPMAC-MEntry - aluMwRadioPMG826Entry - aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-26 Radio Performance per Link report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No

Table 15-26 Radio Performance per Link report characteristics (continued)

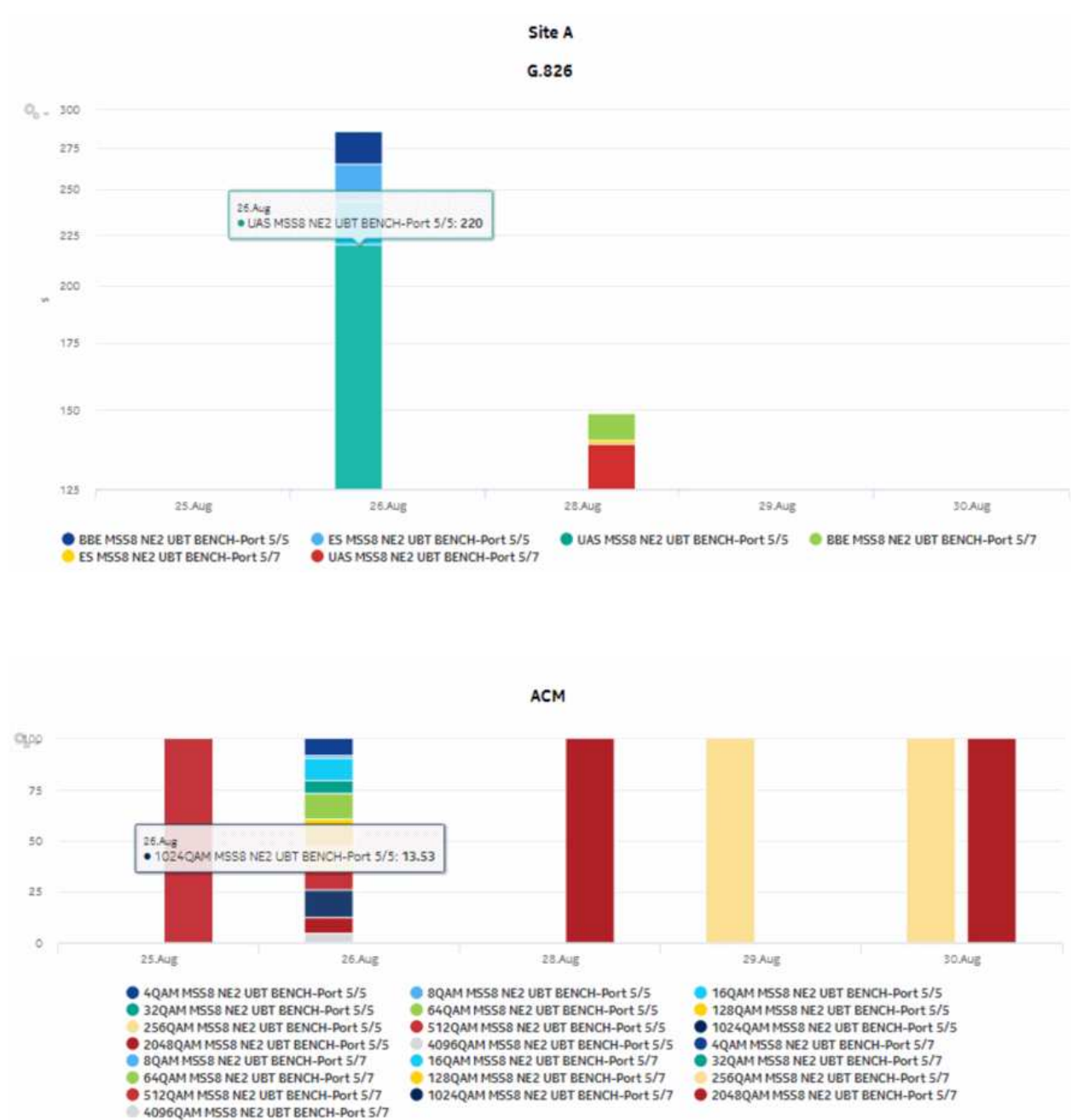
Characteristic	Value	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	Prompt	Notes
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Radio link	Select a radio link from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance per Port Summary > Radio Performance per Port Details .	

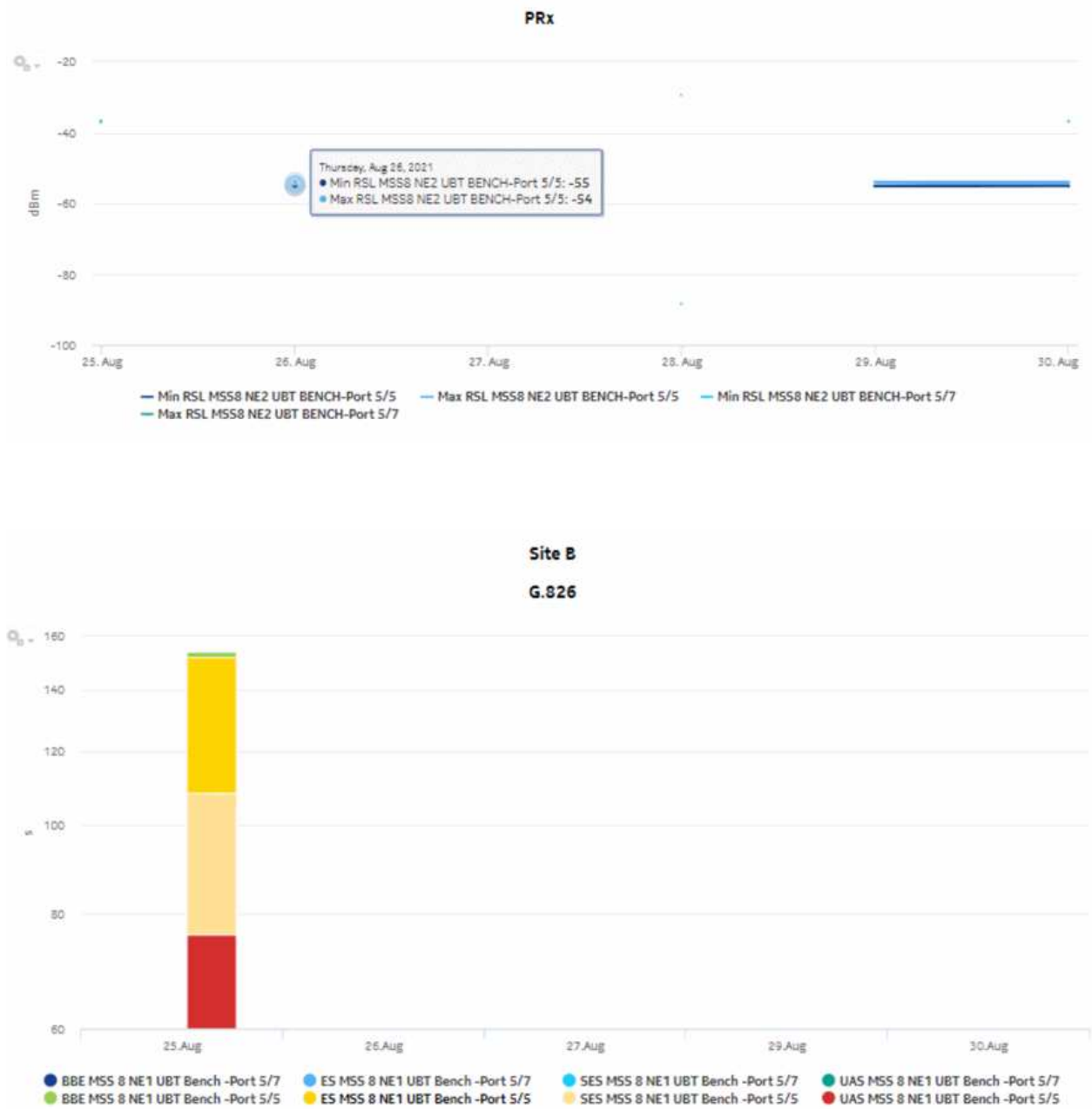
15.22.2 Example

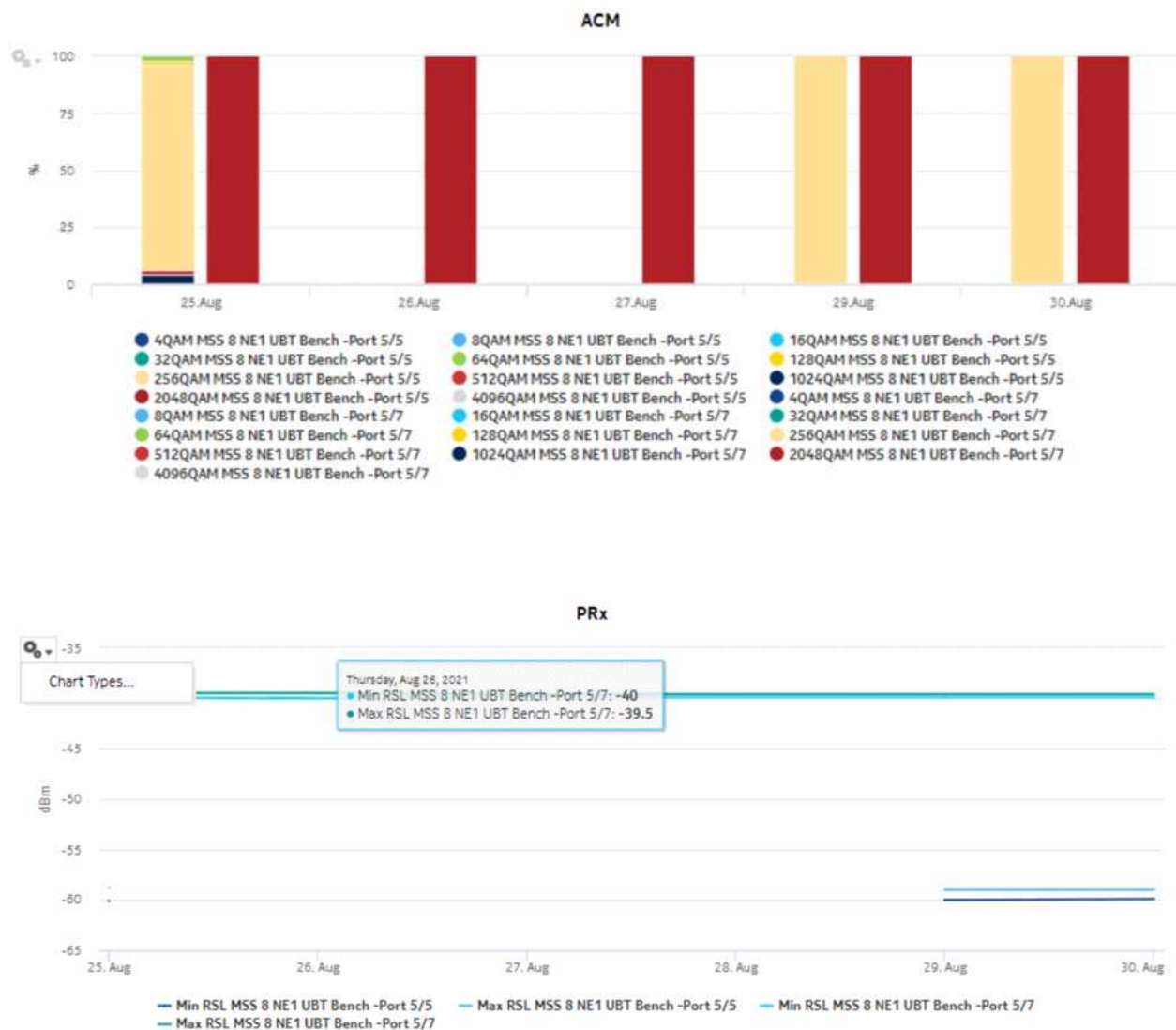
The following figures show a report example.

Figure 15-31 Radio Performance per Link report

Radio Performance per Link			
Start Date:	2021-08-25 00:00:00 IST	End Date:	2021-08-31 00:00:00 IST
Report Date:	2021-09-03 09:35:07 IST	Site A Name:	MSS8 NE2 UBT BENCH
Link:	MSS8 NE2 UBT BENCH (LAG 1) -MSS 8 NE1 UBT Bench (LAG 1)	Site B Name:	MSS 8 NE1 UBT Bench
Site A Port:	LAG 1	Site B Port:	LAG 1







15.23 Radio Links Summary report

15.23.1 Radio Links Summary report overview

The Radio Links Summary report displays a summary of the near end and far end details of radio links in the network, showing utilization, link availability, and peak throughput values of the links.



Note:

- General data is based on the near end details for TX Frequency, Rx Frequency, Channel Bandwidth, Modulation, Wan Capacity, Link Configuration, and XPIC

- Detect time corresponds to the maximum throughput value
- WAN peak utilization is determined using the maximum values of the near end and far end utilization, and the corresponding link throughput and detect time.

Limitations

Report limitations include:

- When the report is exported to the RTF, DOCX, XLXS, or ODT formats, elements of the report table may not be aligned correctly.
- When the report is exported to the DOCX file type, the report is spread across multiple pages even if the “Show report output on one page” option is enabled.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Links between UBT-T/UBT-XP and non-UBT-T/UBT-XP ports may display N/A for some entries on the non-UBT-T/UBT-XP port.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Prerequisites

Wavence nodes and radio links must be discovered using NSP Classic management in order to be displayed in the report.

i **Note:** When statistics collection is not enabled in NSP Classic management, some report parameters are displayed at their default value. The following table describes the parameters, the default values that are displayed, and the related statistic.

Parameter	Default displayed	Statistic
RSL (min/max)	-99	RSL Hop History Data stats (15Min)
ODU temp	-99	UBT/MPT Equipment measurement
Throughput	0	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Utilization	0	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Detect Time	N/A	Peak And Average Throughput and Link Utilization History Data Stats (15Min)/AggrTxEthernetStats
Link Availability	0	PdhFrameHopHistoryDataStats24HrLogRecord

The following table lists the statistics that must be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection. Additionally, previous day data should be collected for the RSL (min/max), Throughput, Utilization, Detect Time, and Link Availability statistics.

Table 15-27 Radio Links Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port /LAG	Ethernet	Ethernet Aggregate Tx Stats	ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.
	RSL	RSL Hop History Data stats (15Min)	opticsIMRSLHopHistoryDataEntry	
	G.826	Hop History Data stats (24Hr)	opticsIMPdhFrameHopHistoryDataEntry	
	Peak Throughput, Average Throughput, Peak Link Utilization, Average Link Utilization	Peak And Average Throughput and Link Utilization History Data Stats (15Min)	opticsIMPeakAndAverageHistoryDataEntry	
	MPR	UBT/MPT Equipment measurement	opticsIMEquipmentExtensionEntry	

Report characteristics

The following table lists the principal report characteristics.

Table 15-28 Radio Links Summary report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP database
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Support is limited to NEs found in the network.

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill Down	Yes. Click on the link in the Radio Link column to display the Radio Link Inventory report. See 15.5 “Radio Link Inventory report” (p. 535)	

The following figures show a report example.

Back								-	+	100%	search report							
Near End Details																		
NE Name	Lag Group ID	NE ID	Slot Number	ODU Temperature(C)	Tx Freq Min (KHz)	Tx Freq Max (KHz)	Tx Power (dBm)	Min RSL (dBm)	Max RSL (dBm)	Peak Throughput (Mbps)	Detect Time							
135.250.64.199	N/A	135.250.64.199	Port 4/2	41.00	18716500	19096500	15.00	-99.00	-99.00	0.00	N/A							
MSS_157	LAG 2	135.238.236.157	Port 4/1	43.00	15144000	15347000	15.00	-99.00	-99.00	0.00	N/A							
MSS_157	LAG 2	135.238.236.157	Port 4/2	43.00	15144000	15347000	15.00	-99.00	-99.00	0.00	N/A							
MSS_157	LAG 2	135.238.236.157	Port 4/3	43.00	15144000	15347000	15.00	-99.00	-99.00	0.00	N/A							
MSS_157	LAG 2	135.238.236.157	Port 4/4	47.00	15144000	15347000	20.00	-99.00	-99.00	0.00	N/A							
MSS_224	LAG 2	135.238.236.224	Port 5/5-Channel 1A	50.00	500000	560000	15.00	-99.00	-99.00	0.00	N/A							

General Data								
Channel Bandwidth (MHz)	Modulation	WAN Capacity (Mbps)	Link Configuration	WAN Peak Utilization (%)	Link Throughput (Mbps)	Detect Time	XPIC	Radio Link
1.00	4-QAM	9.94	1+1	0.00	0.00	N/A	Disabled	135.250.64.199/Port 4/2 - MSS_8_198/Port 4/2
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157/LAG 2 - MSS_142/LAG 1
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157/LAG 2 - MSS_142/LAG 1
11.00	16-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157/LAG 2 - MSS_142/LAG 1
11.00	4-QAM	857.02	4+0	0.00	0.00	N/A	Disabled	MSS_157/LAG 2 - MSS_142/LAG 1
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224/LAG 2 - MSS_223/LAG 3
11.00	4-QAM	1470.00	4+0	0.00	0.00	N/A	Disabled	MSS_224/LAG 2 - MSS_223/LAG 3



Note:

- When the ethernetequipment_AggrMaintTxStatsLogRecord statistic is configured to collect at an interval of five minutes or less, duplicate entries appear in the report.
- When the QAM values are 0, the ACM graph only displays a legend.
- Colors differentiate between QAMs, and not objects within a QAM.
- When the remote site or port is not available, the context area remote site details are displayed as N/A.
- At least one statistic must be enabled from among RSL/Radio Analogue, G .826, or ACM.

Table 15-29 Radio Performance per Port Summary report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: • RSL • G.826 • ACM • Ethernet For SAR with PMC: • G.826 • ACM • Radio Analogue	For Wavence, at least one of: • RSL Hop History Data stats (24Hr) • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) • Ethernet Aggregate Tx stats_day For SAR with PMC: • Hop History Data stats (24Hr) • Adaptive Modulation History data stats (24Hr) • Radio Analogue stats (24Hr)	For Wavence, at least one of: • opticsIMRSLHopHistoryDataEntry • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptive-ModulationHistoryDataEntry • ethAggrMaintTxEntry For SAR with PMC: • opticsIMPdhFrameHopHistoryDataEntry • opticsIMAdaptive-ModulationHistoryDataEntry • aluMwRadioPMAC-MEntry • aluMwRadioPMG826Entry • aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-30 Radio Performance per Port Summary report characteristics

Characteristic	Value
Statistics type	Performance statistics
NSP flow collector required	No

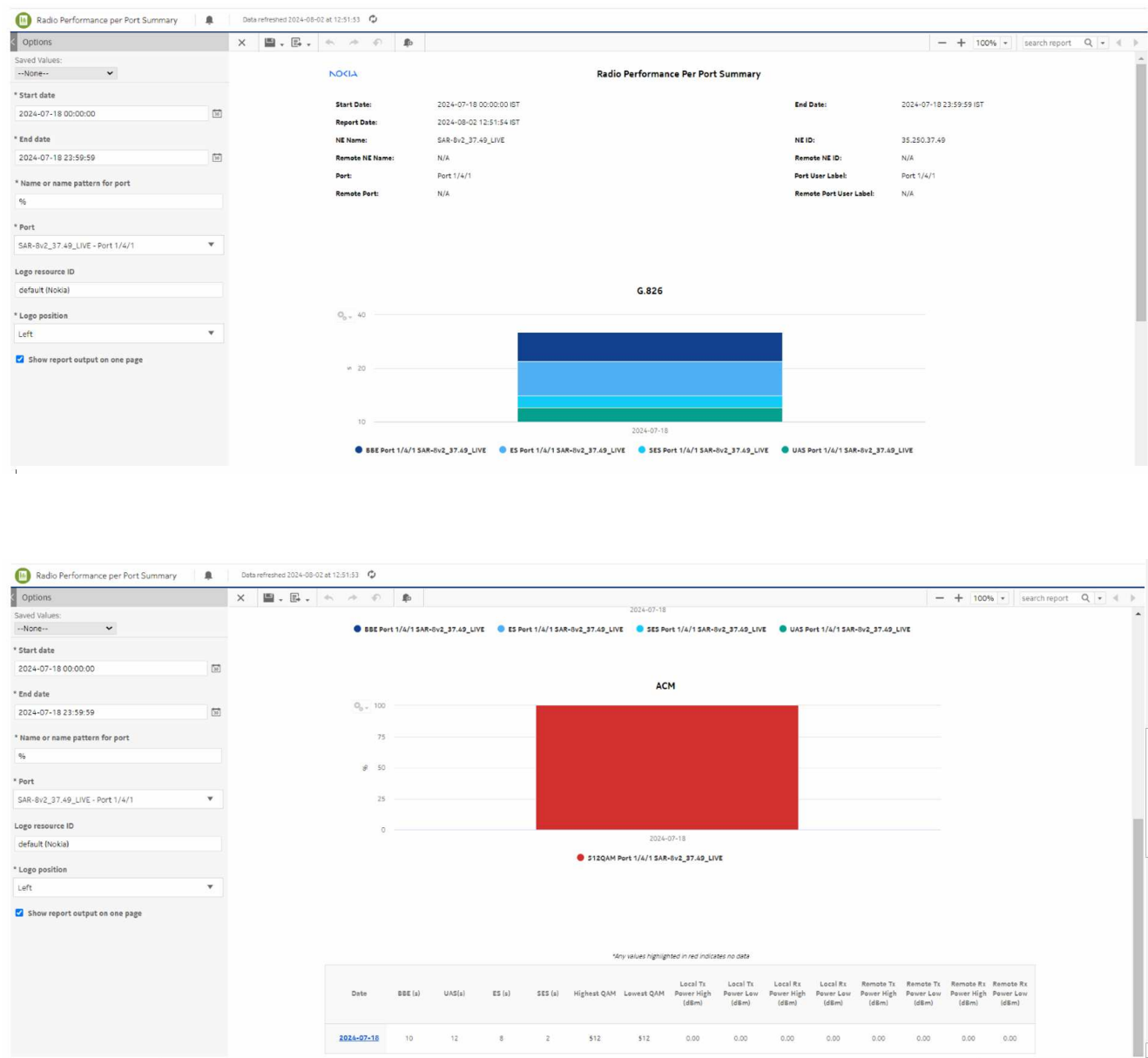
Table 15-30 Radio Performance per Port Summary report characteristics (continued)

Characteristic	Value	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Port	Select a port from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance Per Port Summary > Radio Performance per Port Details . Drilling down from Radio Performance Per Port Summary report to the Radio Performance per Port Details report uses the previous day's date as the start date. The report is generated using the timezone of the NSP server, not the user timezone.	

15.24.2 Example

The following figures show a report example.

Figure 15-33 Radio Performance per Port Summary report



15.25 Radio Performance per Port Details report

15.25.1 Radio Performance per Port Details report overview

The Radio Performance per Port Details report shows a comprehensive view of Adaptive Modulation, RSL, and performance parameters.



Note: For reports generated from a large amount of data, enabling the multi-page option is recommended.

Use cases

Capacity planning—Use the report to examine the day wise radio performance details for a selected port.

Limitations

Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Sorting is not available for the Date column.

Prerequisites

The following table lists the statistics that must be collected on each NE; see the *NSP NFM-P Statistics Management Guide* for information about configuring statistics collection.



Note: At least one of statistic must be enabled from RSL/Radio Analogue, .G.826, or ACM. When the remote site or port is not available, the context area remote site details are displayed as N/A.

Table 15-31 Radio Performance per Port Details report prerequisites

Monitored object class	Statistics class	Statistics collection	MIB	NE types
Port LAG UBT MWA Port for SAR with PMC MWA link for SAR Radio link for Wavence	For Wavence, at least one of: - RSL - G.826 - ACM - Ethernet For SAR with PMC: - G.826 - ACM - Radio Analogue	For Wavence, at least one of: - RSL Hop History Data stats (15Min) - Hop History Data stats (15Min) - Adaptive Modulation History data stats (15Min) - Ethernet Aggregate Tx stats (15Min) For SAR with PMC: - Hop History Data stats (15 Min) - Adaptive Modulation History data stats (15 Min) - Radio Analogue stats (15 min)	For Wavence, at least one of: - opticsIMRSLHopHistoryDataEntry - opticsIMPdhFrameHopHistoryDataEntry - opticsIMAdaptive-ModulationHistoryDataEntry - ethAggrMaintTxEntry For SAR with PMC: - opticsIMPdhFrameHopHistoryDataEntry - opticsIMAdaptive-ModulationHistoryDataEntry - aluMwRadioPMAC-MEntry - aluMwRadioPMG826Entry - aluMwRadioPMPowerEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

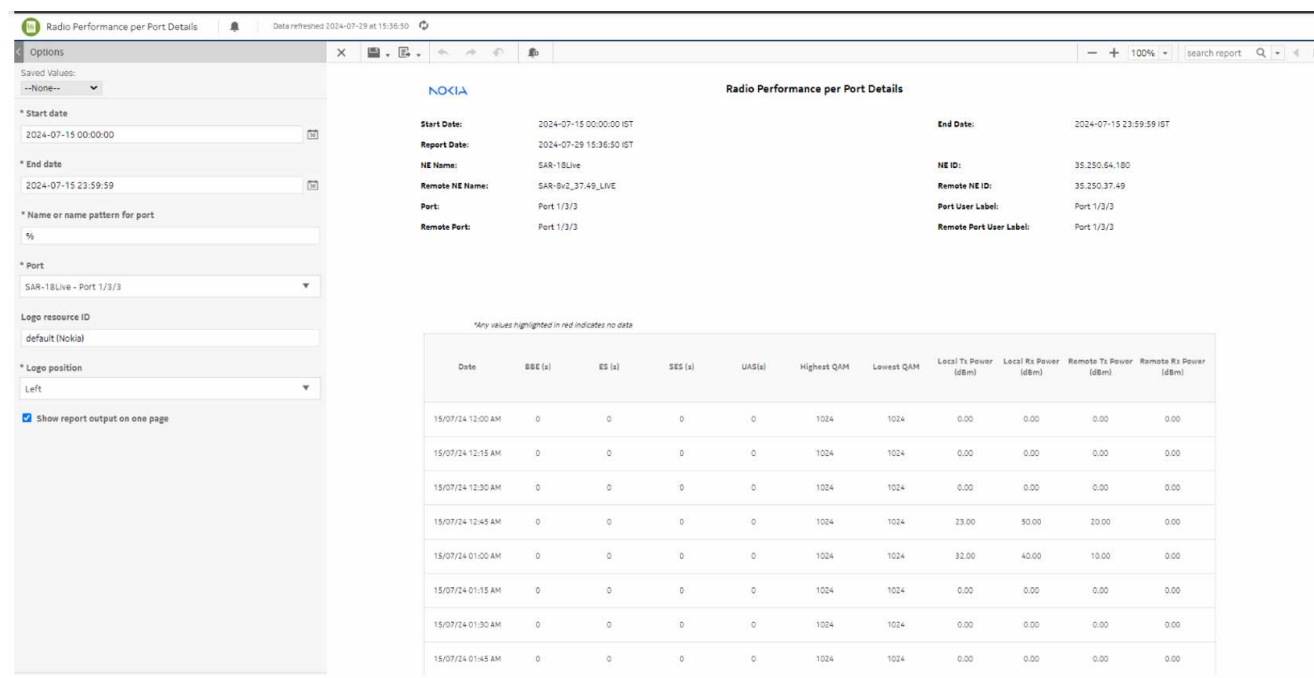
Table 15-32 Radio Performance per Port Details report characteristics

Characteristic	Value	
Statistics type	Performance statistics	
NSP flow collector required	No	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA, 7705 SAR with PMC	
Report inputs	Prompt	Notes
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Port	Select a port from the drop-down list.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Radio Performance per Link > Radio Performance Per Port Summary > Radio Performance per Port Details . Drilling down from Radio Performance Per Port Summary report to the Radio Performance per Port Details report uses the previous day's date as the start date. The report is generated using the timezone of the NSP server, not the user timezone.	

15.25.2 Example

The following figures show a report example.

Figure 15-34 Radio Performance per Port Details report



15.26 Top Loaded Ports report

15.26.1 Top Loaded Ports report overview

The Top Loaded Ports report shows the top loaded ports sorted by average utilization percentage. The operator can select the value of 'N' which corresponds to the top N loaded ports. By default, N is set to 5. The Top Loaded Ports report can be generated based on Radio or Ethernet port utilization percentage.

Use cases

Capacity planning—Use the report to examine the top loaded ports based on the radio and/or Ethernet traffic in a given network and to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Records with a Max Utilization value of 0 are excluded from the report
- When multiple throughput values have the same Max Utilization value, the higher value is considered.

- Spare ports are excluded from the report, and spare channels are excluded from Net Bandwidth calculation
- The observed Capacity at Max Utilization is sometimes higher than the configured Max Capacity

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

i **Note:** Busy hour support is only available for raw data granularity.

Table 15-33 Top Loaded Ports report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
Wavence Egress Stats Bandwidth Aggregator	Port LAG	Ethernet Radio	Ethernet Aggregate Tx Stats (15Min)	ethAggrMaintTxEntry	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA Note: The 7705 SAR-H is not supported.

Report characteristics

The following table lists the principal report characteristics.

Table 15-34 Top Loaded Ports report characteristics

Characteristic	Value	
Data type	Statistics	
NE types supported	Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-E, Wavence MSS-HE, Wavence MSS-XE, Wavence MSS-1c, Wavence SA, Wavence UBT-SA, Wavence UBT-I/I2, Wavence UBT-T XP, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
Report inputs	Prompt	Notes

Table 15-34 Top Loaded Ports report characteristics (continued)

Characteristic	Value	
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Top 'N' Ports	Specify the value (1,2, etc.) to get the ports details of the selected number of ports in the report. Default: N=5
	Port Type	Select Radio or Ethernet or All.
	Utilization Threshold (%)	Specify the threshold percentage to get reports for all entries equal and above the specified threshold value.
	Minimum Number of Occurrence	Specify the number of occurrences.
	Busy Hour Support	Allows specifying Busy Start Hour and Busy End Hour to customize report range for busy hours. Busy Hour Support is only available for raw data granularity.
	Busy Start Hour	Start hour of the busy hour in the report range
	Busy End Hour	End hour of the busy hour in the report range
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
	Apply	Applies all the parameters and prepares the report based on the parameters entered.
	Reset	Resets all the parameters to default value.
Drill-down support	Yes—Click on each Link Name to get the individual link Bandwidth Throughput Summary .	

15.26.2 Example

The following figures show a report example.

Figure 15-35 Top Loaded Ports report—Radio Traffic

NOKIA **Top Loaded Ports**

Start Date: 2023-11-04 00:00:00 IST
Report Date: 2025-11-04 17:33:01 IST
End Date: 2025-11-04 17:33:01 IST
Granularity: Raw Collection Interval

*Any value highlighted in red color indicates No Data in DB

Link Name	Site Name	Site ID	Port	Far End Site Name	Far End Site ID	Far End Port	Max Utilization (%)	Min Utilization (%)	Avg Utilization (%)	Throughput at Max Utilization(Mbps)	Capacity at Max Utilization(Mbps)	Max Capacity Configured(Mbps)
MNVM012_NE132-UBT-S2-SA LOW 1LAG 11 MNVM012_NE131-UBT-S2-SA HIGH 1LAG 11	MNVM012_NE132-UBT-S2-SA LOW 1	100.125.74.132	LAG 1	MNVM012_NE131-UBT-S2-SA HIGH 1	100.125.74.131	LAG 1	95.00	94.79	94.90	790.88	832.51	1,048.30
MNVM012_NE132-UBT-S2-SA LOW 1LAG 11 MNVM012_NE131-UBT-S2-SA HIGH 1LAG 11	MNVM012_NE131-UBT-S2-SA HIGH 1	100.125.74.131	LAG 1	MNVM012_NE132-UBT-S2-SA LOW 1	100.125.74.132	LAG 1	100.00	0.07	77.83	576.10	576.10	877.21
MNVM360-03LAG 21-MNVM360-01LAG 21	MNVM360-01	192.12.42.1	LAG 2	MNVM360-03	192.12.42.3	LAG 2	48.09	0.00	42.64	122.21	254.13	269.93
MNVM360-03LAG 21-MNVM360-01LAG 21	MNVM360-03	192.12.42.3	LAG 2	MNVM360-01	192.12.42.1	LAG 2	49.90	0.00	34.56	101.46	203.33	269.93
N/A	MNVM360-03	192.12.42.3	Port 1/6	N/A	N/A	N/A	12.12	0.00	11.07	121.22	1,000.17	1,000.00

Part V: NSP

Overview

Purpose

This part describes the NSP Analytics reports in the NSP category.

Supported NEs

NSP reports support classic and model-driven NEs.

For a list of statistics that are supported for each NE variant, see the Statistics Search Tool in the NSP Help Center.

Prerequisites

Aggregation needs to be enabled on NFM-P for the supported statistics in case of the existence of NFM-P.

Notes:

There is potential for duplication of data in the report inputs when classic NEs are managed in the NSP.

When exported, some reports show "(NSP)" as the suffix in the report name.

If a classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema (NSP) and samdb dictionary tables (NFM-P) will have the entries.

To prevent duplication:

- filter the NSP subscription used for reporting to collect data from model-driven NEs only; see the *NSP Data Collection and Analysis Guide*
- enable persistence for the statistics configuration in the NFM-P

When a classic NE is discovered in the NSP that also has the NFM-P, the NSP automatically creates a network region when you create a map layout. As a result, the report displays the network region twice; once for the NFM-P auto-created region and another for the NEs discovered on the NSP that have not been placed into any regions yet.

You cannot select a report input that contains an apostrophe in the name (for example, "Dom's nodes").

Filter options are not available for grouped columns in the table.

Based on the current report functionality, the report considers the list of services and its details according to the region where it was created, regardless of the NE type. Specifically:

- **NSP-created regions:** If the region is created on the NSP, the report uses the services and details from the telemetry table.

- **NFM-P-created regions:** If the region is created in NFM-P, the report uses data from the samdb schema.

Two objects of same object type (for example, port, LAG, service, SAP, LSP, interface, or link) with the same name but different case (for example, one name in upper case, and another name in lower case) cannot be selected at the same time in the report inputs. However, the report can be loaded separately for each object.

If a report has (µs) as the delay unit, the corresponding CSV export file has (¼s) as the delay unit.

For an MDM-only deployment, NSP reports are available only for mediation agnostic NEs; Network and Service reports are non-functional.

If the NFM-P is removed from the NSP in an existing deployment, the reports function in the same way as an MDM-only deployment. For an existing NSP deployment where the NFM-P has not yet been removed, you must enable all aggregators in the NFM-P before its removal to avoid an aggregation error when launching NSP reports for granularities; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Contact your technical support representative for more information.

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16 NSP comprehensive reports

16.1 NSP comprehensive reports overview

16.1.1 General information

NSP comprehensive reports include network data for NEs managed by the NFM-P only or MDM (model-driven Nokia or multivendor NEs). NSP comprehensive reports support a user experience where a large quantity of network data is fetched and rendered, then sorted and filtered for data mining purposes.

Summary reports contain many columns in an effort to put all relevant data into the table to avoid the need for multiple reports. In some cases, there may be a need to scroll horizontally to view all columns. The tables can be sorted and filtered on any column.

NSP comprehensive Details reports provide a time series linear graph of one of more selected KPI. The Details reports can be run directly or as a drill-down from the Summary report. From the Summary report, clicking on a KPI in a table cell automatically launches the Details report for that KPI.

These reports filter based on network topology/grouping, by region and subregion. Weekly granularity is also provided.

i **Note:** Objects in subregions that are nested to three or more levels in depth are not displayed in the optional input prompts for region and subregion. When you do not select a region or subregion, objects are displayed in the report regardless of the levels. When you select any region or subregion, the objects available are displayed.

NSP comprehensive reports take more time to generate or return an exception when trying to render results in one page (when you select “Show report output on one page”) for a large amount of data.

If statistics are collected in both the NSP and NFM-P for the same NE, then the report displays the data randomly.

If the classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema and samdb dictionary tables will have the entries.

16.1.2 Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- Schedule report generation for regions/subregions to ensure that there are no overlaps.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

16.2 Node Health Details report

16.2.1 Node Health Details report overview

The Node Health Details report shows temperature, CPU, and memory utilization details for selected NEs includes availability data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

If the NE is part of more than one subregion, any one entry displays randomly.

If classic node is managed in NSP, node will get automatically managed in NFM-P. In this case, duplicates regions will be shown. One will display the NFM-P contents and another one is common for both NFM-P and NSP.

i **Note:** For card-based statistics, the report displays the average value of all cards per timestamp in raw granularity.
If statistics are collected at the card level, then the report displays the metric values in table format at the card level. If statistics are collected at the NE level, then the report displays the metric values in graphical representation.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Limitations

Report limitations include:

- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Table 16-1 Node Health Details report prerequisites for NSP statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-2 Node Health Details report prerequisites for NFM-P statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ SystemCpu StatsLogRecord	equipment. BaseCard	equipment. HardwareTempera- ture	MIB-based	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_ Hardware TemperatureL- ogRecord	equipment. ControlProcessor	equipment. HardwareTempera- ture	MIB-based	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_ SystemMemory StatsLogRecord	equipment. DaughterCard	equipment. HardwareTempera- ture	MIB-based	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR

Table 16-2 Node Health Details report prerequisites for NFM-P statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
equipment_ AllocatedMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemCpuStats	MIB-based	TIMETRA- SYSTEM-MIB. sgiCpuUsage	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR
equipment_ AvailableMemory StatsLogRecord	equipment. SystemStatsHolder	equipment. SystemMemoryS- tats	MIB-based	TIMETRA- SYSTEM-MIB. sgiMemoryUsed	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 16-3 Node Health Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 16-3 Node Health Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	KPI	Raw granularity and other granularities: • CPU Utilization • Memory In Use/Utilization • Temperature When you run the report for other granularities, if you select CPU Utilization, Memory In Use/Utilization, or Temperature, their respective minimum and maximum values display.
	NE	Search using partial names or wildcard (%). Select individual items or click Select All .
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

16.2.2 Example

The following figures show a report example.

Figure 16-1 Node Health Details report





16.3 Node Health Summary report

16.3.1 Node Health Summary report overview

The Node Health Summary report shows a summary of temperature, CPU, and memory utilization data for available NEs, and includes availability data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

If the NE is part of more than one subregion, any one entry displays randomly.

If classic node is managed in NSP, node will get automatically managed in NFM-P. In this case, duplicates regions will be shown. One will display the NFM-P contents and another one is common for both NFM-P and NSP.

For raw granularity, if the statistics are collected from card sensors while drilling down from an average KPI, the report only shows the maximum and minimum values in tabular form. In contrast, for other granularities, if the statistics are collected at either the NE level or from card sensors while drilling down from an average KPI, the report shows the maximum and minimum values in graphs and tabular form, respectively.

Use cases

Equipment health monitoring—Ensure the network equipment is operating within anticipated ranges for temperature, memory, and CPU utilization.

Limitations

Report limitations include:

- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the Network Developer Portal and the *NSP Data Collection and Analysis Guide*.

Table 16-4 Node Health Summary report prerequisites for NSP statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-4 Node Health Summary report prerequisites for NSP statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Juniper VMX JUNOS 21.4R1.12

Table 16-5 Node Health Summary report prerequisites for NFM-P statistics

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
System CPU Usage Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
System Memory Stats Aggregator	equipment. SystemStatsHolder	equipment.System MemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAllocate	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR
Available Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryAvailable	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR

Table 16-5 Node Health Summary report prerequisites for NFM-P statistics (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment.MCCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro- cessor equipment.XioCard	equipment. HardwareTempera- ture	Performance statistics	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS 7210 IXR 7705 SAR 7705 SAR Hm 7750 SR Omnisystem NEs

Report characteristics

The following table lists the principal report characteristics.

Table 16-6 Node Health Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 16-6 Node Health Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report	

16.3.2 Example

The following figure shows a report example. The table below is a single table, but is separated due to its width.

Figure 16-2 Node Health Summary report

Node Health Summary

Start Date:2024-05-17 13:01:00 IST

End Date:2024-05-17 14:00:00 IST

Report Date:2024-06-21 16:40:02 IST

Granularity:Raw Collection Interval

Region	Sub Region	Sub Region1	Sub Region2	Node Name	Node ID	Avg CPU Utilization (%)	Max CPU Utilization (%)
MD SR Region1	MD SR Subregion1	NA	NA	NS11226E038	35.250.64.163	4.08	4.22

Max CPU Utilization Time	Avg Memory Utilization (%)	Max Memory Utilization (%)	Avg Memory in Use (MB)	Max Memory in Use (MB)
2024-05-17 13:44:20	8.23	8.24	1317.96	1319.14

Max Memory in Use Time	Avg Temperature (°C)	Max Temperature (°C)	Max Temperature Time
2024-05-17 13:09:20	48.10	61.00	2024-05-17 13:49:10

16.4 Common prerequisites for node power and optical power reports

16.4.1 General information

This section describes the common prerequisites for the following reports:

- Node Power and Voltage Summary
- Optical Power and Voltage Details
- Optical Power and Voltage Summary

See the individual reports for prerequisites that are specific to each report.

16.4.2 Installation order for populating telemetry statistics

Telemetry statistics only populate if the following components are installed in the following order:

1. Telemetry YANG files:
 - sros-port-telemetry.yang

- sros-sfm-telemetry.yang
- sros-chassis-telemetry.yang
- sros-cpm-telemetry.yang
- sros-card-telemetry.yang
- sros-system-telemetry.yang

These yang files are available in the SR OS device telemetry definitions (nsp-telemetry-yang-sros) and must be installed under telemetry modulesetname.

2. Telemetry aggregator YANG files:

For each telemetry YANG, the corresponding aggregator YANG needs to be installed.

For example:

For sros-port-telemetry.yang, install:

- sros-port-ddm-telemetry-aggregator.yang
- sros-port-laneddmm-telemetry-aggregator.yang
- sros-port-telemetry-aggregator.yang

These yang files are available in the SR OS device telemetry aggregation definitions (nsp-telemetry-aggregator-yang-sros), and must be installed under md-aggr modulesetname.

3. Telemetry adaptation artifact:

- SR OS device telemetry adaptation(nsp-telemetry-cr-ct-sros)

For more information, see:

- *NSP System Administrator Guide* (YANG installation)
- *NSP Network Automation Guide* (artifact installation)

16.5 Node Power and Voltage Summary report

16.5.1 Node Power and Voltage Summary report overview

The Node Power and Voltage Summary report shows detailed information about NE power and voltage. The report provides tables showing DDM, lane DDM, coherent optical port, and hardware resource statistics, and can drill down to the Optical Power and Voltage Summary report for more information.

Use cases

Troubleshooting—Confirm that NE power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.
- When the report is exported to the CSV file type, table data does not display properly.

- When the report is exported to the DOCX file type, the table borders do not display properly, and some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

Prerequisites

Perform the prerequisites in section [16.4 “Common prerequisites for node power and optical power reports”](#) (p. 624), in addition to the prerequisites described here.

The following table describes the aggregation rules that must be enabled and the statistics to be collected. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

Table 16-7 Node Power and Voltage Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
DDM stats aggregator	equipment.DigitalDiagnosticMonitoring equipment.equipment equipment.portdetails	equipment.DDMStats telemetry_4572106t_ transceiver_ digital_diagnostic_ monitoring	MIB-based for NFM-P-managed NEs GRPC /Telemetry collection for NSP-managed NEs	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 MD SR 7750 SR
Lane DDM stats aggregator	equipment.LaneDDM equipment.equipment equipment.portdetails	equipment, LaneDDMStats telemetry_4572106t_ transceiver_ digital_diagnostic_ monitoring	MIB-based for NFM-P-managed NEs GRPC /Telemetry collection for NSP-managed NEs	7210 SAS-R 7210 SAS-S/Sx 7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS
Coherent optical port stats aggregator	equipment.Connector equipment.PhysicalPort equipment.equipment equipment.portdetails	ethernetequipment CohOptPortStats telemetry_base_sros_ port_port_ dwdm_coherent_ statistics	MIB-based for NFM-P-managed NEs GRPC /Telemetry collection for NSP-managed NEs	7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS

Table 16-7 Node Power and Voltage Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
Hardware resource stats aggregator	equipment. HwEnvironment equipment.equipment equipment.portdetails	equipment HardwareResourceS- tats telemetry_base_sros_ card_card_hardware_ resource telemetry_base_sros_ card_card_mda_ hardware_resource telemetry_base_sros_ card_card_xiom_ hardware_resource telemetry_base_sros_ card_card_xiom_mda_ hardware_resource telemetry_base_sros_ chassis_chassis_fan_ hardware_resource telemetry_base_sros_ cpm_cpm_hardware_ resource telemetry_base_sros_ sfm_sfm_hardware_ resource telemetry_base_sros_ system_system_power_ management	MIB-based for NFM-P-managed NEs GRPC /Telemetry collection for NSP-managed NEs	7250 IXR 7750 MD SR 7750 SR 7950 XRS

Report characteristics

The following table lists the principal report characteristics.



Note: Not selecting an input in a non-mandatory report input is considered as selecting all available inputs.

Table 16-8 Node Power and Voltage Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 16-8 Node Power and Voltage Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • Raw Collection Interval • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	NE types	Search using partial names.
	NEs	Select individual items or click Select All .
	Low voltage threshold	Specify the value using expressions like > or <.
	High voltage threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drills down to Optical Power and Voltage Summary report	

Example

The following figures show a report example.

Figure 16-3 Node Power and Voltage Summary report

Node Power and Voltage Summary

Start Date:

2025-11-12 06:01:00 IST

Report Date:

2025-12-03 02:00:56 IST

High Voltage Threshold:

N/A

End Date:

2025-11-12 08:00:00 IST

Granularity:

Raw Collection Interval

Low Voltage Threshold:

N/A

Any values with 0.00 highlighted in red indicates no data

DDM Stats

NE Name	NE ID	NE Type	Avg Rx Optical Power (dBm)	Min Rx Optical Power (dBm)	Max Rx Optical Power (dBm)	Avg Tx Output Power (dBm)	Min Tx Output Power (dBm)	Max Tx Output Power (dBm)	Avg Supply Voltage (V)	Min Supply Voltage (V)	Max Supply Voltage (V)	Avg Temperature (C)	Min Temperature (C)	Max Temperature (C)	Avg Tx BiasCurrent (mA)	Min Tx BiasCurrent (mA)	Max Tx BiasCurrent (mA)
x168_97_213_wgpn	NodeName001-13A	7750 SR-12	0.00	0.00	0.00	0.00	0.00	0.00	3.24	3.24	3.24	45.90	45.80	45.80	0.00	0.00	0.00
model	9216836.1	7950 XRS-20w	0.00	0.00	0.00	0.00	0.00	0.00	3.3	3.3	3.3	32.00	32.00	32.00	0.00	0.00	0.00
x168_94_216_wgpn	NodeName001-13A	7750 SR-12	-1.48	-7.48	6.48	-1.60	-8.00	6.48	3.28	3.07	3.63	25.70	-5.00	85.00	42.55	0.00	150.00
model	9216836.1A	7430 ESG-7	-2.18	-2.18	-2.18	-1.48	-1.48	-1.48	3.19	3.31	3.31	25.40	25.40	25.40	35.80	35.80	35.80

Lane DDM Stats

NE Name	NE ID	NE Type	Avg Rx Optical Power (dBm)	Min Rx Optical Power (dBm)	Max Rx Optical Power (dBm)	Avg Tx Output Power (dBm)	Min Tx Output Power (dBm)	Max Tx Output Power (dBm)	Avg Temperature (C)	Min Temperature (C)	Max Temperature (C)	Avg Tx BiasCurrent (mA)	Min Tx BiasCurrent (mA)	Max Tx BiasCurrent (mA)
x168_97_213_wgpn	NodeName001-13A	7750 SR-12	1.06	1.06	1.06	-40.00	-40.00	-40.00	48.48	39.80	51.40	0.00	0.00	0.00
model	9216836.1	7950 XRS-20w	-7.12	-8.29	-5.13	2.13	1.84	2.29	0.00	0.00	0.00	60.98	60.40	61.60

Coherent Optical Port Stats

NE Name	NE ID	NE Type	Avg Rx BER	Min Rx BER	Max Rx BER	Avg Rx Chromatic Disp (ps/nm)	Min Rx Chromatic Disp (ps/nm)	Max Rx Chromatic Disp (ps/nm)	Avg Rx Freq Offset (MHz)	Min Rx Freq Offset (MHz)	Max Rx Freq Offset (MHz)	Avg Rx Q(dB)	Min Rx Q(dB)	Max Rx Q(dB)	Avg Rx Power (dBm)	Min Rx Power (dBm)	Max Rx Power (dBm)
x168_97_213_wgpn	NodeName001-13A	7750 SR-12	4.17	0.00	99.40	-2038.50	-40000.00	40000.00	3127.00	-12000.00	10567.00	9.00	0.00	18.00	-0.06	-0.99	0.05
															-0.18	-0.99	0.01

Hardware Resource Stats

NE Name	NE ID	NE Type	Zone ID	Node Avg Voltage (V)	Node Min Voltage (V)	Node Max Voltage (V)	Node Avg Power (dB)	Node Min Power (dB)	Node Max Power (dB)
model	9216836.1	7950 XRS-20w	1	51.16	52.9	53.2	192.8	150.0	202.0

16.6 Optical Power and Voltage Details report

16.6.1 Optical Power and Voltage Details report overview

The Optical Power and Voltage Details report includes optical power and voltage data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report provides comprehensive insights into the optical and electrical performance parameters of network equipment ports. It enables users to monitor and analyse key metrics such as temperature, power, current, and voltage across different Digital Diagnostic Monitoring (DDM), Lane DDM (LDDM), Coherent Optical, and Hardware Resource statistics.

The report includes graphical visualizations for each statistic type, allowing users to filter data based on Region, Sub-Region, NE Type, NE and Port selections. These graphs help to assess the operational health of network components and track optical performance variations such as transmit and receive power levels, bias current, and voltage behaviour over time.

Use cases

Troubleshooting—Confirm that optical power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.

Prerequisites

Perform the prerequisites in section [16.4 “Common prerequisites for node power and optical power reports”](#) (p. 624), in addition to the prerequisites described here.

The following table describes the aggregation rules that must be enabled and the file and accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring file and accounting policies. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

Table 16-9 Optical Power and Voltage Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
DDM stats aggregator	equipment.DigitalDiagnosticMonitoring equipment.equipment equipment.portdetails	equipment.DDMStats telemetry_4572106t_ transceiver_digital_ _diagnostic_monitoring	MIB-based GRPC/ Telemetry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 SR 7750 MD SR
Lane DDM stats aggregator	equipment.LaneDDM equipment.equipment equipment.portdetails	Equipment. LaneDDMStats telemetry_4572106t_ transceiver_ digital_diagnostic_ monitoring	MIB-based GRPC/ Telemetry	7210 SAS-R 7210 SAS-S/Sx 7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS
Coherent optical port stats aggregator	equipment.Connector equipment.equipment equipment.PhysicalPort equipment.portdetails	ethernetequipment CohOptPortStats telemetry_base_sros_ port_port_ dwdm_coherent_ statistics	MIB-based GRPC/ Telemetry	7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS

Table 16-9 Optical Power and Voltage Details report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
Hardware resource stats aggregator	equipment. HwEnvironment equipment.equipment equipment.portdetails	equipment HardwareResourceS- tats telemetry_base_sros_ card_card_ hardware_resource telemetry_base_sros_ card_card_ mda_hardware_ resource telemetry_base_sros_ card_card_xiom_ hardware_resource telemetry_base_sros_ card_card_ xiom_mda_hardware_ resource telemetry_base_sros_ chassis_chassis_ fan_hardware_resource telemetry_base_sros_ cpm_cpm_hardware_ resource telemetry_base_sros_ sfm_sfm_hardware_ resource telemetry_base_sros_ system_system_power_ management	MIB-based GRPC/ Telemetry	7250 IXR 7750 MD SR 7750 SR 7950 XRS

Report characteristics

The following table lists the principal report characteristics.

Table 16-10 Optical Power and Voltage Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 16-10 Optical Power and Voltage Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Stats Type	Stats types: • DDM • Lane DDM • Coherent Optical • Hardware Resource
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • Raw Collection Interval • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.

Table 16-10 Optical Power and Voltage Details report characteristics (continued)

Characteristic	Value		
	KPI	• DDM-Tx Power • DDM-Tx Bias Current • DDM-Temperature • DDM-Supply Voltage • DDM-Rx Power • LaneDDM-Tx Power • LaneDDM-Tx Bias Current • LaneDDM-Temperature • LaneDDM-Rx Power • Hardware-Voltage Min • Hardware-Voltage Max • Hardware-Voltage Avg • Hardware-Power Min • Hardware-Power Max • Hardware-Power Avg	• Coherent-Tx Power Min • Coherent-Tx Power Max • Coherent-Tx Power Avg • Coherent-Rx Q Min • Coherent-Rx Q Max • Coherent-Rx Q Avg • Coherent-Rx Frequency Offset Min • Coherent-Rx Frequency Offset Max • Coherent-Rx Frequency Offset Avg • Coherent-Rx Chromatic Dispersion Min • Coherent-Rx Chromatic Dispersion Max • Coherent-Rx Chromatic Dispersion Avg • Coherent-Rx Bit Error Rate Min • Coherent-Rx Bit Error Rate Max • Coherent-Rx Bit Error Rate Avg

Table 16-10 Optical Power and Voltage Details report characteristics (continued)

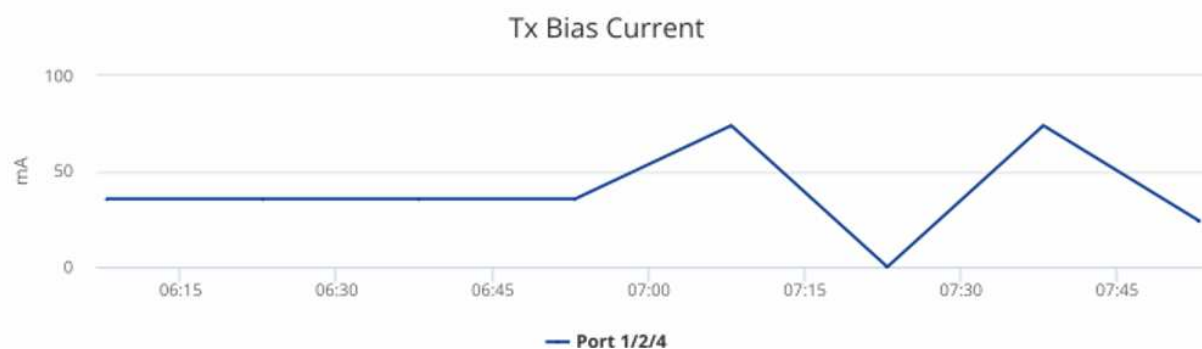
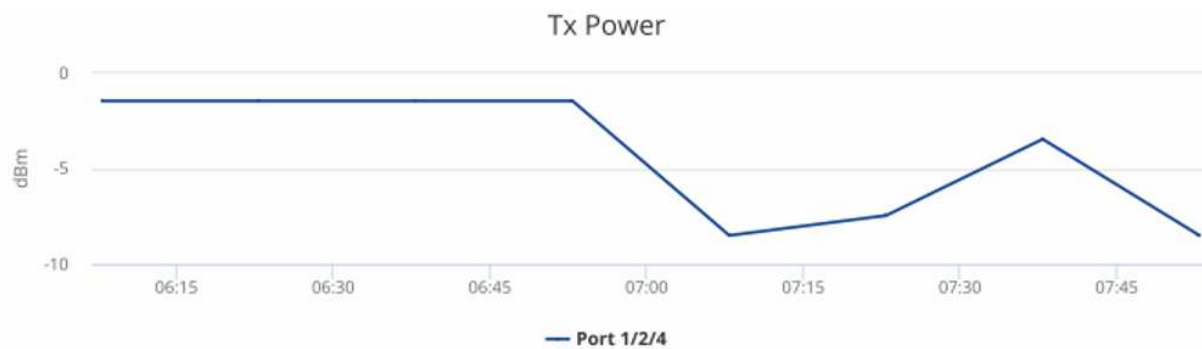
Characteristic	Value	
	NE types	Search using partial names or wildcard (%). Select individual items or click Select All .
	NE	
	Optical Port/Hardware Resource Identifier	Select an optical port from the drop-down list.
	Low Voltage Threshold	Specify the value using expressions like > or <. Applicable only to DDM statistics and hardware resource statistics.
	High Voltage Threshold	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

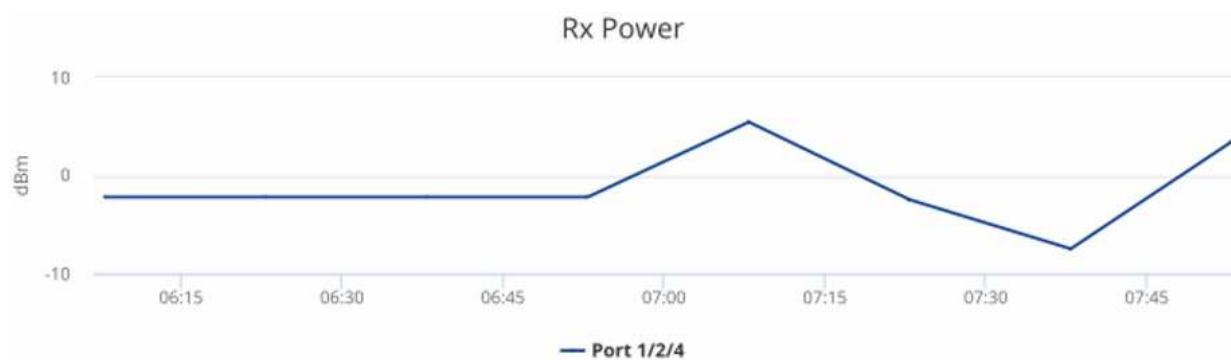
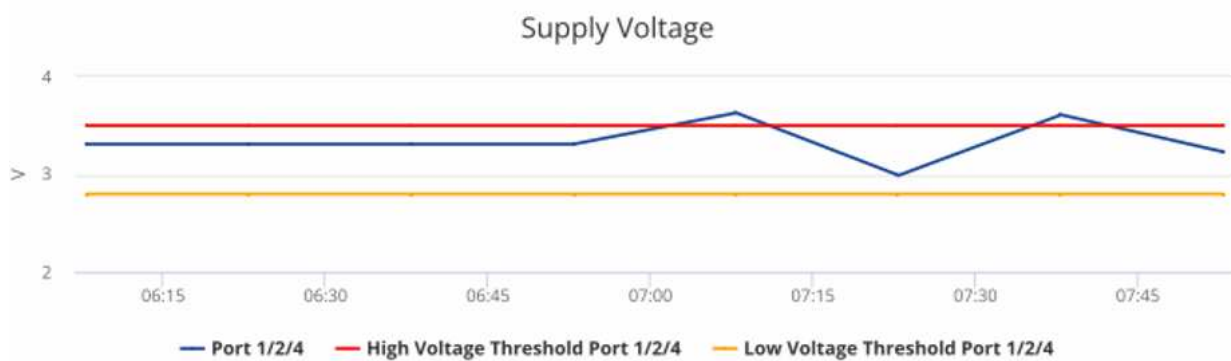
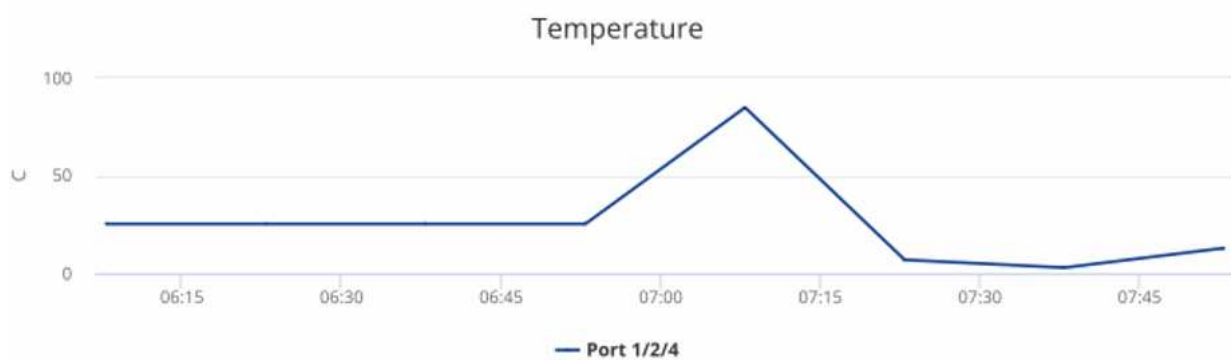
Example

The following figures show a report example.

Figure 16-4 Optical Power and Voltage Details report

Optical Power and Voltage Details			
Start Date:	2025-11-12 06:01:00 IST	End Date:	2025-11-12 08:00:00 IST
Report Date:	2025-12-03 02:32:37 IST	Granularity:	Raw Collection Interval
Region:	rm_mdsr	Sub Region:	rm_subregion_SR-12
Sub Region 1:	NA	Sub Region 2:	NA
NE ID:	fded:fade:face:ffff::18b	NE Name:	s168_96_219_acpm
Port Displayed Name:	Port 1/2/4	Stats Type:	DDM Stats
High Voltage Threshold:	3.5V	Low Voltage Threshold:	2.8V





16.7 Optical Power and Voltage Summary report

16.7.1 Optical Power and Voltage Summary report overview

The Optical Power and Voltage Summary report contains a summary of information about the optical power in dBm, measured at equipment ports. The report provides a table showing Tx power, Rx power, temperature, supply voltage, and Tx bias current.

Use cases

Troubleshooting—Use the report to confirm that optical power is in the optimum operating range to determine if it is a cause of network impairment.

Limitations

Report limitations include:

- Low voltage threshold and high voltage threshold report inputs are applicable only to DDM statistics and hardware resource statistics.
- Periodic counters are used for hardware resource statistics if non-periodic counters are not present in aggregation tables.
- When the report is exported to the DOCX file type, DDM statistics do not display, and some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, DDM statistics may not display properly.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?”](#) (p. 43).

Prerequisites

Perform the prerequisites in section [16.4 “Common prerequisites for node power and optical power reports”](#) (p. 624), in addition to the prerequisites described here.

The following table describes the aggregation rules that must be enabled and the statistics to be collected. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30).

Table 16-11 Optical Power and Voltage Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
DDM stats aggregator	equipment.Digital DiagnosticMonitoring equipment.equipment equipment.portdetails	equipment.DDMStats telemetry_4572106t_ transceiver_ digital_diagnostic_ monitoring	MIB-based GRPC /Telemetry	7210 SAS-D 7210 SAS-MXP 7210 SAS-R 7250 IXR 7705 SAR 7750 MD SR 7750 SR

Table 16-11 Optical Power and Voltage Summary report prerequisites (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
Lane DDM stats aggregator	equipment.LaneDDM equipment.equipment equipment.portdetails	equipment, LaneDDMStats telemetry_4572106t_ transceiver_ digital_diagnostic_ monitoring	MIB-based GRPC /Telemetry	7210 SAS-R 7210 SAS-S/Sx 7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS
Coherent optical port stats aggregator	equipment.Connector equipment.PhysicalPort equipment.equipment equipment.portdetails	ethernetequipment CohOptPortStats telemetry_base_sros_ port_port_ dwdm_coherent_ statistics	MIB-based GRPC /Telemetry	7250 IXR 7450 ESS 7705 SAR-Hm 7750 MD SR 7750 SR 7950 XRS
Hardware resource stats aggregator	equipment. HwEnvironment equipment.equipment equipment.portdetails	equipment HardwareResourceS- tats telemetry_base_sros_ card_card_hardware_ resource telemetry_base_sros_ card_card_mda_ hardware_resource telemetry_base_sros_ card_card_xiom_ hardware_resource telemetry_base_sros_ card_card_xiom_mda_ hardware_resource telemetry_base_sros_ chassis_chassis_fan_ hardware_resource telemetry_base_sros_ cpm_cpm_hardware_ resource telemetry_base_sros_ sfm_sfm_hardware_ resource telemetry_base_sros_ system_system_power_ management	MIB-based GRPC /Telemetry	7250 IXR 7750 MD SR 7750 SR 7950 XRS

Report characteristics

The following table lists the principal report characteristics.

Table 16-12 Optical Power and Voltage Summary report characteristics

Characteristic	Value	
Data type	Statistics	
Source database	Auxiliary database	
Report inputs	Prompt	Notes
	Stats Type	Stats types: • DDM • Lane DDM • Coherent Optical Port • Hardware Resource
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region.
	Subregion	Only subregions below the top-level region are displayed in the prompt. Objects in the lower subregions are automatically selected when their subregion is selected.
	NE types	Select individual items.
	NE	
	Low voltage threshold	Specify the value using expressions like > or <. Applicable only to DDM statistics and hardware resource statistics.
	High voltage threshold	
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show threshold violations only	Select to see threshold violations only.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

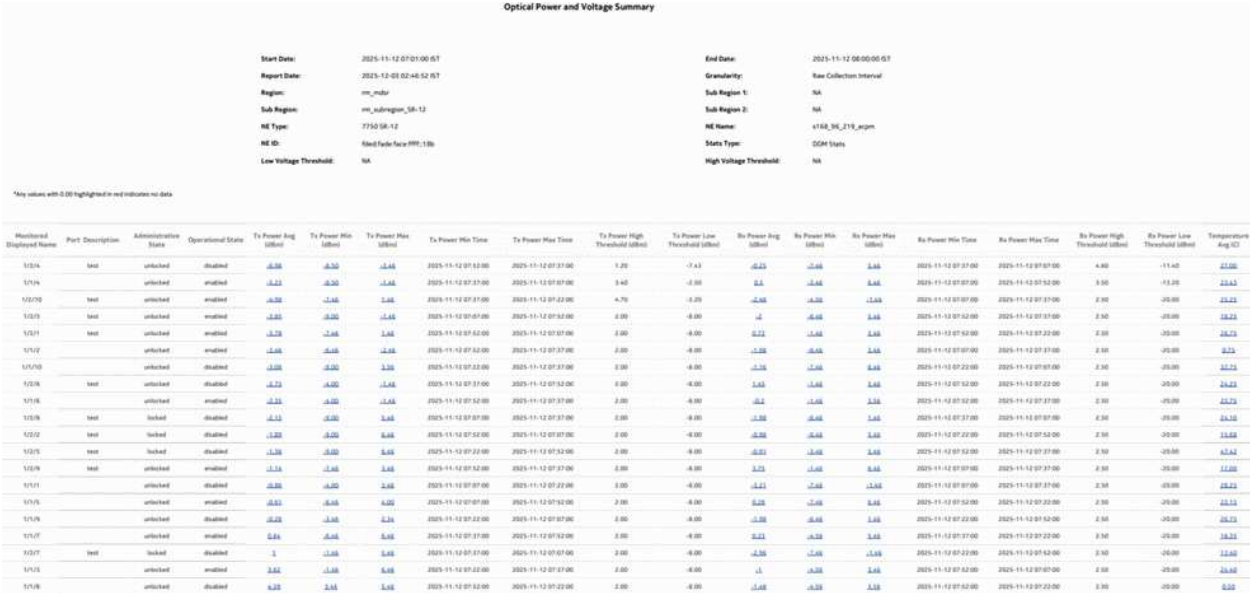
Table 16-12 Optical Power and Voltage Summary report characteristics (continued)

Characteristic	Value
Drill-down support	Yes—Click on a KPI in a table cell to launch the Details report

16.7.2 Example

The following figures show a report example. The table below is a single table, but is separated due to its width.

Figure 16-5 Optical Power and Voltage Summary report



16.8 Service Performance Details report

16.8.1 Service Performance Details report overview

The Service Performance Details report displays the latency, jitter, and packet loss for a selected service in detail, and includes availability data for NEs managed by the NFM-P only or MDM (model-driven Nokia) only. The report can be run by itself or as a drill-down from a Service Performance Summary report.

 **Note:** If the received packet is greater than the transmitted packet, then the packet loss gives a negative value, which is displayed as 0.0.

Limitations

Report limitations include:

- The report for MD SR NE supports only the services which are associated with endpoints (not MEP).
- When the report is exported to the RTF file type, half of the page and only one page's graph will be displayed.
- For Classic Node, there is a possibility of having the same service name with the same service ID but with a different full name multiple times. In such cases, all the services will be listed in the report.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Prerequisites

The following prerequisites are required in order for the report to be generated:

- MD SR NE and/or classic NE must be discovered
- L2 services/L3 services must exist

Either of the following sessions must be performed in the NSP or NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. DMM sessions are created with L2 services.
- A TWAMP-Light session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. TWAMP Light sessions are created with L3 services.

i **Note:** Complete PM is not supported for SAR NEs.

The following table describes the subscriptions that must be added to the NSP to collect telemetry statistics, and the aggregators that must be enabled to run the report for other granularities.

Table 16-13 Service Performance Details report prerequisites for MDM-managed NEs

Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session, Site	telemetry:/base/oampm-accounting/cfm-dmm-session-acc-stats	Telemetry statistics	7750 MD-SR
CFM SLM Session, Site	telemetry:/base/oampm-accounting/cfm-slm-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-acc-stats	Telemetry statistics	7750 MD-SR

Table 16-13 Service Performance Details report prerequisites for MDM-managed NEs (continued)

Monitored object class	Statistics class	Statistics collection	NE types
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-loss-acc-stats	Telemetry statistics	7750 MD-SR

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 16-14 Service Performance Details report prerequisites for NFM-P-managed NEs

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session Accounting Aggregator	saspm_CfmDmmSession-AccStatsLogRecord	CFM DMM Session, Site	ethernetoam.CfmDmmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-14 Service Performance Details report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM SLM Session Accounting Aggregator	saspm_ CfmSlmSession- AccStatsLogRecord	CFM SLM Session, Site	ethernetoam. CfmSlmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-14 Service Performance Details report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Accounting Aggregator	saspm_ TWLSession- AccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-14 Service Performance Details report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Loss Accounting Aggregator	saspm_ TWLSessionLossAccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics(Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on a specified service.

Report characteristics

The following table lists the principal report characteristics. It is not mandatory for all service sites to be located within the same region or subregion. If at least one of the service sites falls within the selected region or subregion, the service will be included in the report.

Table 16-15 Service Performance Details report characteristics

Characteristic	Value
Data type	OAM tests
Source database	Auxiliary database

Table 16-15 Service Performance Details report characteristics (continued)

Characteristic	Value
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe

Table 16-15 Service Performance Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Select one or more subregion(s). Objects in the lower subregions are automatically selected when their subregion is selected.
	Service(s)	Search using partial names or wildcard (%). Select an individual item.
	Sessions	Search using partial names or full names. Select individual items or click Select All .
	KPI	Raw granularity: • Jitter Avg • Jitter Max • Jitter Min • Latency Avg • Latency Max • Latency Min • Packet Loss Other granularities (Hourly, Daily, Weekly and Monthly): • Jitter Avg • Jitter Max • Jitter Min • Latency Avg • Latency Max • Latency Min • Packet Loss Avg • Packet Loss Max • Packet Loss Min Note: The Max, Min, and Avg packet loss values are the same.

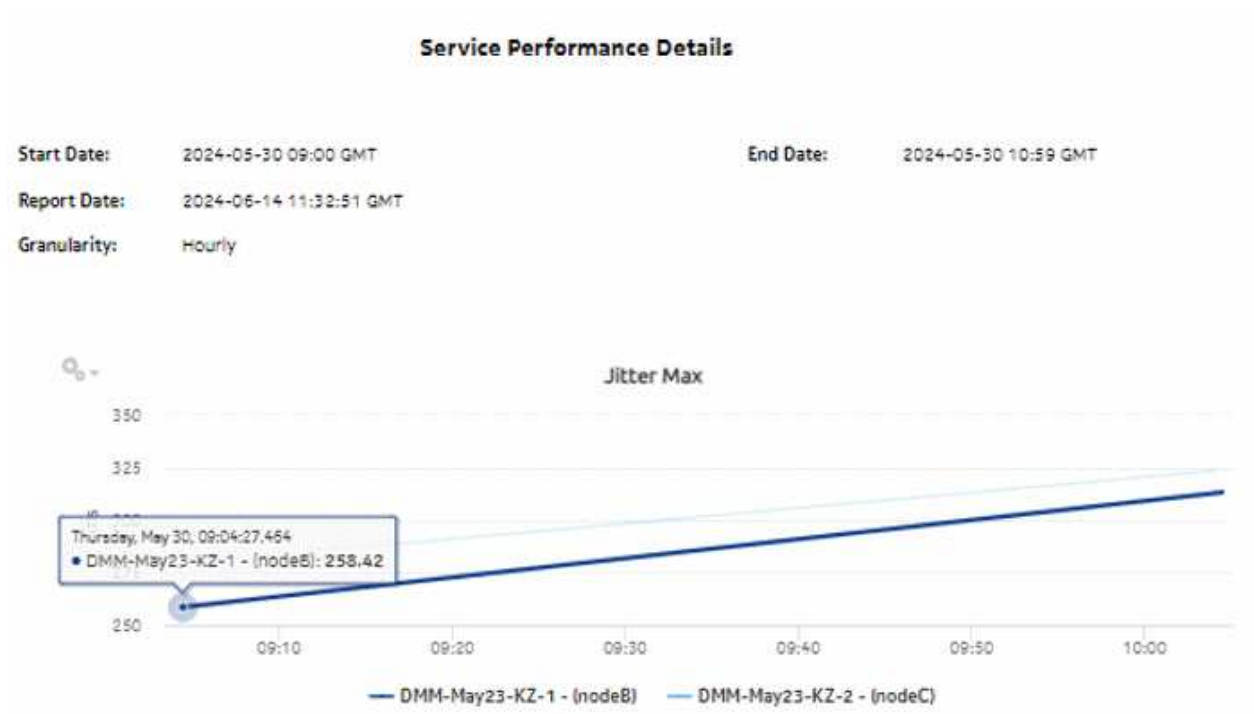
Table 16-15 Service Performance Details report characteristics (continued)

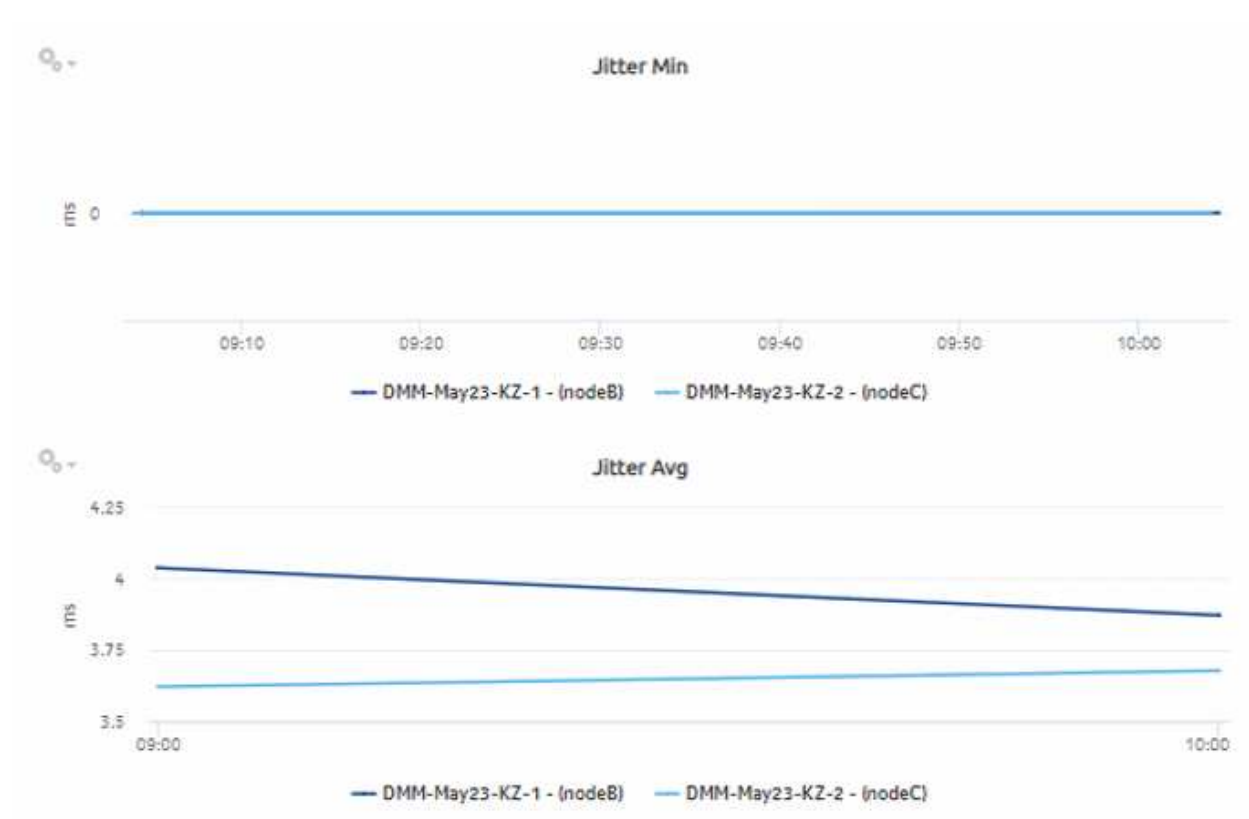
Characteristic	Value	
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drill down from Service Performance Summary report	

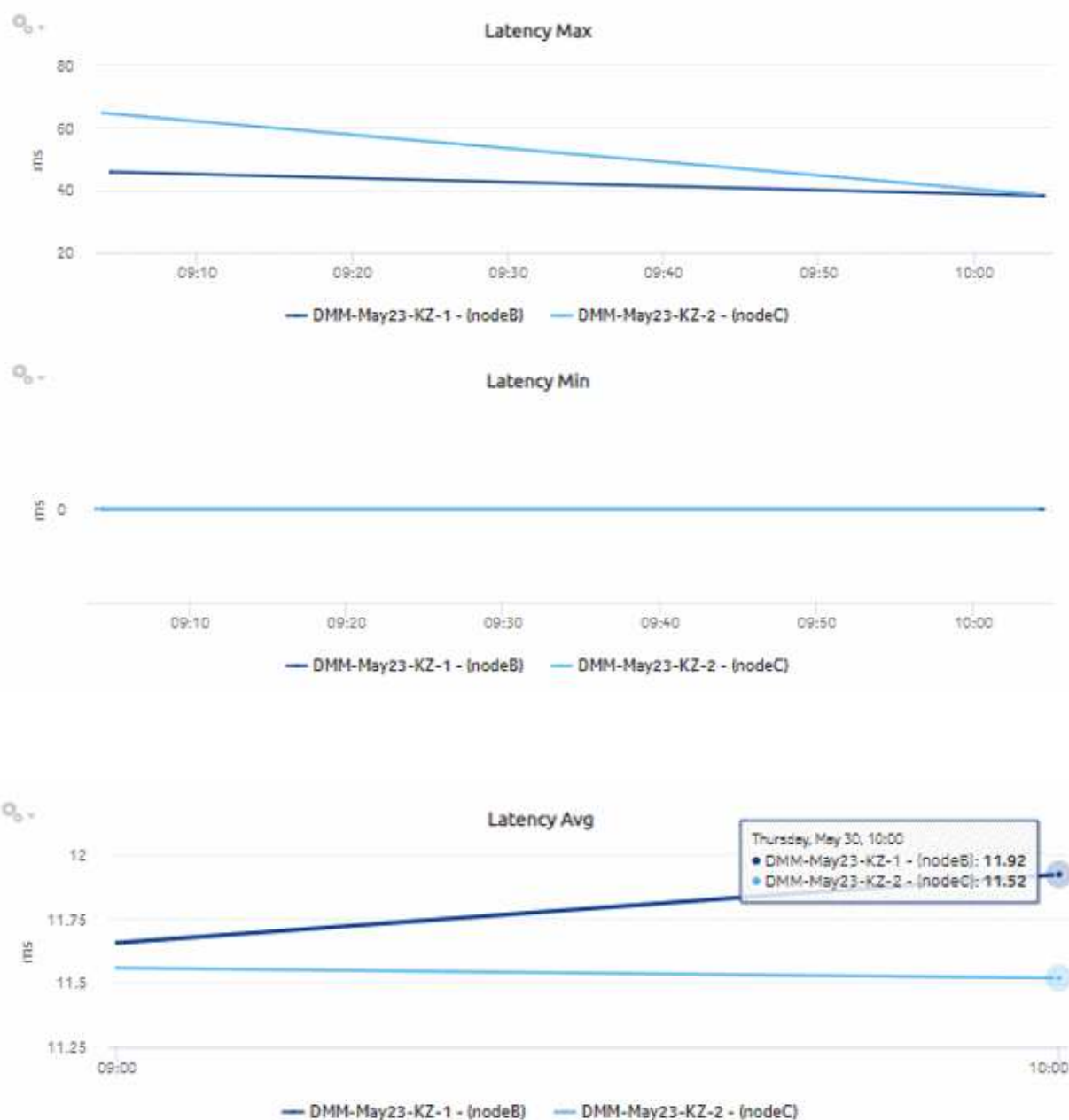
16.8.2 Example

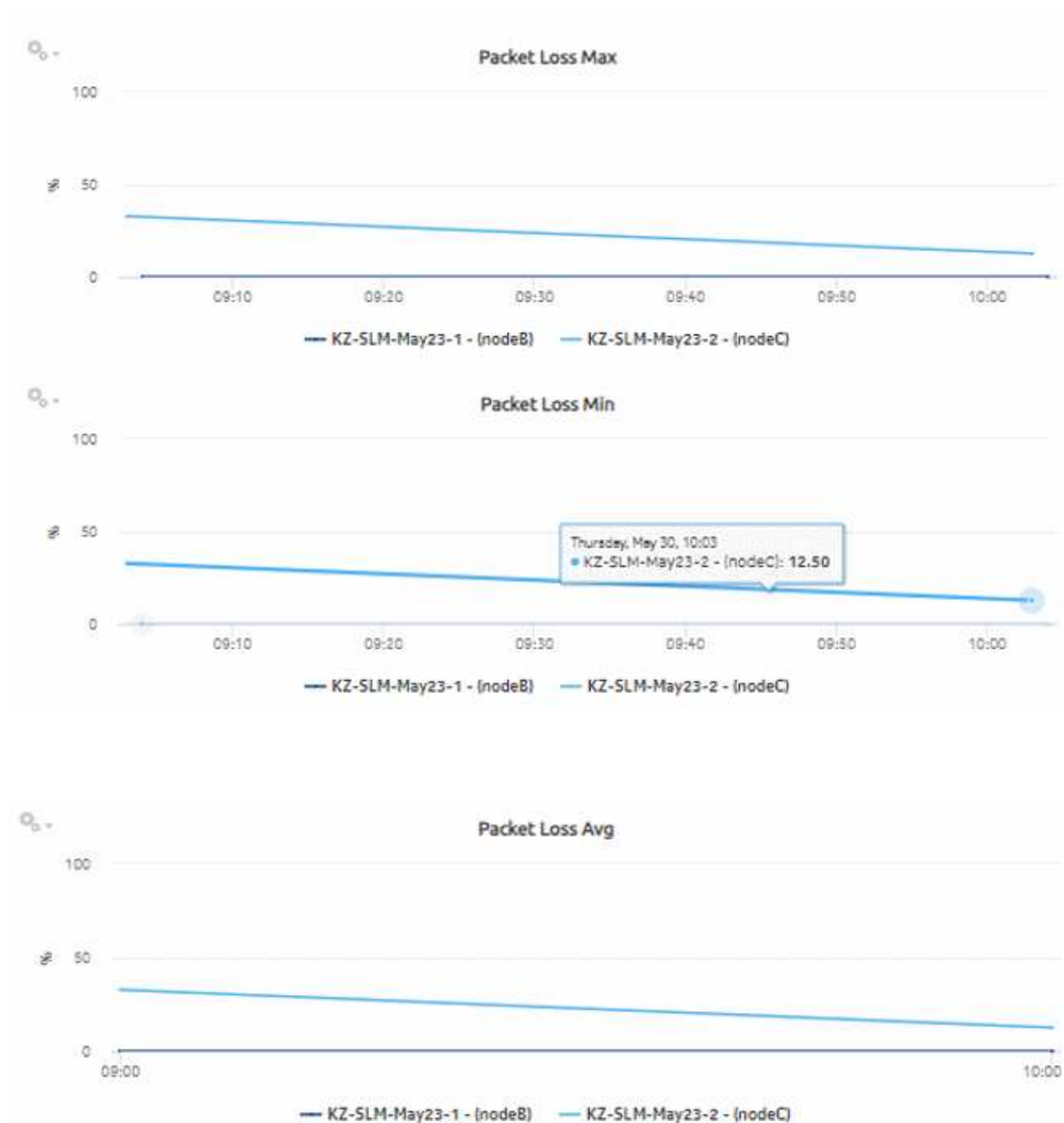
The following figure shows a report example.

Figure 16-6 Service Performance Details report









16.9 Service Performance Summary report

16.9.1 Service Performance Summary report overview

The Service Performance Summary report offers a concise overview of jitter, latency, and packet loss metrics for services. Within the report, a table is presented, detailing key statistics such as average, maximum, and minimum values for each metric. The report includes available data for NEs managed by the NFM-P or MDM. The report shows a summary of jitter, latency, and packet loss for services.

i **Note:** If there is no data in any one of the stats for TWL/TWL Loss and DMM/SLM session accounting stats, the report shows -1.0 in red.

If the received packet is greater than the transmitted packet, then the packet loss gives a negative value, which is displayed as 0.0 with drill down.

Limitations

Report limitations include:

- The report for MD SR NE supports only the services which are associated with endpoints (not MEP).
- When the report is exported to the RTF or DOCX file type, some columns may not display or there may be a problem with the table border.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Prerequisites

The following prerequisites are required in order for the report to be generated:

- MD SR NE and/or classic NE must be discovered
- L2 services/L3 services must exist

Either of the following sessions must be performed in the NSP or NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. DMM Sessions will be created with L2 services.
- A TWAMP-Light session must be defined with accounting enabled in either MDM-managed or NFM-P NEs. TWAMP Light session will be created with L3 Services.

i **Note:** Complete PM is not supported for SAR NEs.

The following table describes the subscriptions that must be added to the NSP to collect telemetry statistics, and the aggregators that must be enabled to run the report for other granularities.

Table 16-16 Service Performance Summary report prerequisites for MDM-managed NEs

Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session, Site	telemetry:/base/oampm-accounting/cfm-dmm-session-acc-stats	Telemetry statistics	7750 MD-SR
CFM SLM Session, Site	telemetry:/base/oampm-accounting/cfm-slm-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-acc-stats	Telemetry statistics	7750 MD-SR
TWL Session, Site	telemetry:/base/oampm-accounting/twl-session-loss-acc-stats	Telemetry statistics	7750 MD-SR

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 16-17 Service Performance Summary report prerequisites for NFM-P-managed NEs

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM DMM Session Accounting Aggregator	saspm_ CfmDmmSession- AccStatsLogRecord	CFM DMM Session, Site	ethernetoam. CfmDmmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-17 Service Performance Summary report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
CFM SLM Session Accounting Aggregator	saspm_ CfmSlmSession- AccStatsLogRecord	CFM SLM Session, Site	ethernetoam. CfmSlmSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-17 Service Performance Summary report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Accounting Aggregator	saspm_ TWLSession- AccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics (Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Table 16-17 Service Performance Summary report prerequisites for NFM-P-managed NEs (continued)

Aggregation name	Table name	Monitored object class	Statistics class	Statistics collection	NE types
TWL Session Loss Accounting Aggregator	saspm_ TWLSessionLossAccStatsLogRecord	TWL Session, Site	sas.TWLSession	Accounting statistics(Complete-PM)	7210 SAS-M 24F 7210 SAS-M 24F 2XFP 7210 SAS-M 24F 2XFP ETR 7210 SAS-T 12F 10T 4XFP 7210 SAS-T 12F 10T 4XFP ETR 7210 SAS-X 24F 2XFP 7210 SAS-K 7210 SAS-R6 7210 SAS-R12 7210 SAS-S/SX 1/10GE VC 7250 IXR-6 7250 IXR-R6 7250 IXR-s 7250 IXR-10 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants

Use cases

QoS analysis - identify potential service impacting issues based on thresholds for latency, jitter and packet loss on services.

Report characteristics

The following table lists the principal report characteristics. It is not mandatory for all service sites to be located within the same region or subregion. If at least one of the service sites falls within the selected region or subregion, the service will be included in the report.

Table 16-18 Service Performance Summary report characteristics

Characteristic	Value
Data type	OAM tests
Source database	Auxiliary database

Table 16-18 Service Performance Summary report characteristics (continued)

Characteristic	Value	
Service types supported	VPLS, VPRN, MVPLS, Epipe, or Cpipe	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Region	Select a region
	Subregion	Select one or more subregion(s). Objects in the lower subregions are automatically selected when their subregion is selected.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

16.9.2 Example

The following figures shows report examples.

Figure 16-7 Service Performance Summary report

Service Performance Summary													
Start Date:		2024-05-30 09:00 GMT								End Date:		2024-05-30 10:00 GMT	
Report Date:		2024-05-14 11:28:11 GMT											
Granularity:		Hourly											
*Any values highlighted in red indicates no data													
Service Name	Service Id	JitterMax (ms)	JitterMin (ms)	JitterAvg (ms)	JitterMaxTime	LatencyMax (ms)	LatencyMin (ms)	LatencyAvg (ms)	LatencyMaxTime	PacketLossMax (%)	PacketLossMin (%)	PacketLossAvg (%)	PacketLossMaxTime
vpm-2000	vpm-2000	139.75	0.0	2.33	2024-05-30 14:30:00	67.1	0.0	7.88	2024-05-30 18:30:00	-1.0	-1.0	-1.0	N/A
vpm1000	vpm1000	223.23	0.0	2.8	2024-05-30 15:30:00	85.65	0.0	11.66	2024-05-30 14:30:00	35.58	0.0	11.82	2024-05-30 14:30:00

17 NSP inventory reports

17.1 NSP inventory reports overview

17.1.1 General information

NSP inventory reports provide hardware configuration details at the card and port levels. NSP inventory reports additionally include inventory data for NEs managed using model-driven mediation.

i **Note:** The report input options list all NEs that are compatible with NSP inventory reports, not only the NEs that are present. A report can only be generated on NEs found in the network.

i **Note:** To launch the reports network wide, do not select any report inputs.

Use cases

Network planning—Use the reports to plan for the acquisition of new hardware when required.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

17.2 Card Inventory report

17.2.1 Card Inventory report overview

The Card Inventory report shows the NEs and sites selected and proportion of empty and populated IOM, IMM, MDA, and Wavence slots. The default display is a pie chart and a set of tables displaying details. The report includes inventory data for NEs managed using model-driven mediation.

For MDM-mediated NEs, cards are mapped as IOM cards.

- The pie chart shows the empty and populated slot percentages of IOM/IMM/XCM/Wavence and MDA/XMA for the sites selected.
- The Card Totals Per Node Type table displays the number of the Populated/Empty slot of IOM/IMM/XCM/Wavence and MDA/XMA.
- The CPM/SF Card Totals table displays the Card Type, Card Software and Number of Card details of CPM/SF card type.
- The IOM/IMM/XCM/Wavence Card Totals table displays the Card Type, Card Software and Number of Card details of IOM/IMM/XCM card type.
- The MDA/XMA Card Totals table displays the Card Type, Card Software, and Number of Card details of MDA/XMA card type.
- The Card Totals Per Node table provides the number of IOM/IMM/XCM/MDA/XMA for the selected sites.

- The Full Node Inventory table provides information of NE Name, Node type, Card Type, Software Version, Slot Number, Part Number, Serial Number, Manufacture Assembly Number, and Manufacture Date of the sites selected.

Table 17-1 Assigned and not assigned slot count per NE type

Total IOM/IMM/XCM slots	Populated IOM/IMM/ XCM slots	Empty IOM/IMM/ XCM slots	Total MDA/XMA slots	Populated MDA/XMA slots	Empty MDA/XMA slots
Count of numbered card slots in the NE	Count of card slots which are assigned	Count of card slots which are not assigned	Count of daughter card slots under the populated card slots	Count of assigned daughter card slots under populated card slots	Count of daughter card slots which are not assigned

For each card type, the equipped slots total count can be found in the respective card totals tables in the report

Limitations

Report limitations include:

- When the report is exported to the RTF file type, report data does not display.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-2 Card Inventory report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database

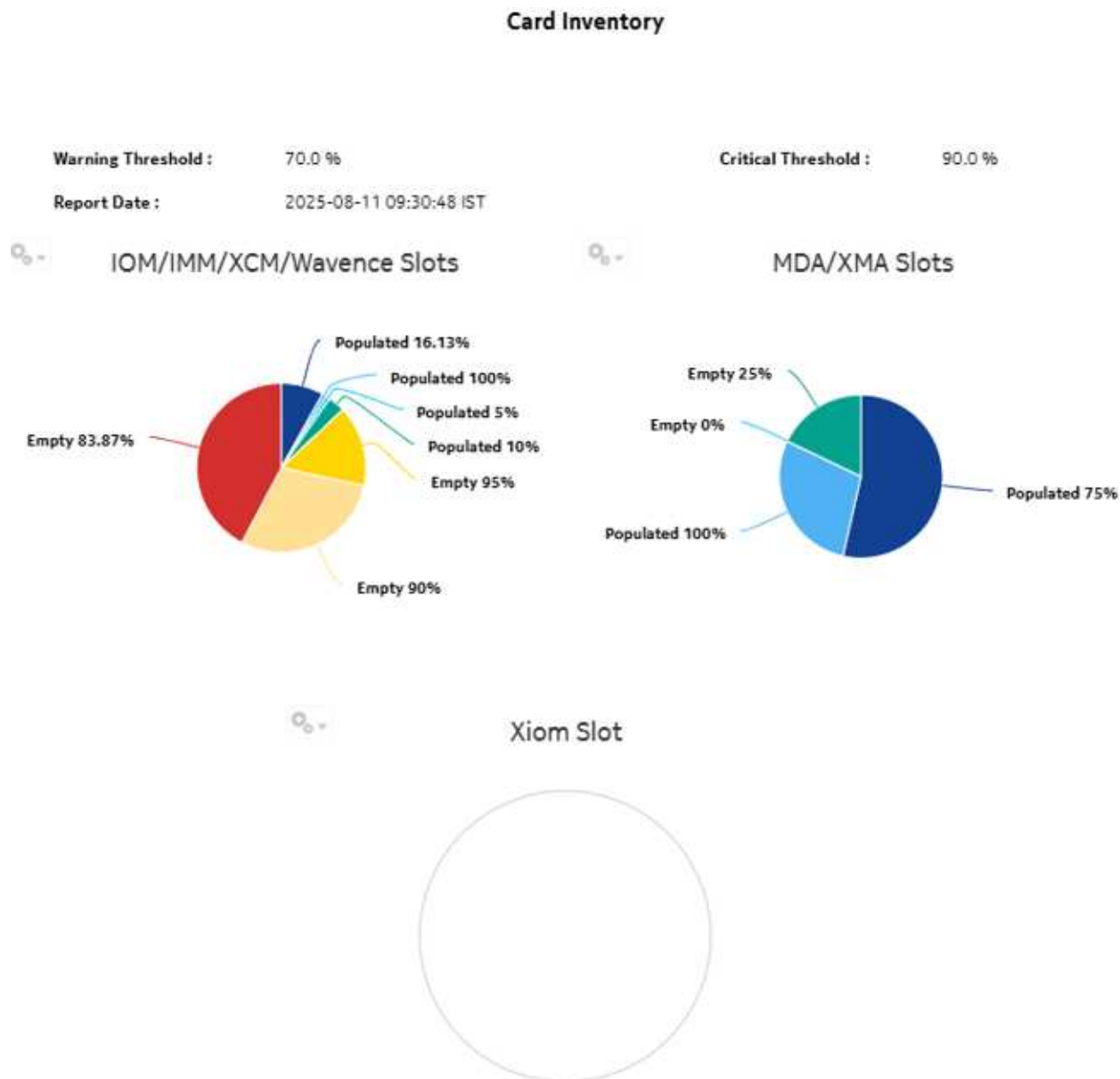
Table 17-2 Card Inventory report characteristics (continued)

Characteristic	Value	
NE types supported	all 7210 SAS variants 7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA MDM-mediated NEs. The support for MDM-mediated NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network.	
	Support is limited to NEs found in the network.	
Report inputs	Prompt	Notes
	NE types	Search using partial names or wildcard (%).
	Name or name pattern for NEs	The report can be launched for specific NEs by selecting them individually, or for the entire network by leaving both NE and NE type selections blank.
	NEs	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

17.2.2 Example

The following figures show a Card Inventory report example.

Figure 17-1 Card Inventory report



Card Totals by NE Type

NE Type	Number NEs	Total IOM/IMM/XCM/Wavence Slots	Populated IOM/IMM/XCM/Wavence Slots	Empty IOM/IMM/XCM/Wavence Slots	Total MDA/XMA Slots	Populated MDA/XMA Slots	Empty MDA/XMA Slots	NEs with No Free IOM/IMM/XCM Slots	NEs with No Free MDA/XMA Slots	Total XIOM Slots	Populated XIOM Slots	Empty XIOM Slots	NEs with No Free XIOM Slots
7750-SR12	6	62	10	52	20	15	5	0	1	0	0	0	0
7750 SR-12	4	40	4	36	8	8	0	0	4	0	0	0	0
7950 XRS-20e	1	20	1	19	2	2	0	0	1	0	0	0	0
7210 SAS-D-6F-4T	1	1	1	0	1	1	0	1	1	0	0	0	0

CPM/SF Card Totals

Card Type	Card Software Version	Number of Cards
CPM5	TIMOS-C-22.10.R11	1
CPM5	TIMOS-C-23.10.R8	1
CPM5	TIMOS-C-24.3.R1	1
CPM5	TIMOS-C-24.7.R1	1
CPM-IXR-E	TIMOS-C-23.10.R3	4
CPM-X20	TIMOS-C-23.10.R8	1

IOM/IMM/XCM/Wavence Card Totals

Card Type	Card Software Version	Number of Cards
2-PAC FP3 IMM	TIMOS-B-22.10.R11	6
2-PAC FP3 IMM	TIMOS-C-25.3.R1	3
2 x MDA IOM 4, E	TIMOS-B-22.10.R11	6
2 x MDA IOM 4, E	TIMOS-C-25.3.R1	3
2 x XP MDA IOM 3	TIMOS-B-13.0.R20	3
2 x XP MDA IOM 3	TIMOS-C-15.0.R1	9
7210 IOM	TIMOS-B-25.3.R1	3
imm24-sfp++8-sfp28+2-qsfp28	TIMOS-C-23.10.R3	4
imm-2pac-fp3	TIMOS-C-22.10.R11	1
iom5-e	TIMOS-C-23.10.R8	1
iom5-e	TIMOS-C-24.3.R1	1
iom5-e	TIMOS-C-24.7.R1	1
xcm2-x20	TIMOS-C-23.10.R8	1
Totals		42

XIOM Card Totals

Card Type	Card Software Version	Number of Cards
No data found		

MDA/XMA Card Totals

Card Type	Card Software Version	Number of Cards
2 x 100-Gig Ethernet CFP4	TiMOS-B-22.10.R11	6
60 x 10/100 Ethernet	TiMOS-B-13.0.R20	3
60 x 10/100 Ethernet	TiMOS-C-15.0.R1	9
6 x 100/1000 SFP + 4 x 10/100/1000 Ethernet	TiMOS-B-25.3.R1	3
IMM P10 x 10GE SFP	TiMOS-B-22.10.R11	12
IMM P1 x 100GE CFP	TiMOS-C-25.3.R1	6
ISA Application Assurance	TiMOS-C-15.0.R1	9
m24-sfp++8-sfp28+2-qsfp28	TiMOS-C-23.10.R3	4
me5-100gb-qsfp28	TiMOS-C-23.10.R8	1
me5-100gb-qsfp28	TiMOS-C-24.3.R1	1
me5-100gb-qsfp28	TiMOS-C-24.7.R1	1
p10-10g-sfp	TiMOS-C-22.10.R11	2
x24-100g-qsfp28	TiMOS-C-23.10.R8	2
Totals		59

Card Totals Per NE

NE Name	NE Type	Total IOM/XCM Cards	Total IMM Cards	Free IOM/IMM/ XCM Slots	Total XIOM Cards	Free XIOM Slots	Total MDA/XMA cards	Free MDA/XMA Slots
NS111365422	7750-SR12	1	1	8	0	0	2	2
sim9_120	7750-SR12	3	0	7	0	0	6	0
SAS-D-114	7210 SAS-D-6F-4T	1	0	0	0	0	1	0
s168_96_118_Both	7750-SR12	1	1	8	0	0	3	1
s168_97_91_Both	7750-SR12	1	0	9	0	0	1	1
s168_98_206_Both	7750-SR12	1	1	8	0	0	3	1
nodeB	7950 XRS-20e	1	0	19	0	0	2	0
nodeD	7750-SR-12	1	0	9	0	0	2	0
nodeB	7750-SR-12	1	0	9	0	0	2	0
nodeD	7750-SR-12	1	0	9	0	0	2	0
s168_96_219_acpm	7750-SR-12	0	1	9	0	0	2	0

Full NE Inventory

NE Name	NE Type	Software Version	Slot Number	Card Type	Part Number	Serial Number	Manufacture Assembly Number	Manufacture Date
CHN-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	m24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533608	N/A	07142023
CHN-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	imm24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533608	N/A	07142023
CHN-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	CPM-IXR-E	3HE14782ABRBO 1	NK232533608	N/A	07142023
CHN-NMS-SW02	7250 IXR-e	TIMOS-C-23.10.R3	1	CPM-IXR-E	3HE14782ABRBO 1	NK232533410	N/A	07142023
CHN-NMS-SW02	7250 IXR-e	TIMOS-C-23.10.R3	1	imm24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533410	N/A	07142023
CHN-NMS-SW02	7250 IXR-e	TIMOS-C-23.10.R3	1	m24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533410	N/A	07142023
MNR-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	m24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533504	N/A	07152023
MNR-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	imm24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533504	N/A	07152023
MNR-NMS-SW01	7250 IXR-e	TIMOS-C-23.10.R3	1	CPM-IXR-E	3HE14782ABRBO 1	NK232533504	N/A	07152023
MNR-NMS-SW02	7250 IXR-e	TIMOS-C-23.10.R3	1	CPM-IXR-E	3HE14782ABRBO 1	NK232533563	N/A	07152023
MNR-NMS-SW02	7250 IXR-e	TIMOS-C-23.10.R3	1	m24-sfp++8-sfp28+2-qsfp28	3HE14782ABRBO 1	NK232533563	N/A	07152023

17.3 Port Details report

17.3.1 Port Details report overview

The Port Details report shows the port usage details for selected NEs and sites. The default display is a table displaying details of the port. Protection ports will not be shown as "used ports" in the Port Details report. The report includes data for NEs managed using model-driven mediation.

The port mode may show its value as Unknown for multivendor NEs because it is specific to Nokia.

The model number and optical compliance are displayed at the port level.

Limitations

Report limitations include:

- Some table columns cannot be sorted and filtered; see [1.21 "Which report table columns cannot be sorted and filtered?"](#) (p. 43).
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- The report may not list the ports in ascending order per slot.
- When the report is exported to the RFT file type, the file may not open if there is a lot of data.
- When the report is exported to RTF or DOCX type, some table columns may not display.

Prerequisites

MDM adapters are required based on the NEs that are managed. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-3 Port Details report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database

Table 17-3 Port Details report characteristics (continued)

Characteristic	Value	
NE types supported	all 7210 SAS variants 7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) all 7450 ESS variants all 7705 SAR variants all 7750 SR and VSR variants all 7950 XRS variants OS 6860, OS 6450, OS 6900 Cisco Sapro NCS540 7.5.2 Cisco Sapro NCS57C3 7.6.2 MDM-mediated/MV NEs—Support for these NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network. Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence MSS-1c, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA	
	Support is limited to NEs found in the network.	
Report inputs	Prompt	Notes
	NE type	Search using partial names or wildcard (%).
	Name or name pattern for NE	The report can be launched for specific NEs by selecting them individually, or for the entire network by leaving both NE and NE type selections blank.
	NE	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

17.3.2 Example

The following figure shows a report example.

Figure 17-2 Port Details report

Port Details												
Report Date: 2025-08-11 06:30:27 (ET)			NE Name: All									
NE Type: 7750-SR12			NE ID: All									
Warning Threshold: 90.0 %			Critical Threshold: 90.0 %									
Site	Card Type	Port Type	Port Name	Port Speed (Mbps)	Port Actual Speed (Mbps)	Mode	Port Description	Port Count	Ports Used	Ports Used (%)	Model Number	Optical Compliance
3800gppn-uni-cmodel02.168.06.28(equipmentId=equipmentId&location=number%201%20index%201%20)								10	0	0		
	HE10-10GB-SPH	ethernet	1/1/1	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/2	10000	10000000	Access	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/3	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/4	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/5	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/6	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/7	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/8	10000	10000000	Access	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/1/9	10000	10000000	Access	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
3800gppn-uni-cmodel02.168.06.28(equipmentId=equipmentId&location=number%201%20index%202%20)								10	0	0		
	HE10-10GB-SPH	ethernet	1/2/1	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/2	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/3	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/4	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/5	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/6	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/7	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/8	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR
	HE10-10GB-SPH	ethernet	1/2/9	10000	10000000	Network	N/A	1	0		3HE4213AAAC1 ALA PUKAWDA	10GBASE-LR

17.4 Port Inventory Summary report

17.4.1 Port Inventory Summary report overview

The Port Inventory Summary report shows the port type and port usage for selected NEs. The report includes data for NEs managed using model-driven mediation. The default display is a table displaying details, including total port count, total ports used, and percentage of ports used. Protection ports will not be shown as "used ports" in Port Inventory Summary reports.

The part number and CLEI number are displayed at the card level.

Limitations

Report limitations include:

- Some table columns cannot be sorted and filtered; see [1.21 "Which report table columns cannot be sorted and filtered?"](#) (p. 43).
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Prerequisites

An MDM adapter is required for MDM-mediated NEs. Contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

Report characteristics

The following table lists the principal report characteristics.

Table 17-4 Port Inventory Summary report characteristics

Characteristic	Value
Data type	NE configuration information
Source database	NSP main database
NE types supported	all 7210 SAS variants 7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) all 7705 SAR variants all 7450 ESS variants all 7750 SR and VSR variants all 7950 XRS variants 7210 SAS-D 6F 4T, 7210 SAS-D 6F 4T ETR, 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12 OS 6860, OS 6450, OS 6900 Wavence MSS-1, Wavence MSS-4, Wavence MSS-8, Wavence MSS-O, Wavence SA, 9500 MPR-A Chassis 1, 9500 MPR-A Chassis 4, 9500 MPR-A Chassis 8, 9500 MPR-E Chassis 1, 9500 MPR-E Chassis 4, 9500 MPR-E Chassis 8, 9500 MSS-1c, 9500 MSS-O ANSI, 9500 MSS-O ETSI, 9500 SA MDM-mediated NEs. The support for MDM-mediated NEs depends on the availability of the MDM adapters for the particular NE version and variants installed in the network.
	Support is limited to NEs found in the network.

Table 17-4 Port Inventory Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	NE Types	Search using partial names or wildcard (%).
	NEs	The report can be launched for specific NEs by selecting them individually, or for the entire network by leaving both NE and NE type selections blank.
	Name or name pattern for NEs	
	Warning Threshold %	Ranges from 0 to 100
	Critical Threshold %	Ranges from 0 to 100
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Open the Port Details report for the selected NE.	

17.4.2 Example

The following figure shows a report example.

Figure 17-3 Port Inventory Summary report

Port Inventory Summary

Report Date : 2025-08-11 09:48:16 IST

Warning Threshold : 70.0 % Critical Threshold : 90.0 %

NE ID	NE Name	NE Type	Card Type	Card Slot	Port Type	Port Description	Port Count	Ports Used	Ports Used (%)	Port Number	CLEI Number
22.168.96.7	nodeB	7950 XRS-20e					58	0	0.0		
			XCM2-X20	shelf=1/cardSlot=1/card=1/mdaSlot=1/mda=1	connector	N/A	24	0	0.0	13e47dae3014b4b83f3ee444fa28f0c	N/A
			XCM2-X20	shelf=1/cardSlot=1/card=1/mdaSlot=2/mda=2	connector	N/A	24	0	0.0	13e47dae3014b4b83f3ee444fa28f0c	N/A
			XCM2-X20	shelf=1/cardSlot=1/card=1/mdaSlot=1/mda=1	ethernet	N/A	10	0	0.0	13e47dae3014b4b83f3ee444fa28f0c	N/A
22.168.96.26	nodeC	7450 ESS-7					20	0	0.0		
			IGM4-E	shelf=1/cardSlot=1/card=1/mdaSlot=1/mda=1	ethernet	N/A	10	0	0.0	8d9b278a6036481799b5e3f0ae4fb7ca	N/A
			IGM4-E	shelf=1/cardSlot=1/card=1/mdaSlot=2/mda=2	ethernet	N/A	10	0	0.0	8d9b278a6036481799b5e3f0ae4fb7ca	N/A

18 NSP OAM reports

18.1 NSP OAM reports overview

18.1.1 General information

NSP OAM reports show aggregated information on latency, loss, interframe delay, and other measurements based on the results of OAM testing. The reports include OAM data for NEs managed using model-driven mediation.

The graph shows the following colors:

- Orange highlighting indicates that the maximum RTD is double or more the value of the average RTD
- Yellow highlighting indicates that the latency or packet loss is greater than 0% but less than 5%.
- Red highlighting indicates that the latency or packet loss is greater than 5%.

Both the NE name and its IP address (NE ID) display in the report. When a device has both IPv4 and IPv6 system IP addresses, the report displays whichever is the NE ID in the NSP.



Note: Gaps may appear in line graphs: These indicate a time during which no data was available.

Drill-down reports

NSP OAM reports can be run from the main NSP OAM reports folder. Some reports can also be run as drill-downs by clicking on a data point in another report. See the report characteristics table for each NSP OAM report for the drill-downs available.

Supported standards

The MEF35 reports on OAM test measurement data for SR-OS devices.

Prerequisites



Note: See [“Supported NEs” \(p. 611\)](#) for information about supported NEs.

The following must be configured for NSP OAM reports to be created:

- For NSP Classic-managed NEs statistics collection, use SNMP MIB statistics or accounting statistics
- For model driven-managed NEs, MDM is required to collect gRPC statistics. When MDM is used to collect statistics, persistence must be enabled in the subscription.
- An MDM adapter is required for MDM-mediated NEs; contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.
- The OAM test results must be stored in the auxiliary database. To enable auxiliary database storage of OAM test results, you must enable the oam-test-results parameter in the samauxdb

section of each main server configuration. See the *NSP Installation and Upgrade Guide* for information about using the samconfig utility.

- OAM statistics must be collected using an accounting policy. ETH-CFM Session and TWAMP-Light Session tests require a Complete-PM policy.
- To view the reports for granularities other than raw data, the OAM aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).
- PM bin group policies must be created.
- The following installation options must be added when you create an NSP instance:
 - platform
 - pluggableNetworkAdaptation
 - serviceAssurance
 - serviceActivationAndConfiguration-intentBasedServiceFulfillment
 - intentBasedNetworkingFramework

18.2 OAM-PM Bin Groups report

18.2.1 OAM-PM Bin Groups report overview

The OAM-PM Bin Groups report shows a distribution count of the PM bin groups in use and includes OAM data for NEs managed using model-driven mediation. To use the report, a bin group policy must be distributed, PM sessions must be configured for each bin group, and PM sessions must be active and enabled.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential performance impact for a selected bin group.

Prerequisites

The following tasks need to be performed for each NE for the report to be created:

- a DMM session must be defined with accounting enabled
- a TWAMP-Light session must be defined with accounting enabled
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-1 OAM-PM Bin Groups report inputs

Prompt	Notes
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Report characteristics

The following table lists the principal report characteristics.

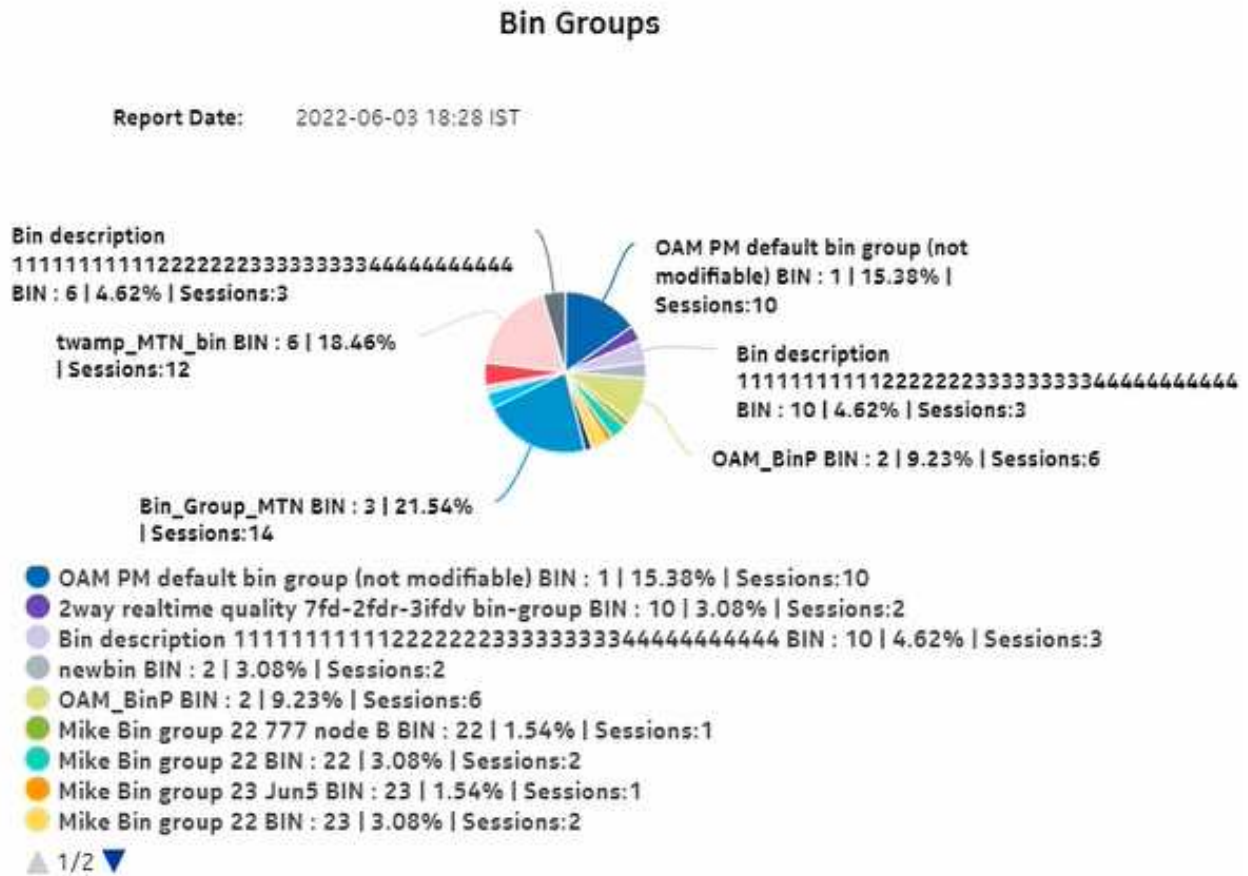
Table 18-2 OAM-PM Bin Groups report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (supports Classic and MDM modes) all 7950 XRS variants all Wavence variants
Aggregation types	—
Drill-down support	Yes: - Click on a bin group to show an OAM-PM Sessions report, showing the distribution of sessions using the bin group. - From an OAM-PM Sessions report, click on a session to show an OAM-PM Sessions By Site report: an aggregate view of the active sessions on the site using the selected bin group. You can modify report inputs, for example, show sessions with no data. - From an OAM-PM Sessions By Site report, click on a delay result to show an OAM-PM Latency report. - From an OAM-PM Sessions By Site report, click on a jitter or loss result to show an OAM-PM Loss report.

18.2.2 Example

The following figure shows a report example.

Figure 18-1 OAM-PM Bin Groups report



18.3 OAM-PM Bins report

18.3.1 OAM-PM Bins report overview

The OAM-PM Bins report shows a distribution count of the PM bins in use. The report includes OAM data for NEs managed using model-driven mediation. To use this report, a bin policy must be distributed, PM sessions must be configured for each bin, and PM sessions must be active and enabled.

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential performance impact for a selected bin group.

Limitations

When the report is exported to the ODS or ODT file type, some data may not display.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-3 OAM-PM Bins report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • Raw Collection Interval
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

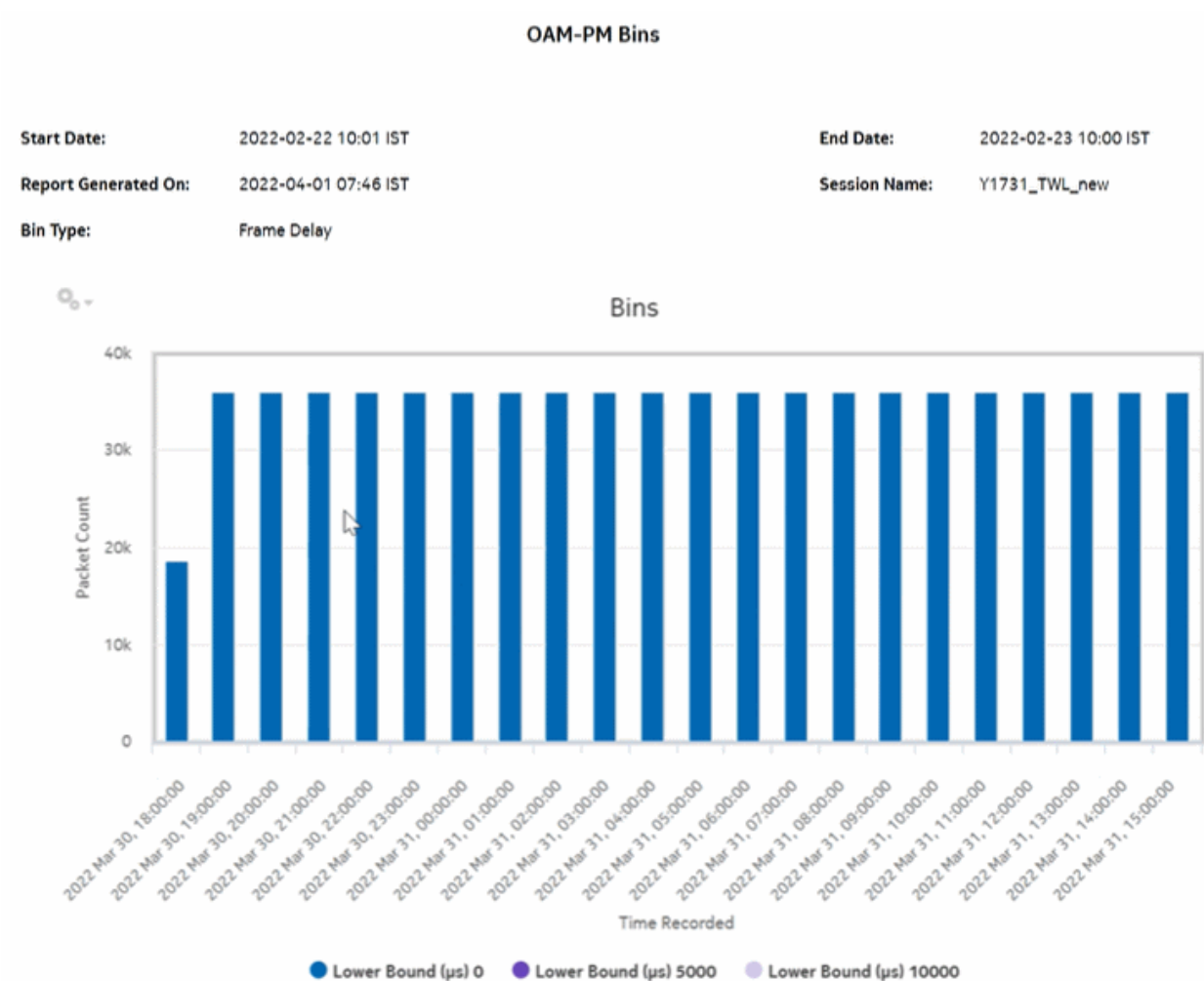
Table 18-4 OAM-PM Bins report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database
NE types supported	all 7750 SR variants all 7450 ESS variants all 7950 XRS variants 7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC
Aggregation types	—
Drill-down support	No

18.3.2 Example

The following figure shows a report example.

Figure 18-2 OAM-PM Bins report



18.4 OAM-PM Bins and Delay report

18.4.1 OAM-PM Bins and Delay report overview

The OAM-PM Bins and Delay report shows an OAM-PM session with a bin count bar graph and a delay line overlay and includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

Use cases

QoS analysis—Identify potential performance or SLA impact for a service

Limitations

Report limitations include:

- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to any file type, it does not show the legends as disabled even though the legends are disabled in the reports.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-5 OAM-PM Bins and Delay report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw collection interval)
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Delay Type	Maximum, average, or minimum
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-5 OAM-PM Bins and Delay report inputs (continued)

Prompt	Notes
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-6 OAM-PM Bins and Delay report characteristics

Characteristic	Value
Data type	OAM PM statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	No

18.4.2 Examples

The following figures show report examples.

Figure 18-3 OAM-PM Bins and Delay report – NFM-P NE TWAMP light session bins and delay



Figure 18-4 OAM-PM Bins and Delay report – NFM-P NE CFM DMM session bins and delay

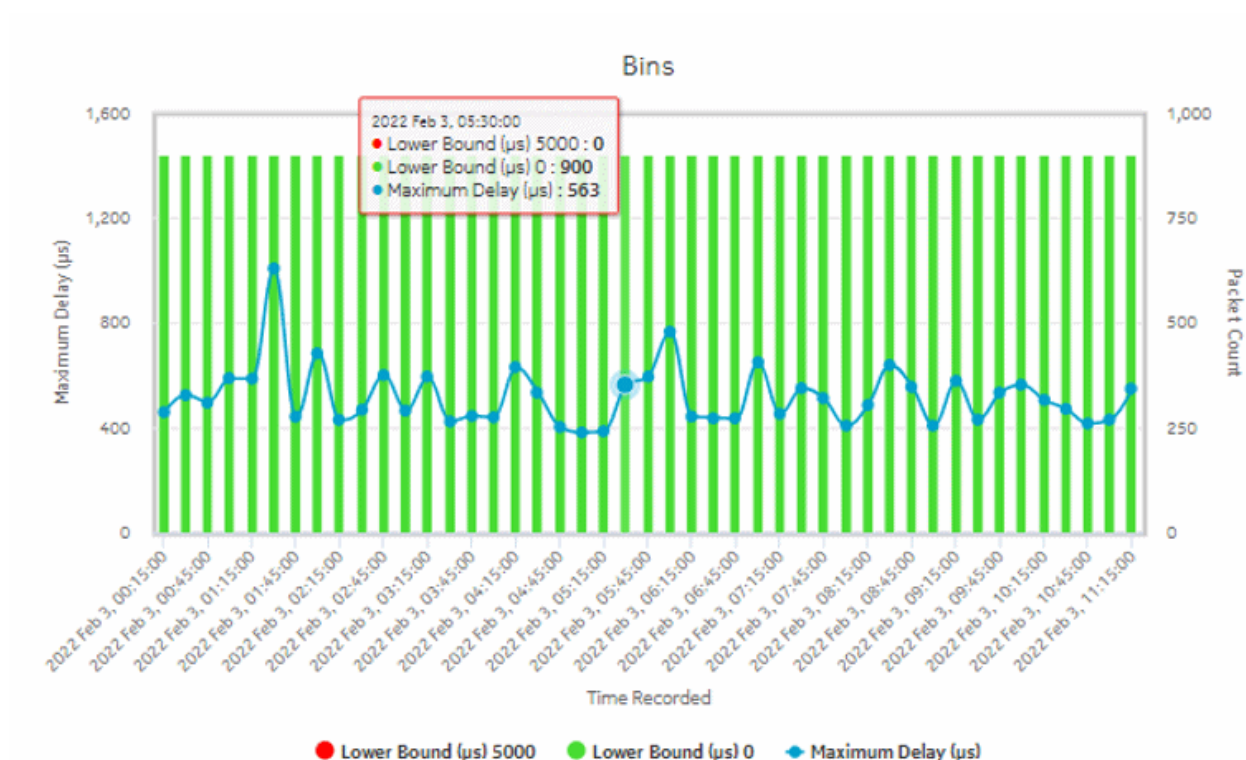


Figure 18-5 OAM-PM Bins and Delay report – MDM NE TWAMP light session bins and delay



Figure 18-6 OAM-PM Bins and Delay report – MDM NE CFM DMM light session bins and delay



18.5 OAM-PM Latency report

18.5.1 General information

The OAM-PM Latency report shows the graph of latency for a selected session during a specified time period and includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Network Site Summary report. The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

For raw granularity, the report displays data based on startTime from PM session-based statistics. For other granularities (hourly, daily, and monthly), the report displays based on timeRecorded. The difference in data is between the raw and granularity reports for Wavence NEs.

The Y-axis in the report uses a logarithmic scale which does not support zero values. Because of this, any data points with a value of 0 are shown as 0.001.

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-7 OAM-PM Latency report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • Hourly • Daily • Monthly • None (raw collection interval)
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click Select All . Both the NE name and its IP address display.
Target Node	
Session name	
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day (15 min and 1 day are supported for Wavence NEs)
Threshold	Specify the threshold value
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-7 OAM-PM Latency report inputs (continued)

Prompt	Notes
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-8 OAM-PM Latency report characteristics

Characteristic	Value
Data type	OAM session statistics For Wavence NEs: OAM session statistics and PM session-based statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants Wavence MSS-4, Wavence MSS-8
Drill-down support	No

18.5.2 Examples

The following figures show report examples.

Figure 18-7 OAM-PM Twamp-Light Session Delay Measurement Details – Delay Details for Frame Delay

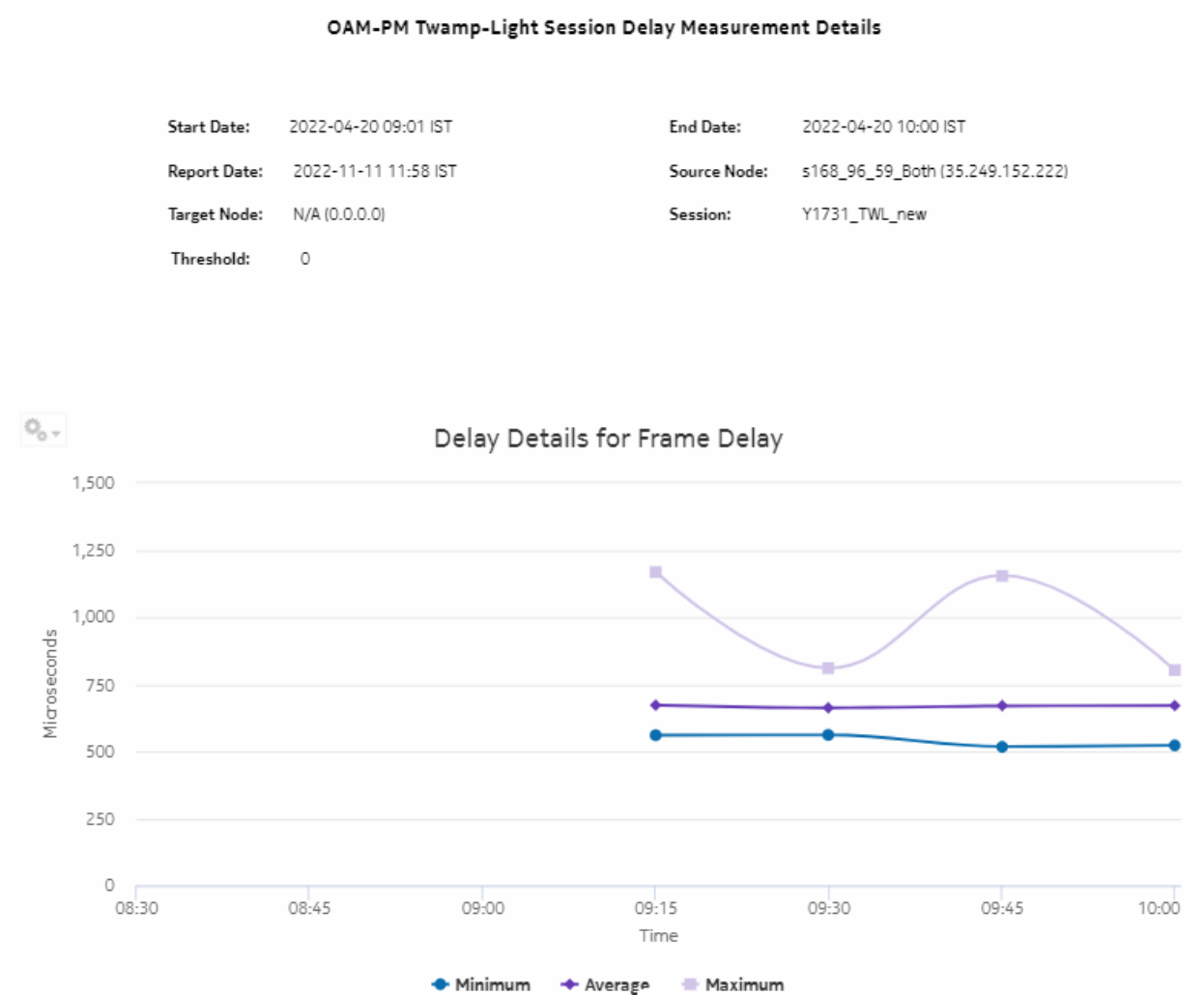


Figure 18-8 OAM-PM Twamp-Light Session Delay Measurement Details – Delay Details for Inter Frame Delay Variation



Figure 18-9 OAM-PM ETH-CFM Session Delay Measurement Details – Delay Details for Frame Delay Range

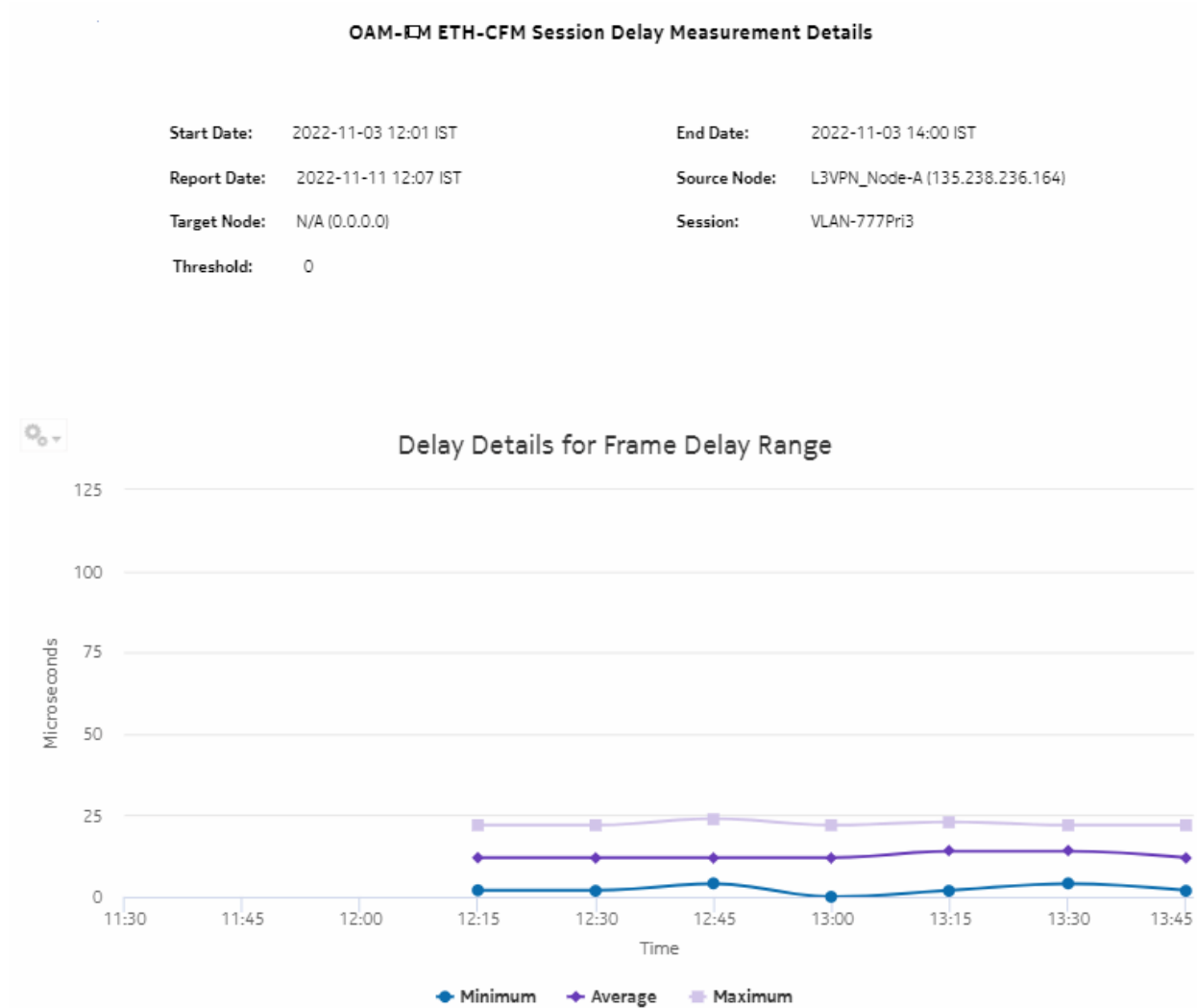
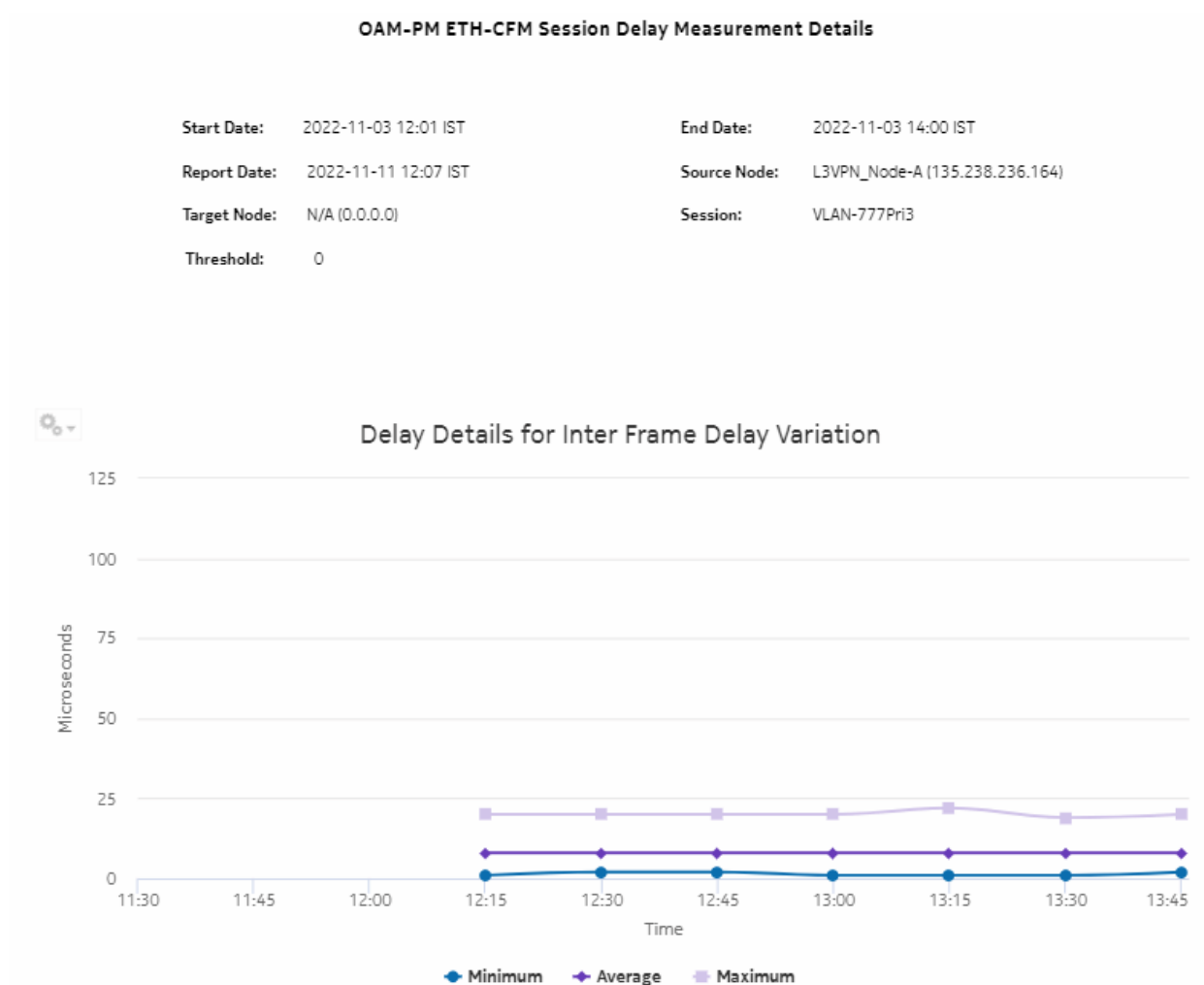


Figure 18-10 OAM-PM ETH-CFM Session Delay Measurement Details – Delay Details for Frame Delay



Figure 18-11 OAM-PM ETH-CFM Session Delay Measurement Details – Delay Details for Inter Frame Delay Variation



18.6 OAM-PM Loss report

18.6.1 Overview

The OAM-PM Loss report shows a graph of loss data for a selected session during a specified time period and includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Network Site Summary report.

The report includes the following session types:

- ETH-CFM Session

- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-9 OAM-PM Loss report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names. Select individual items or click Select All . Both the NE name and its IP address display.
Target Node	
Session Name	
Bin Type	Bin type configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-9 OAM-PM Loss report inputs (continued)

Prompt	Notes
Show Report Output On One Page	Select the check box to enable pagination. Note: Using the Show report on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-10 OAM-PM Loss report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants Wavence MSS-4, Wavence MSS-8
Drill-down support	Yes—From the following reports: • OAM-PM Service Site report • OAM-PM Top N Worst Sessions report • OAM-PM Sessions By Site report

18.6.2 Example

The following figures show report examples.

Figure 18-12 OAM-PM Twamp-Light Loss Measurement Details report – Loss Details for Frame Delay



Figure 18-13 OAM-PM ETH-CFM Loss Measurement Details report – Loss Details for Inter Frame Delay Variation

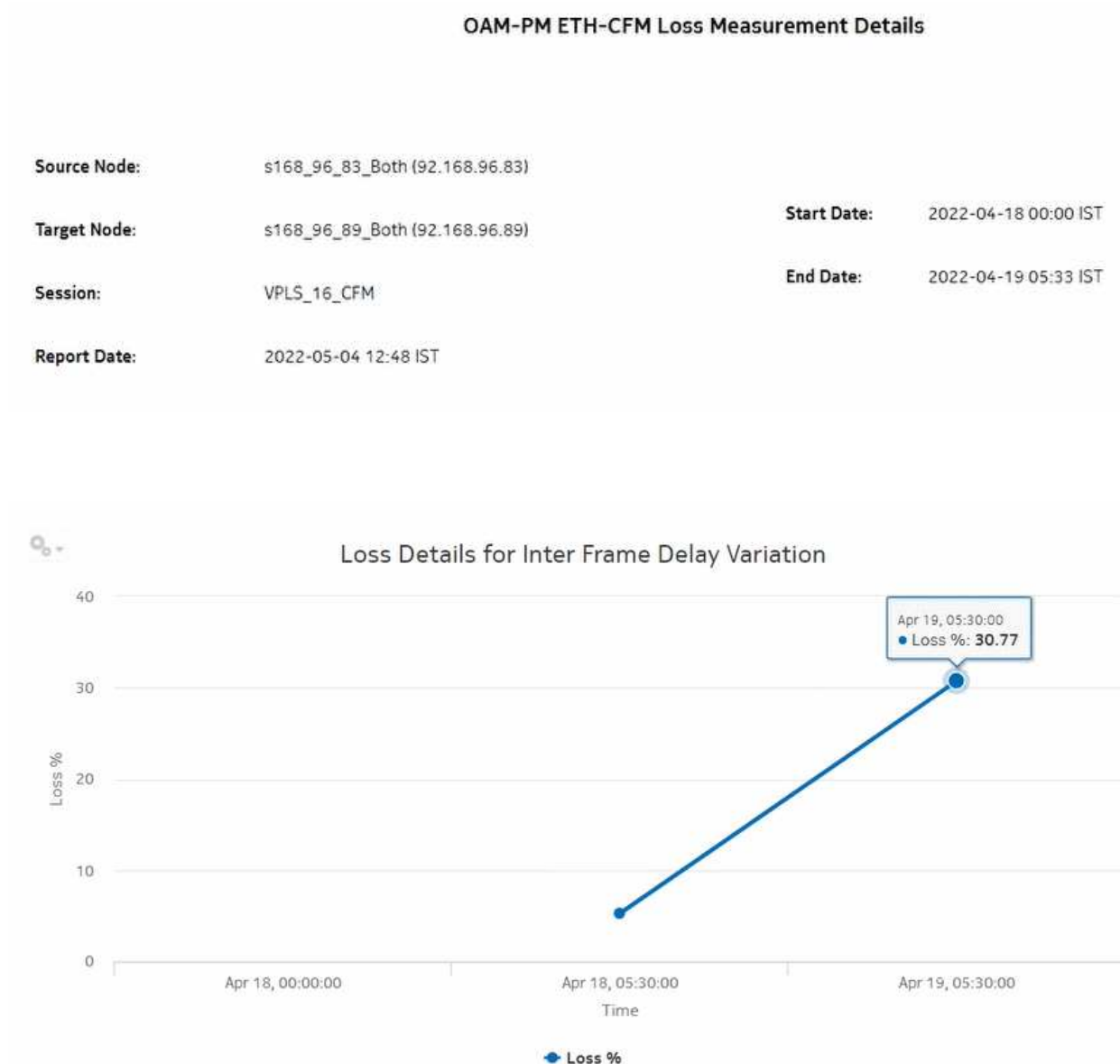
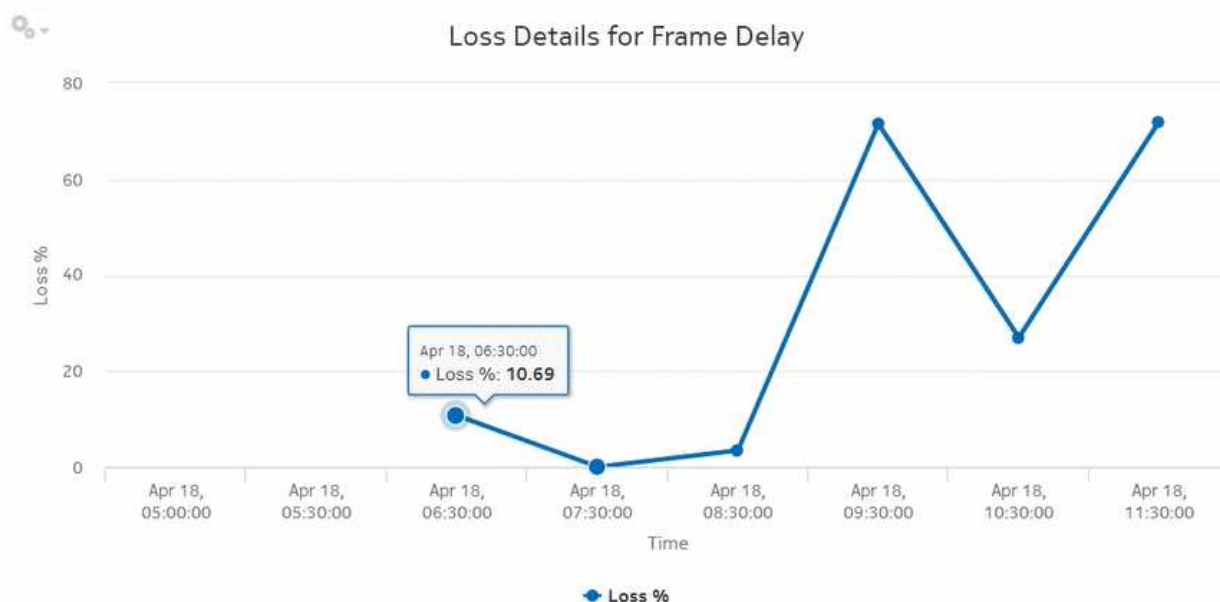


Figure 18-14 OAM-PM ETH-CFM Loss Measurement Details report – Loss Details for Frame Delay



18.7 OAM-PM Multiple Session View report

18.7.1 OAM-PM Multiple Session View report overview

The OAM-PM Multiple Session View report shows a list of OAM-PM sessions with a delay history graph and bin count summary. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The Y-axis in the report uses a logarithmic scale which does not support zero values. Because of this, any data points with a value of 0 are shown as 0.001.

Note: The OAM-PM Multiple Session View report returns an exception when more than 150 sessions are selected. You can select up to 149 sessions only.

Use cases

QoS analysis—Identify potential performance or SLA impact for a service

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs

- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-11 OAM-PM Multiple Session View report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Session Name	Search using partial names, full names, or IP addresses.
Bin Type	Bin types as configured in the NSP and NFM-P
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Threshold	Identify the threshold
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-12 OAM-PM Multiple Session View report characteristics

Characteristic	Value
Data type	OAM PM statistics

Table 18-12 OAM-PM Multiple Session View report characteristics (continued)

Characteristic	Value
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Open an OAM-PM Bins and Delay report for the selected bin.

18.7.2 Examples

The following figures show report examples.

Figure 18-15 OAM-PM Multiple Session View – ETH-CFM Session Delay

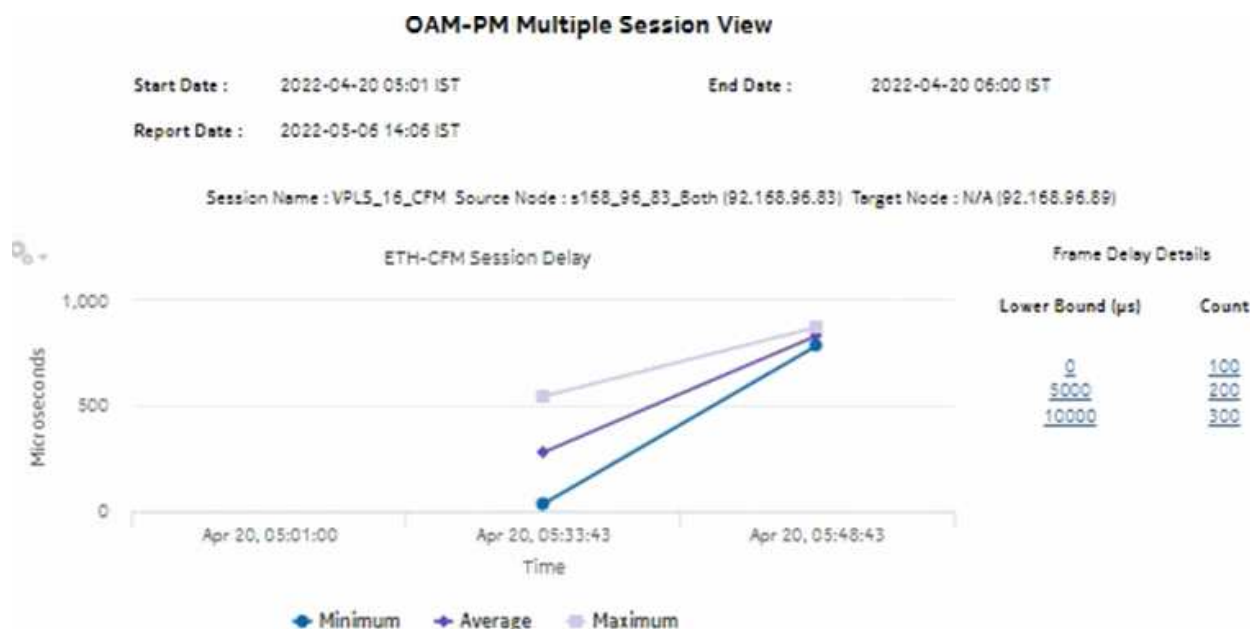
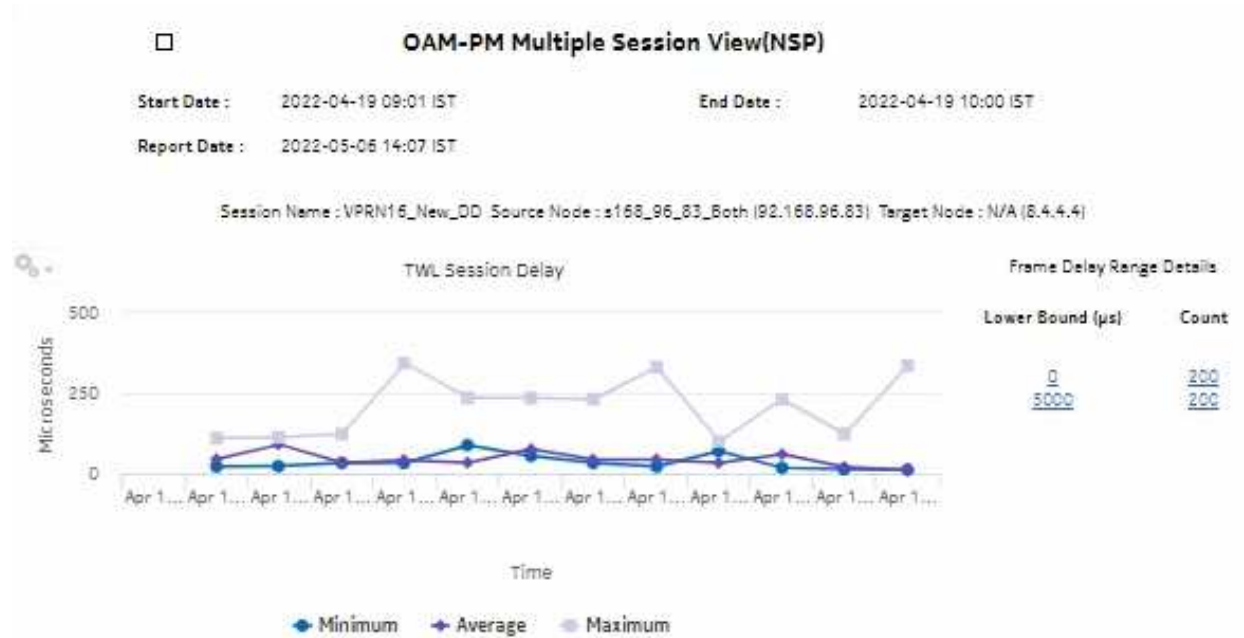


Figure 18-16 OAM-PM Multiple Session View – TWL Session Delay



18.8 OAM-PM Network Site Summary report

18.8.1 Overview

The OAM-PM Network Site Summary report shows the aggregated PM sessions for a selected source and target NE with collected bin type data, aggregated by session name. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs

- a TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-13 OAM-PM Network Site Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Bin Type	Bin types configured in the NSP and NFM-P
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-14 OAM-PM Network Site Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes: - Click on a delay result to show an OAM-PM Latency report. - Click on a jitter or loss result to show an OAM-PM Loss report.

18.8.2 Example

The following figures show report examples.

Figure 18-17 OAM-PM Twamp-Light Network Site Summary – Frame Delay



Figure 18-18 OAM-PM Twamp-Light Network Site Summary – Frame Delay Range

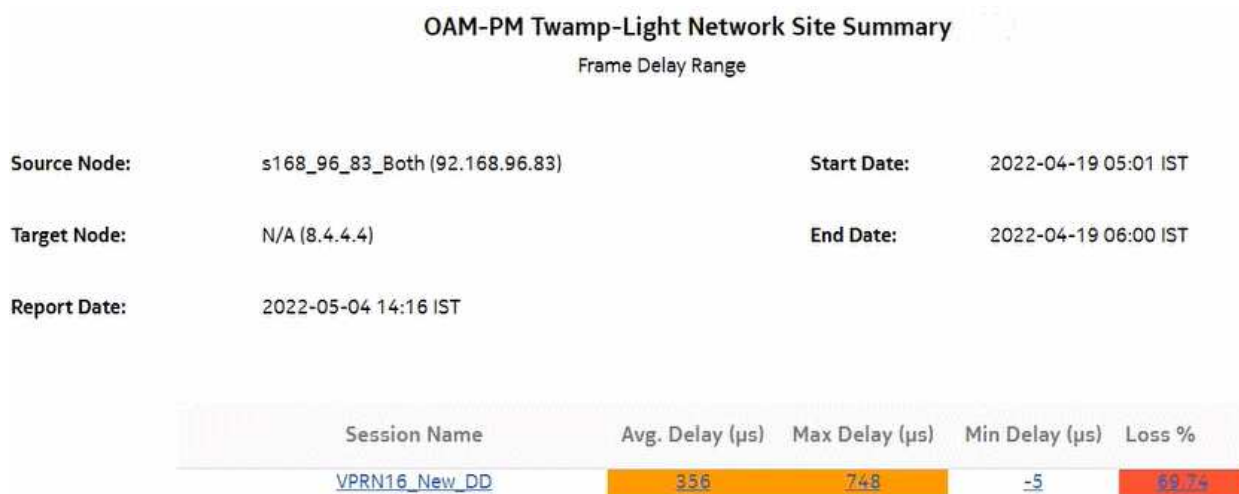


Figure 18-19 OAM-PM ETH-CFM Network Site Summary – Inter Frame Delay Variation

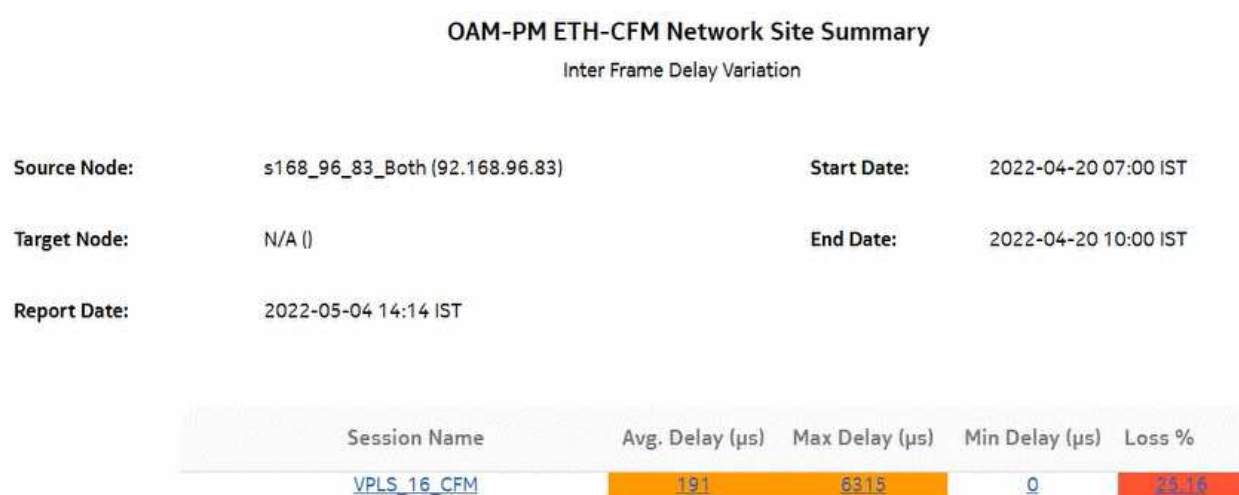


Figure 18-20 OAM-PM ETH-CFM Network Site Summary – Frame Delay Range

OAM-PM ETH-CFM Network Site Summary				
Frame Delay Range				
Source Node:	s168_96_83_Both (92.168.96.83)	Start Date:	2022-01-01 00:00 IST	
Target Node:	N/A ()	End Date:	2022-04-01 00:00 IST	
Report Date:	2022-05-04 14:17 IST			
Session Performance Summary				
Session Name	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPLS_16_CFM	61	66	55	47.4%

18.9 OAM-PM Network Summary report

18.9.1 Overview

The OAM-PM Network Summary report shows an aggregated view of performance monitoring tests for Ethernet and IP, grouped by source and target NE. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report includes the following session types:

- ETH-CFM session
- TWAMP-Light session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-15 OAM-PM Network Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Bin Type	Bin types configured in the NSP and NFM-P
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-16 OAM-PM Network Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database

Table 18-16 OAM-PM Network Summary report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (supports Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Network Site Summary report of the selected session type, an aggregate view of the PM sessions for the selected source and target NE. From an OAM-PM Network Site Summary report: - Click on a delay result to show an OAM-PM Latency report. - Click on a jitter or loss result to show an OAM-PM Loss report.



Note: Reports exported to some file types may have missing information or be incomplete.

- ODS: The Source Node, Target Node, and Average Delay column headings do not display.
- ODT: The Target Node value is not completely visible in the table.
- PPTX: The table border is not completely visible.

18.9.2 Examples

The following figures show report examples.

Figure 18-21 OAM-PM ETH-CFM Network Summary – Frame Delay

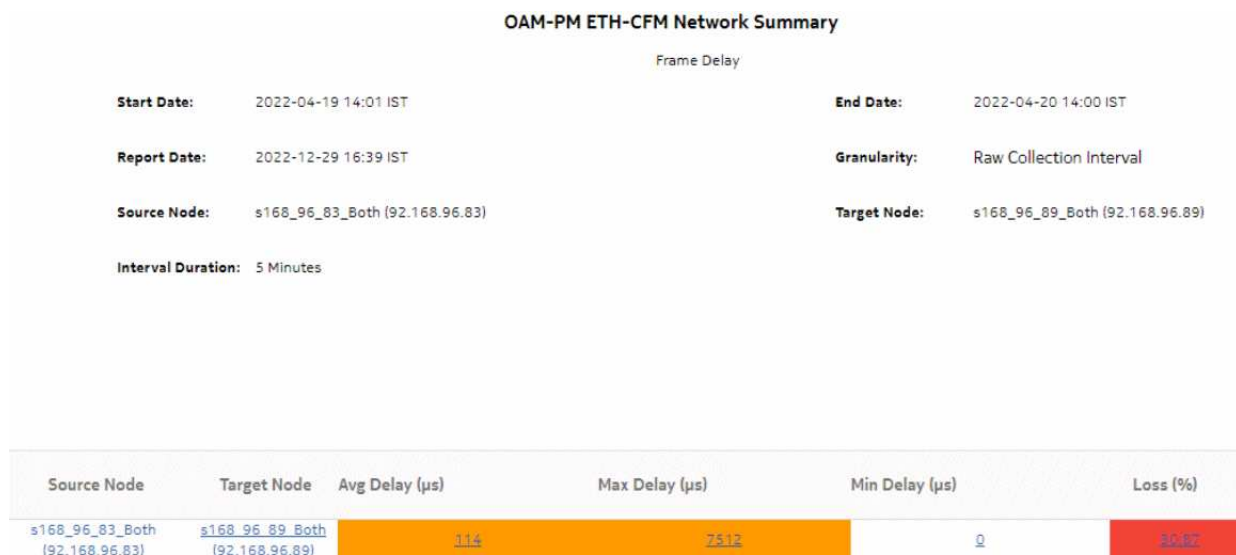


Figure 18-22 OAM-PM ETH-CFM Network Summary – Inter Frame Delay Variation

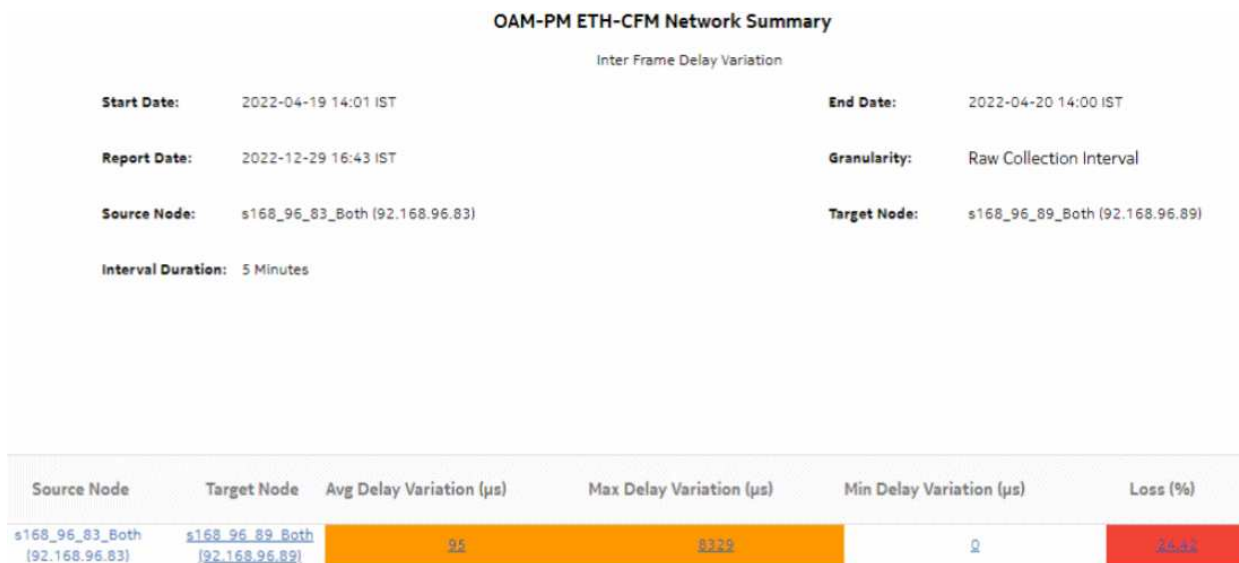
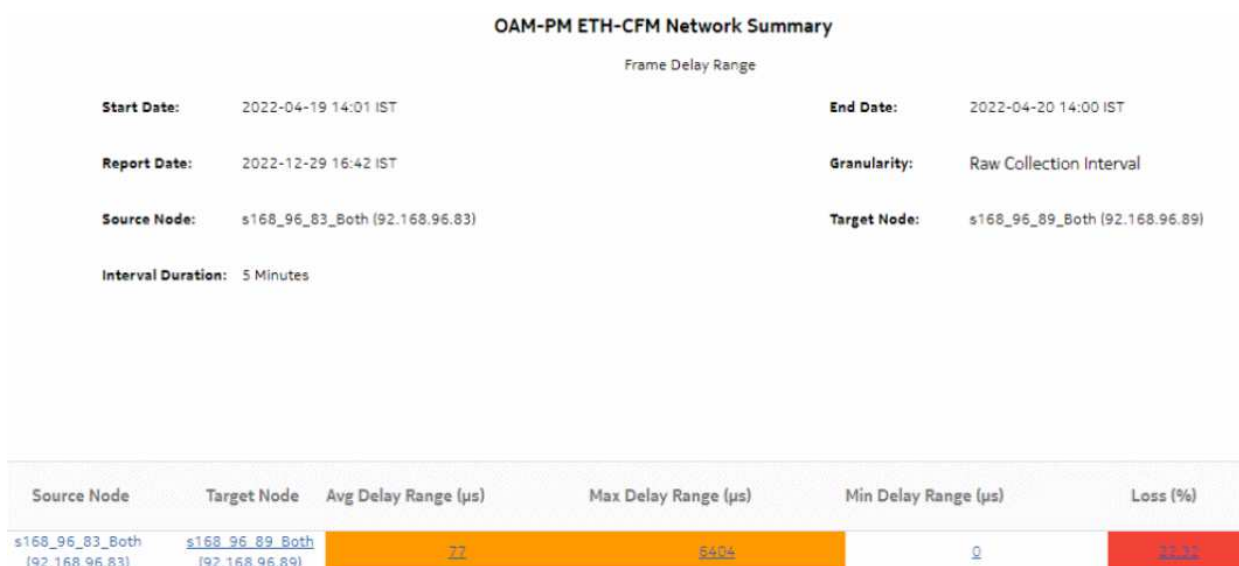


Figure 18-23 OAM-PM ETH-CFM Network Summary – Frame Delay Range



18.10 OAM-PM Service Site report

18.10.1 Overview

The OAM-PM Service Site report shows the aggregate view of the set of sessions on a selected service. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Service Site Summary report.

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- a DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- a TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-17 OAM-PM Service Site report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Name/ID	Search using partial names or full names. Select individual items.
Service Type	Epipe, VPLS, MVPLS, or VPRN

Table 18-17 OAM-PM Service Site report inputs (continued)

Prompt	Notes
Source Node	Select individual items.
Target Node	
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-18 OAM-PM Service Site report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (supports chassis and MDM mode) all 7950 XRS variants
Drill-down support	Yes: - Click on a delay result to show an OAM-PM Latency report. - Click on a jitter or loss result to show an OAM-PM Loss report.

18.10.2 Example

The following figures show report examples.

Figure 18-24 OAM-PM Twamp-Light Service Site – Frame Delay

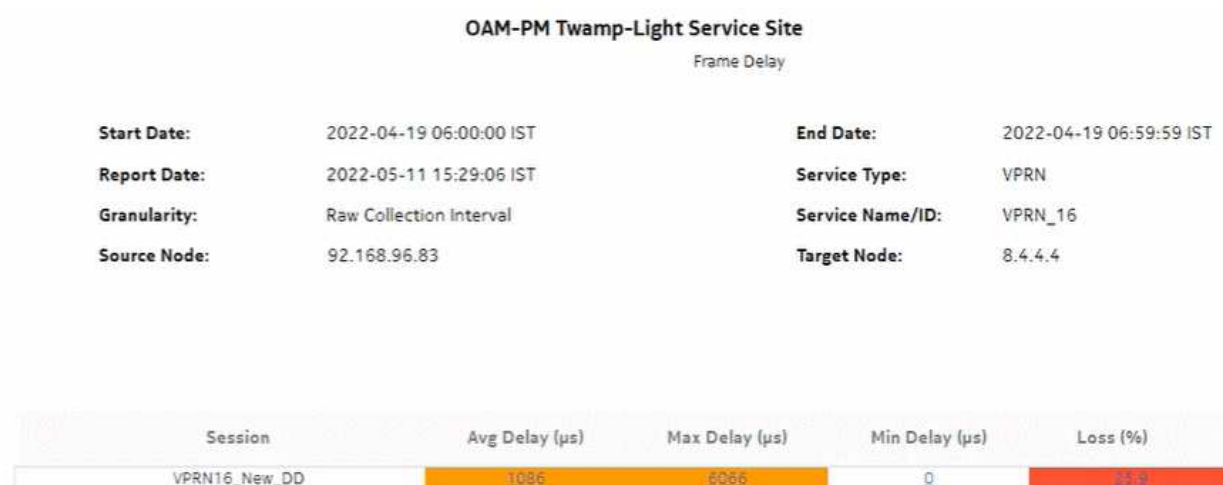


Figure 18-25 OAM-PM ETH-CFM Service Site – Inter Frame Delay Variation

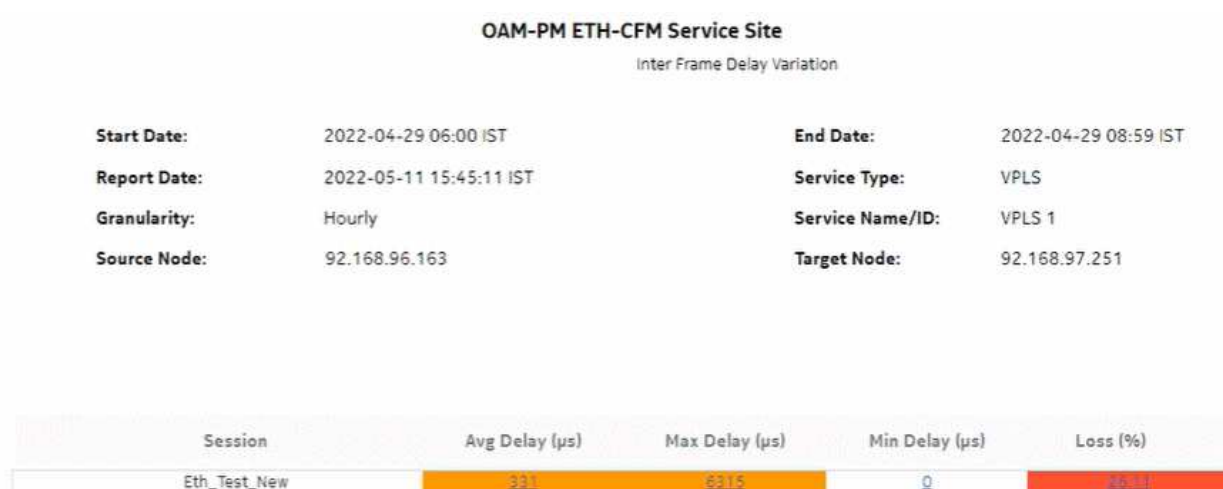


Figure 18-26 OAM-PM Twamp-Light Service Site – Frame Delay

OAM-PM Twamp-Light Service Site				
Frame Delay				
Start Date:	2022-04-28 IST	End Date:	2022-04-30 IST	
Report Date:	2022-05-11 15:46:37 IST	Service Type:	VPRN	
Granularity:	Daily	Service Name/ID:	VPRN 3	
Source Node:	92.168.97.251	Target Node:	92.168.96.163	

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
P2P_MTN_ser	957	11361	0	1.55

Figure 18-27 OAM-PM ETH-CFM Service Site – Frame Delay

OAM-PM ETH-CFM Service Site				
Frame Delay				
Start Date:	2022-03 IST	End Date:	2022-04 IST	
Report Date:	2022-05-11 15:49:29 IST	Service Type:	VPLS	
Granularity:	Monthly	Service Name/ID:	VPLS_16_new	
Source Node:	92.168.96.83	Target Node:	92.168.96.89	

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS_16_CFM	216	10429	0	0.0011

18.11 OAM-PM Service Site Summary report

18.11.1 Overview

The OAM-PM Service Site Summary report shows the aggregate view of the set of sessions on a selected service. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs). The report can be run by itself or as a drill-down from an OAM-PM Service Summary report.

The report includes the following session types:

- ETH-CFM session
- TWAMP-Light session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter, and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-19 OAM-PM Service Site Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)

Table 18-19 OAM-PM Service Site Summary report inputs (continued)

Prompt	Notes
Service Type	MVPLS, VPRN, VPLS, Epipe
Service Name/ID	Search using partial names or full names. Select individual items or click Select All .
Service Sites	Both the NE name and its IP address display.
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-20 OAM-PM Service Site Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Service Site report of the selected session type: a view of the results of tests on the site. From an OAM-PM Service Site report: - Click on a delay result to show an OAM-PM Latency report. - Click on a jitter or loss result to show an OAM-PM Loss report.

18.11.2 Examples

The following figures show report examples.

Figure 18-28 OAM-PM Twamp-Light Service Site Summary – Frame Delay

OAM-PM Twamp-Light Service Site Summary						
Frame Delay						
Service Name/ID:	VPRN_16			Start Date:	2022-04-19 09:01 IST	
Service Sites:	s168_96_83_Both (92.168.96.83)			End Date:	2022-04-19 10:00 IST	
Report Date :	2022-05-12 18:32 IST			Granularity:	Raw Collection Interval	

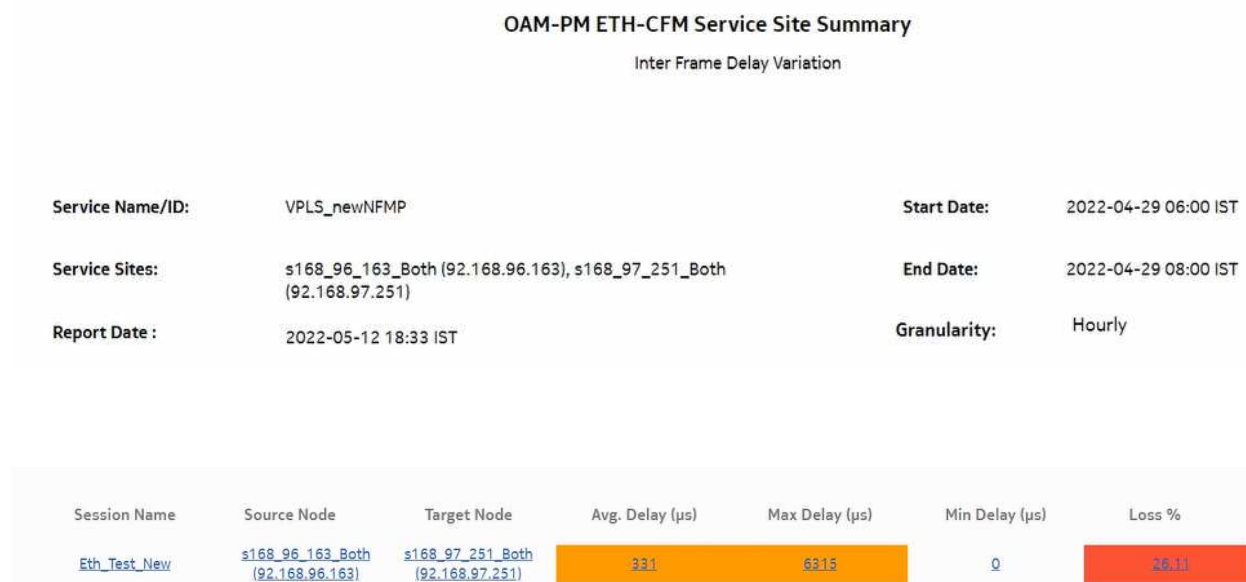
Session Name	Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
VPRN16_New_DD	s168_96_83_Both (92.168.96.83)	s168_96_83_Both (8.4.4.4)	411	876	26	61.21

Figure 18-29 OAM-PM Twamp-Light Service Site – Frame Delay

OAM-PM Twamp-Light Service Site				
Frame Delay				
Start Date:	2022-04-19 09:01:00 IST		End Date:	2022-04-19 10:00:00 IST
Report Date:	2022-05-12 18:32:54 IST		Service Type:	VPRN
Granularity:	Raw Collection Interval		Service Name/ID:	VPRN_16
Source Node:	92.168.96.83		Target Node:	8.4.4.4

Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPRN16_New_DD	411	876	26	61.21

Figure 18-30 OAM-PM ETH-CFM Service Site Summary – Inter Frame Delay Variation



18.12 OAM-PM Service Summary report

18.12.1 Overview

The OAM-PM Service Summary report shows an aggregated view of session statistics on a specified service over a specified time period, grouped by service ID. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues based on thresholds for latency, jitter and packet loss between specific NEs.

Troubleshooting—Troubleshoot service performance by service and segment

Limitations

When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both the MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.
- When the report is exported to the PPT file type, some data may not display or the table may not align properly.

Report inputs

The following table shows the report inputs.

Table 18-21 OAM-PM Service Summary report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Service Type	Epipe, VPLS, VPRN, or MVPLS
Service ID Range	Search service ID ranges using hyphens, for example, 1-200. A wildcard (*) displays all service IDs.
Bin Type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Result set limit	Number of results to report
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

Table 18-21 OAM-PM Service Summary report inputs (continued)

Prompt	Notes
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-22 OAM-PM Service Summary report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants all 7950 XRS variants
Drill-down support	Yes—Opens an OAM-PM Service Site Summary report of the selected session type: A view of the results of tests on the service. From an OAM-PM Service Site Summary report, open an OAM-PM Service Site report of the selected session type: A view of the results of tests on the site. From an OAM-PM Service Site report: - Click on a delay result to show an OAM-PM Latency report. - Click on a jitter or loss result to show an OAM-PM Loss report.

18.12.2 Example

The following figures show report examples.

Figure 18-31 OAM-PM Twamp-Light Service Summary –Frame Delay

OAM-PM Twamp-Light Service Summary

Frame Delay

Start Date:2022-01 IST

End Date:2022-04 IST

Report Date:2022-05-09 17:46:21 IST

Granularity:Monthly

Service	Avg Delay (μs)	Max Delay (μs)	Min Delay (μs)	Loss (%)
VPRN 3	537	11341	0	0.0017
VPRN 12	372	4932	0	0
VPRN 16	161	10567	100	0.5156
VPRN 20	0	0	0	86.72

Figure 18-32 OAM-PM ETH-CFM Service Summary –Frame Delay Range

OAM-PM ETH-CFM Service Summary

Frame Delay Range

Start Date:2022-04-29 10:01:00 IST

End Date:2022-04-29 11:00:00 IST

Report Date:2022-05-09 17:46:34 IST

Granularity:Raw Collection Interval

Service	Avg Delay (μs)	Max Delay (μs)	Min Delay (μs)	Loss (%)
VPLS 1	2	2	3	100

Figure 18-33 OAM-PM ETH-CFM Service Summary – Inter Frame Delay Variation

OAM-PM ETH-CFM Service Summary				
Inter Frame Delay Variation				
Start Date:	2022-04-18 IST	End Date:	2022-04-19 IST	
Report Date:	2022-05-09 17:46:59 IST	Granularity:	Daily	
Service	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS 16	9	20	0	20.7

Figure 18-34 OAM-PM Twamp-Light Service Site Summary – Frame Delay

OAM-PM Twamp-Light Service Site Summary

Frame Delay

Service Name/ID:

VPRN 12 (service ID: 12)

Start Date:

2022-04-19 05:00 IST

Service Sites:

ALL

End Date:

2022-04-19 07:30 IST

Report Date :

2022-05-09 17:47 IST

Session Name	Source Node	Target Node	Avg. Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss %
Test_TWL_NFMP	s168_96_101_Both (35,249,152,146)	s168_96_59_Both (35,249,152,222)	752	10584	494	50

18.13 OAM-PM Sessions report

18.13.1 Overview

The OAM-PM Sessions report shows the aggregate view of the active sessions on the site using the selected bin group. The report by includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential service impact for a selected bin group.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-23 OAM-PM Sessions report inputs

Prompt	Notes
Bin Group	Bin groups configured in the NSP or NFM-P
Sites	Search using partial names or wildcard (%). Select individual items or click Select All .
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.

18.13.2 Report characteristics

The following table lists the principal report characteristics.

Table 18-24 OAM-PM Sessions report characteristics

Characteristic	Value
Data type	OAM testing
Source database	Auxiliary database

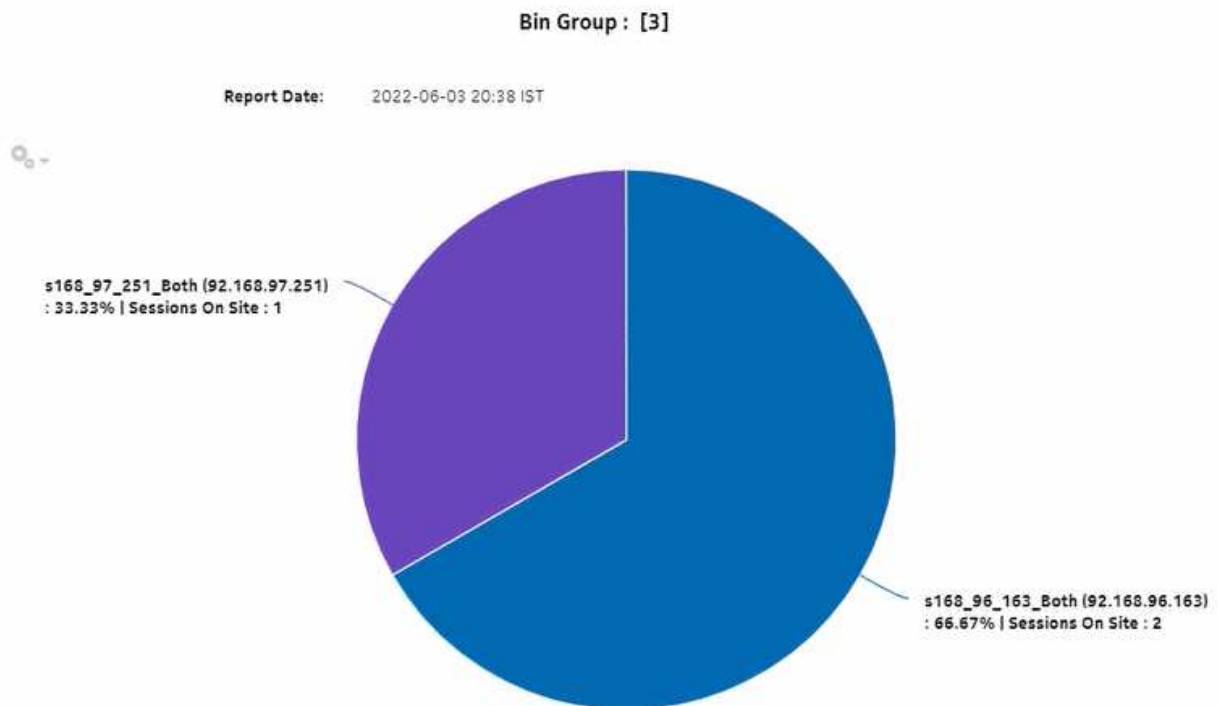
Table 18-24 OAM-PM Sessions report characteristics (continued)

Characteristic	Value
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes: - Click on a bin group in the OAM-PM Bin Groups report to show an OAM-PM Sessions report, showing the distribution of sessions using the bin group. - From an OAM-PM Sessions report, click on a session to show an OAM-PM Sessions By Site report: an aggregate view of the active sessions on the site using the selected bin group. You can modify report inputs, for example, show sessions with no data.

18.13.3 Example

The following figure shows a report example.

Figure 18-35 OAM-PM Sessions report



18.14 OAM-PM Sessions By Site report

18.14.1 Overview

The OAM-PM Sessions By Site report shows the aggregate view of the active sessions on the site using the selected bin group. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

SLA reporting—Identify potential impact to service level agreements.

QoS analysis—Identify potential service impact for a selected bin group.

Prerequisites

The following need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-25 OAM-PM Sessions By Site report inputs

Prompt	Notes
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Bin Group	Bin groups configured in the NSP or NFM-P

Table 18-25 OAM-PM Sessions By Site report inputs (continued)

Prompt	Notes
Site	Search using partial names or wildcard (%). Select individual items or click Select All .
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Bin type	Frame Delay, Frame Delay Range, or Inter Frame Delay Variation
Result set limit	Number of results to report
Show Sessions With No Data	Enable or disable checkbox
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-26 OAM-PM Sessions By Site report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-Mxp, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants

Table 18-26 OAM-PM Sessions By Site report characteristics (continued)

Characteristic	Value
Drill-down support	Yes: - From an OAM-PM Sessions By Site report, click on a delay result to show an OAM-PM Latency report. - From an OAM-PM Sessions By Site report, click on a jitter or loss result to show an OAM-PM Loss report. - Drill down from the OAM-PM Sessions report. When you drill down from the OAM-PM Sessions report, “No Data Found” may result if the data is not present in the statistics table for the selected collection interval in the drill-down report.

18.14.2 Example

The following figures show report examples.

Figure 18-36 OAM-PM Sessions By Site – Frame Delay

OAM-PM Sessions By Site				
Frame Delay				
Start Date:	2022-04-20 13:21 IST	End Date:	2022-04-20 14:20 IST	
Report Date:	2022-12-28 13:23 IST	Granularity:	Raw Collection Interval	
Site ID:	s168_96_83_Both (92.168.96.83)	Bin Group :	1 OAM PM default bin group (not modifiable)	
Session	Avg Delay (µs)	Max Delay (µs)	Min Delay (µs)	Loss (%)
VPLS_16_CFM	3	5	1	65.52

Figure 18-37 OAM-PM Sessions By Site – Frame Delay Range

OAM-PM Sessions By Site				
Frame Delay Range				
Start Date:	2022-04-20 13:21 IST	End Date:	2022-04-20 14:20 IST	
Report Date:	2022-12-28 13:18 IST	Granularity:	Raw Collection Interval	
Site ID:	s168_96_83_Both (92.168.96.83)	Bin Group :	1 OAM PM default bin group (not modifiable)	
Session	Avg Delay Range (µs)	Max Delay Range (µs)	Min Delay Range (µs)	Loss (%)
VPLS_16_CFM	4	2	0	60.50

Figure 18-38 OAM-PM Sessions By Site – Inter Frame Delay Variation

OAM-PM Sessions By Site				
Inter Frame Delay Variation				
Start Date:	2022-04-20 13:21 IST	End Date:	2022-04-20 14:20 IST	
Report Date:	2022-12-28 13:21 IST	Granularity:	Raw Collection Interval	
Site ID:	s168_96_83_Both (92.168.96.83)	Bin Group:	1 OAM PM default bin group (not modifiable)	

Session	Avg Delay Variation (µs)	Max Delay Variation (µs)	Min Delay Variation (µs)	Loss (%)
VPLS_16_CFM	0	0	0	0

18.15 OAM-PM Top N Worst Sessions report

18.15.1 Overview

The OAM-PM Top N Worst Sessions report shows the worst case OAM-PM sessions over a specified time period, grouped by session. The report includes OAM data for NEs managed by the NFM-P and MDM (model-driven Nokia NEs).

The report includes the following session types:

- ETH-CFM Session
- TWAMP-Light Session

Use cases

QoS analysis—Identify potential service impacting issues between specific NEs.

Limitations

Report limitations include:

- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the DOCX or PPT file type, some data may not display or the table may not align properly.

Prerequisites

The following sessions need to be performed in the NSP and NFM-P for the report to be created:

- A DMM session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.

- A TWAMP-Light session must be defined with accounting enabled in both MDM-managed and NFM-P NEs.
- You must enable aggregation using NSP. For more information, see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Report inputs

The following table shows the report inputs.

Table 18-27 OAM-PM Top N Worst Sessions report inputs

Prompt	Notes
Session Type	ETH-CFM Session, TWAMP-Light Session
End Date	Calendar date or relative date (for example, two days ago) and time
Granularity	Aggregation types: • None (raw collection interval) • Hourly • Daily • Monthly
Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
Source Node	Search using partial or full names.
Target Node	Select individual items or click Select All . Both the NE name and its IP address display.
Bin Type	• Frame Delay—Average Delay, Maximum Delay, Minimum Delay • Frame Delay Range—Average Delay Range, Maximum Delay Range, Minimum Delay Range
Test Factor	• Inter Frame Delay Variation—Average Delay Variation, Maximum Delay Variation, Minimum Delay Variation
Result set limit	Number of results to report
Interval Duration	5 minutes, 15 minutes, 1 hour, or 1 day
Logo resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Report characteristics

The following table lists the principal report characteristics.

Table 18-28 OAM-PM Top N Worst Sessions report characteristics

Characteristic	Value
Data type	OAM session statistics
Source database	Auxiliary database
NE types supported	7210 SAS-M 24F, 7210 SAS-M 24F 2XFP, 7210 SAS-M 24F 2XFP ETR, 7210 SAS-T 12F 10T 4XFP, 7210 SAS-T 12F 10T 4XFP ETR, 7210 SAS-X 24F 2XFP, 7210 SAS-K, 7210 SAS-R6, 7210 SAS-R12, 7210 SAS-S/SX 1/10GE VC 7250 IXR-6, 7250 IXR-R6, 7250 IXR-s, 7250 IXR-10, 7250 IXR-e all 7450 ESS variants all 7750 SR variants (support both Classic and MDM modes) all 7950 XRS variants
Drill-down support	Yes: - Click on a delay result to show an OAM-PM Latency report. - Click on a loss result to show an OAM-PM Loss report.

18.15.2 Examples

The following figures show report examples.

Figure 18-39 OAM-PM Top N Worst Sessions—Frame Delay

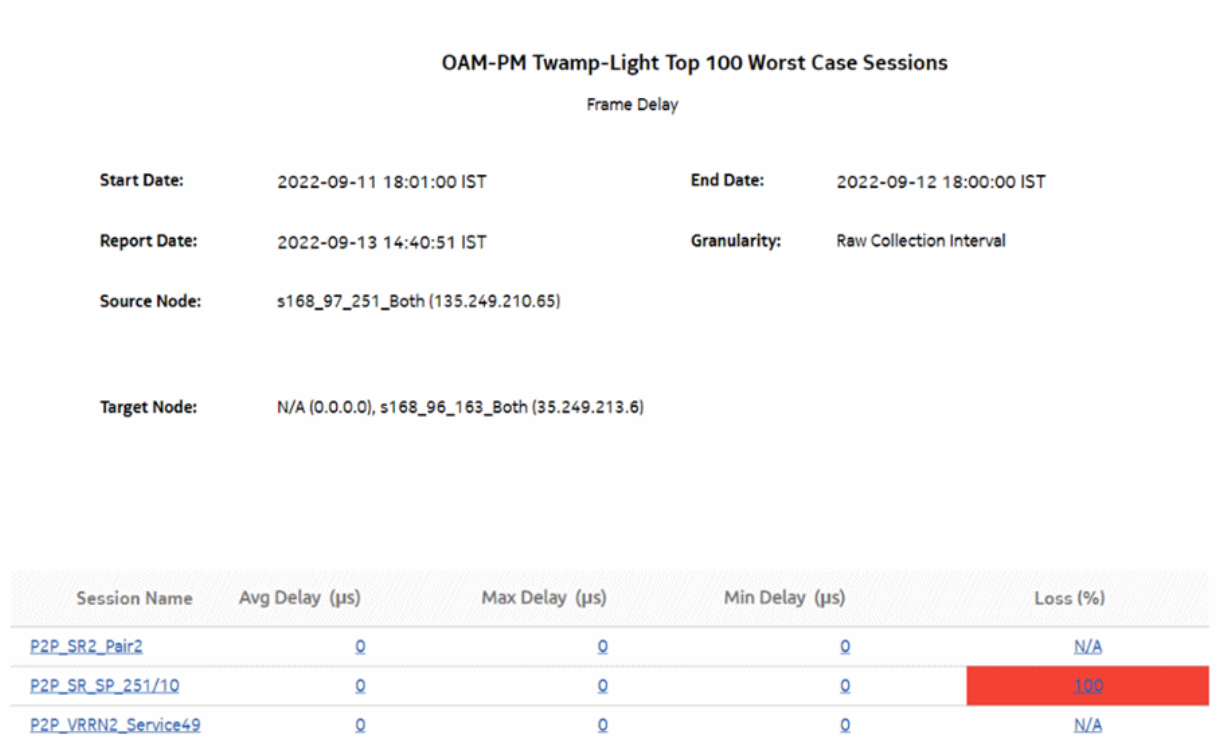


Figure 18-40 OAM-PM Top N Worst Sessions—Frame Delay Range

OAM-PM Twamp-Light Top 100 Worst Case Sessions

Frame Delay Range

Start Date:2022-09-11 18:01:00 IST

End Date:2022-09-12 18:00:00 IST

Report Date:2022-09-13 14:38:11 IST

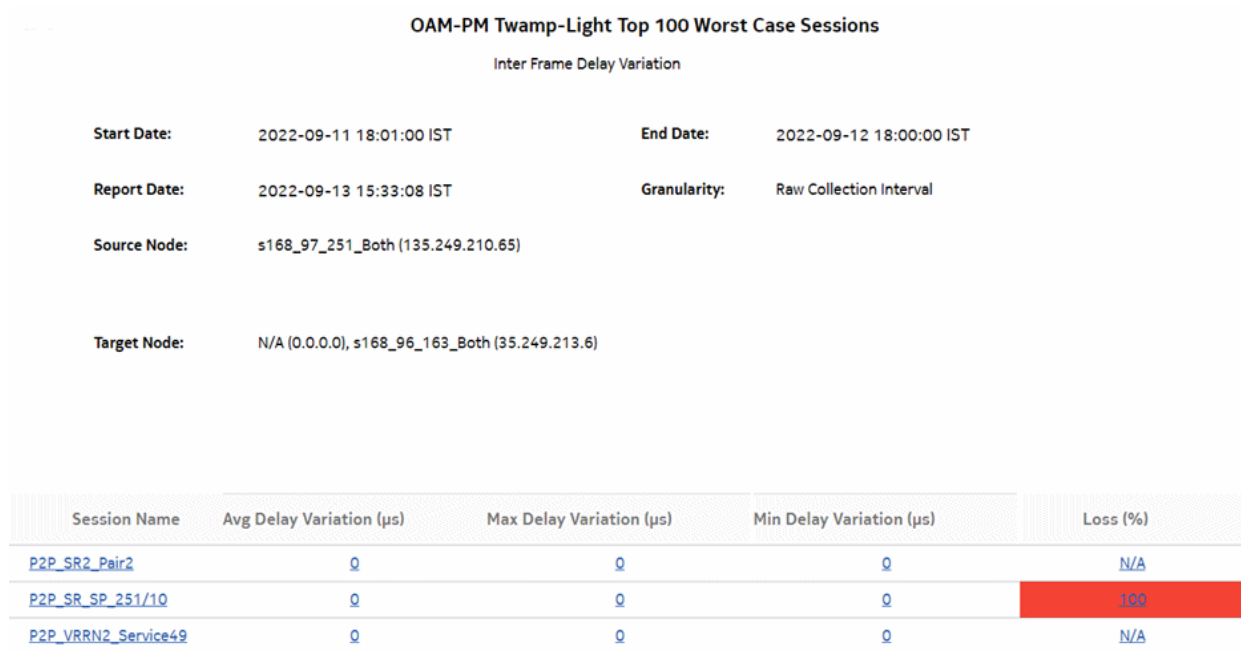
Granularity:Raw Collection Interval

Source Node:s168_97_251_Both (135.249.210.65)

Target Node:N/A (0.0.0.0), s168_96_163_Both (35.249.213.6)

Session Name	Avg Delay Range (µs)	Max Delay Range (µs)	Min Delay Range (µs)	Loss (%)
P2P_SR_SP_251/10	0	0	0	100
P2P_VRRN2_Service49	0	0	0	N/A
P2P_SR2_Pair2	0	0	0	N/A

Figure 18-41 OAM-PM Top N Worst Sessions—Inter Frame Delay Variation



19 NSP utilization reports

19.1 NSP utilization reports overview

19.1.1 General information

NSP utilization reports provide utilization or uptime information at the NE, port, SAP, or LSP level. NSP utilization reports support NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

LAGs are not supported for MDM-only NEs and NFM-P+MDM-mediated NEs except for the Port Throughput Summary and Port-LAG Details reports.

There is potential for duplication of data in the report inputs when classic NEs are managed in the NSP. If a classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema (NSP) and samdb dictionary tables (NFM-P) will have the entries.

Recommendations

Nokia recommends the following:

- Generate the reports over multiple pages, as aggregating a high number of pages of a report over a single page could take a considerable amount of time or may even fail.
- Use the aggregated granularities for generating a report for a higher report range.
- Track memory utilization in the auxiliary database and manually clear it to ensure that there are no hung queries after the reports are cancelled.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns to plan for capacity requirements.

Limitations

The utilization graph in forecast reports does not stretch when the forecast in the graph is unselected.

Prerequisites

 **Note:** See [“Supported NEs” \(p. 611\)](#) for information about supported NEs.

- For Classic (NFM-P)-managed NEs, there are two methods for statistics collection; choose one of the following methods:
 - use the traditional NFM-P SNMP MIB statistics or accounting statistics
 - use MDM to collect gRPC statistics. You must include gRPC in your mediation policy in order to use the policy/discovery rule for classic NEs; see the *Device Management Guide*.
- For Model Driven managed NEs, MDM is required to collect gRPC statistics. When MDM is used to collect statistics, persistence must be enabled in the subscription.

- MDM adapters are required based on the NEs that are managed; contact your technical support representative for more information. You must also enable statistics; see the *Data Collection and Analysis Guide*.

19.2 Interface Utilization with Forecast report

19.2.1 Interface Utilization With Forecast report overview

The Interface Utilization with Forecast report includes utilization data for NEs managed by the NFM-P only or by the MDM (model-driven Nokia) only. The report provides forecast utilization data for a single interface. The default display is a set of graphs showing total, ingress, and egress traffic.

To generate a forecast, you must provide at least two seasons of data, although more may be required if the input data is not linear. For example, if you choose a seasonality value of 7 and the granularity is daily, you must use a report range of at least 14 days.

When the forecast algorithm fails, a pop-up message displays with the recommendation that you either lower the seasonality value or increase the report range.

You may consider scheduling the report, as it takes several minutes to generate.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section [1.10 “How do I configure the Analytics session time zone?”](#) (p. 31) for more information about configuring the session time zone.

To view the report for daily and monthly granularities, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?”](#) (p. 30). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 19-1 Interface Utilization with Forecast report prerequisites for MDM-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/ingress/packet/ octets	Accounting, file and log policies	7750 MD SR
md-aggr/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/egress/packet/ octets	Accounting, file and log policies	7750 MD SR
md-aggr/md-aggr-base/telemetry-mpls-interfaces/mpls-interface	Telemetry Base Interface	telemetry:/base/mpls-interfaces/mpls-interface	Telemetry Statistics	7750 MD SR

Table 19-2 Interface Utilization with Forecast report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOc- tets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc- tets	Accounting, file, and log policies	svcEgress Octet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X

Table 19-2 Interface Utilization with Forecast report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svclIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750-SR Omnisystem NEs
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditional-Stats	Performance statistics	ifXEntry	GNE NEs

Report characteristics

The following table lists the principal report characteristics.

Table 19-3 Interface Utilization with Forecast report characteristics

Characteristic	Value
Data type	Statistics
NE types supported	7210 SAS 7250 IXR 7705 SAR 7705 SAR-Hm 7750 SR Omnisystem NEs 7750 MD SR Model-driven NEs
Source database	Auxiliary database
Interface types supported	Access interface Network interface

Table 19-3 Interface Utilization with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • Daily • Monthly
	NE Type	Search using partial names or wildcard (%). Select individual items.
	Name or name pattern for NE	
	NE	
	Port Mode	Select Access, Network, or Hybrid Select individual items.
	Name or name pattern for port	Search using partial names or wildcard (%). Select individual items.
	Physical Port or LAG	
	Interface Type	
	Name or name pattern for Interface	
	Interface	
	Forecast Periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Nokia recommends using the Show report output on one page option when creating reports. A high forecast periods per season may impact the time that it takes for the report to load the forecast.

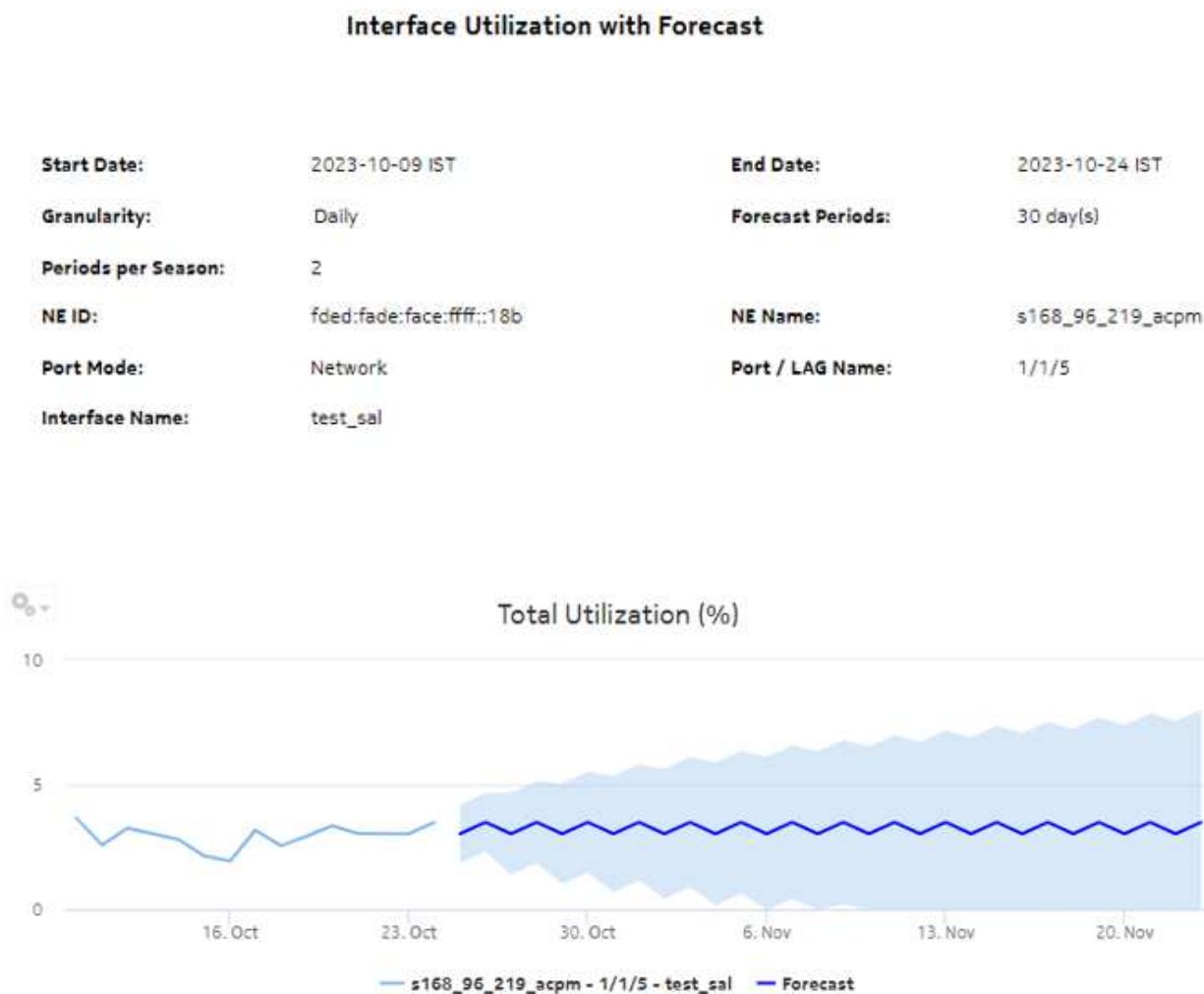
Table 19-3 Interface Utilization with Forecast report characteristics (continued)

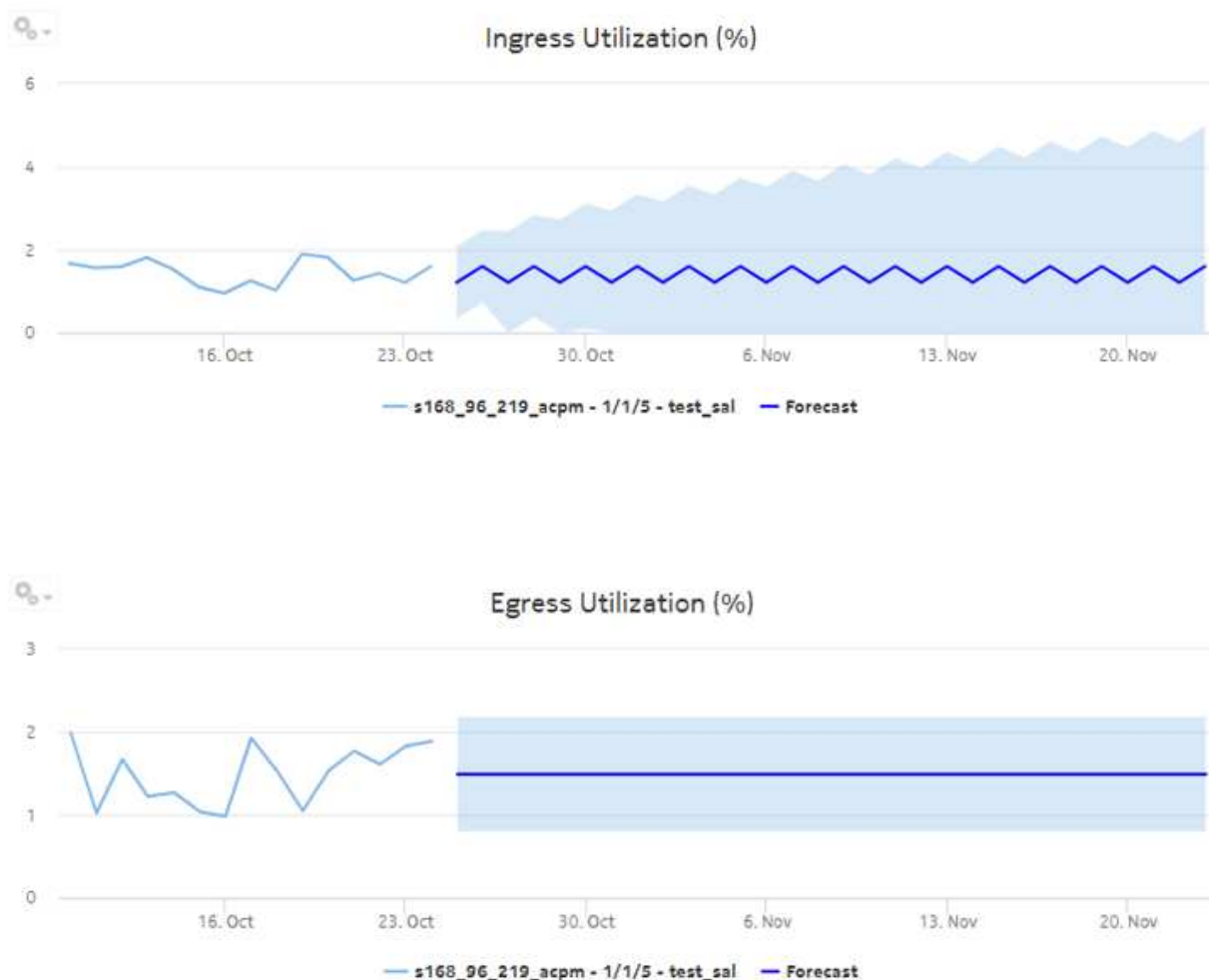
Characteristic	Value
Drill-down support	No

19.2.2 Example

The following figures show report examples.

Figure 19-1 Interface Utilization with Forecast report





19.3 Interface Utilization Summary report

19.3.1 Interface Utilization Summary report overview

The Interface Utilization Summary report provides a summary of utilization data for a selected group of interfaces. The report includes utilization data for NEs managed by the NFM-P only or by the MDM (model-driven Nokia) only.

The default display is a set of graphs and a table showing ingress and egress speeds and minimum, maximum and average utilization percentages. Utilization results in the table are colored red when utilization reaches or exceeds user-defined thresholds.

Utilization calculation varies by interface type:

- MPLS/Network & Access Interfaces use port speed
- GNE interfaces use genericne.lfspeed

Limitations

Report limitations include:

- Running the report for all Interface Types or using the Show Report On One Page option may impact report rendering time. Nokia recommends running the report only for the required interface type, and disabling pagination unless required.
- When five or fewer SAPs are selected and the data is available in the database for either ingress or egress (but not both), the legend of other graphs display, but not the plot.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, the report may not export or display properly.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Prerequisites

To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

The following table describes the aggregation rules and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy.

Table 19-4 Interface Utilization Summary report prerequisites for MDM-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/ingress/packet/ octets	Accounting, file and log policies	7750 MD SR
md-aggr/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/egress/packet/ octets	Accounting, file and log policies	7750 MD SR
md-aggr/md-aggr-base/telemetry-mpls-interfaces/mpls-interface	Telemetry Base Interface	telemetry:/base/mpls-interfaces/mpls-interface	Telemetry statistics	7750 MD SR

Table 19-5 Interface Utilization Summary report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService- EgressPacketOc- tets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIn- gressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOc- tets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X

Table 19-5 Interface Utilization Summary report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svclIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls. MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750 SR Omnisystem NEs
GNE Interface Utilization Stats Aggregator	genericne. GenericNeInterface	genericne. InterfaceAdditional-Stats Note: Only GNE interfaces without multivendor drivers are supported.	Performance statistics	ifXEntry	GNE NEs

Report characteristics

The following table lists the principal report characteristics.

Table 19-6 Interface Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	Access interface Network interface

Table 19-6 Interface Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Port modes	Select Access, Network, or Hybrid Port and port mode inputs are not required for GNE interfaces. Selecting a GNE in the NE list will automatically display GNE interfaces.
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items or click Select All . Interfaces whose associated port speed is 0 will not be displayed in the Interfaces input prompt.
	Physical ports or LAGs	
	Interface Type	
	Name or name pattern for interfaces	
	Interfaces	
	Total threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress threshold	
	Egress threshold	
	Logo resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

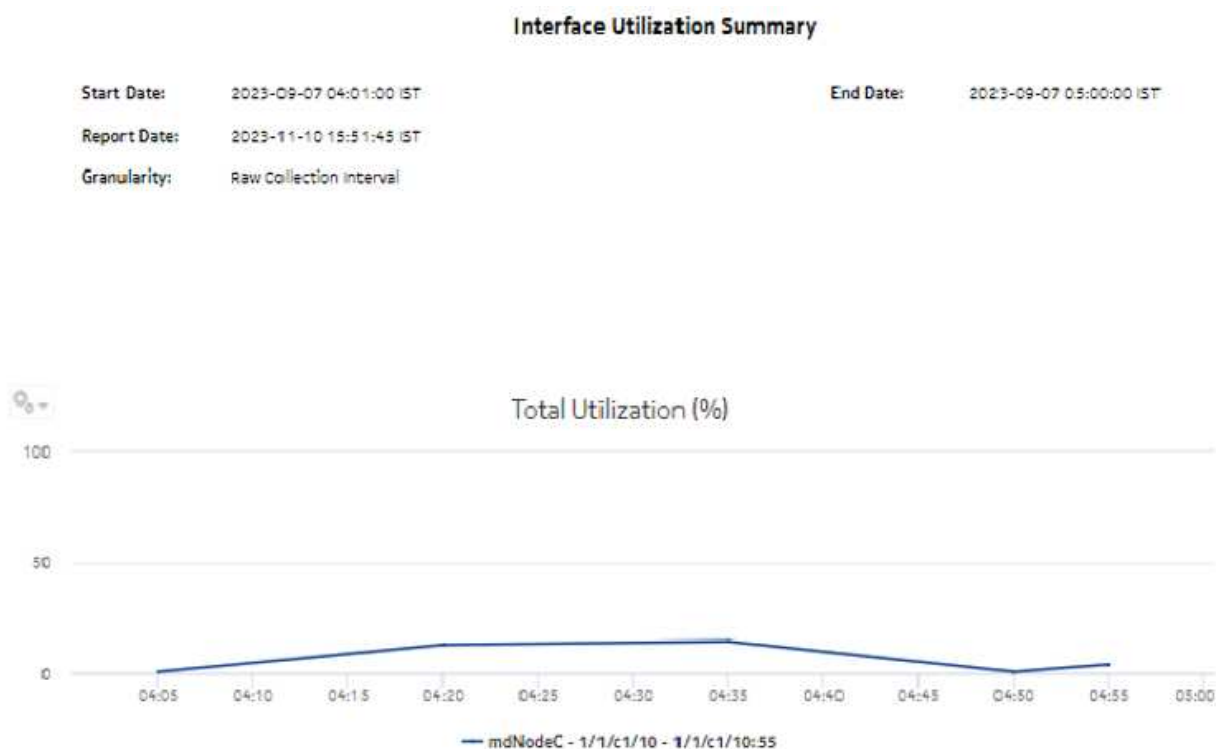
Table 19-6 Interface Utilization Summary report characteristics (continued)

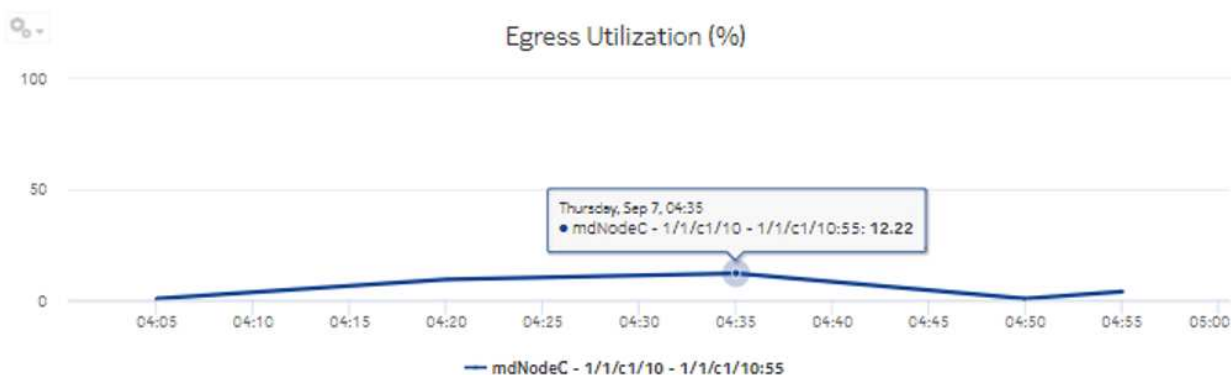
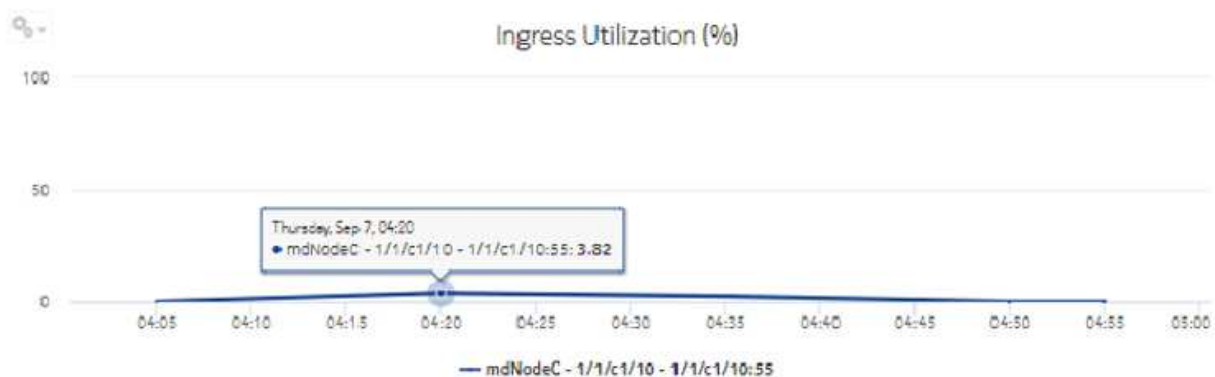
Characteristic	Value
Drill-down support	Yes—Click on an entry in the Interface Name column for a 7750 SR, VSR, 7450 ESS, or 7950 XRS NE interface to launch an Interface Overview report.

19.3.2 Example

The following figures show a report example.

Figure 19-2 Interface Utilization Summary report





Interfaces Over Total Threshold: N/A

Interfaces Over Ingress Threshold: N/A

Interfaces Over Egress Threshold: N/A

Direction	NE Name	NE ID	Port/LAG	Speed (Mbps)	Interface Name	Average Bitrate (bps)	Minimum Utilization (%)	Maximum Utilization (%)	Average Utilization (%)
Total	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	662.59	0.69	14.63	6.63
Ingress	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	124.42	0.0	3.82	1.24
Egress	mdNodeC	92.168.96.26	1/1/c1/10	0.01	1/1/c1/10:55	538.17	0.69	12.22	5.38

19.4 Link Utilization Summary report

19.4.1 Link Utilization Summary report overview

The Link Utilization Summary report includes utilization data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

The report shows utilization percentage information for the selected site and interface. The report also shows utilization data for the statistics that are enabled. For example, if the interface is running both MPLS and IP, but only IP statistics are enabled, the report shows IP utilization data only.

The default display is a table showing ingress, egress, and percentage utilization for the selected site and interface. By default, the table is sorted by average egress utilization in decreasing value order (worst first).

i **Note:** Selecting more than 6000 interfaces may affect performance. Nokia recommends selecting only necessary interfaces.

The donut chart segments are colored based on the interface average egress utilization percentages, as follows:

- Green: 0% to 20%
- Cyan: 21% to 40 %
- Blue: 41% to 60 %
- Purple: 61% to 80 %
- Red: 81% to 100%

i **Note:** An operational CPAM with CPAA must be in use for the IGP Metric and Remote Node fields in the report to be populated.

Use cases

Capacity planning—Use the report to examine interface utilization patterns for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- The report does not employ IGP protocols for MD NEs.
- Remote NE and IGP metric are not supported for MD NEs.

Prerequisites

For a Link Utilization Summary report to be created for an interface, the following items must be performed:

- Assign the interface to IS-IS, RIP or an OSPF context, that is, enable the interface for IP for classic NEs
- If needed, assign the interface to an MPLS context, that is, also enable the interface for MPLS for classic NEs.

Both the Ip Interface Stats Aggregator and Ip Interface Additional Stats Aggregator must have the same timestamp to calculate IP utilization for classic NEs.

Both telemetry:/base/router-interfaces/router-interface and telemetry:/base/interfaces/interface must also have the same timestamp to calculate the IP utilization for model-driven NEs.

The report shows utilization data for the statistics that are enabled. For example, if the interface is running both MPLS and IP but only IP statistics are enabled, the report shows IP utilization data only.

i **Note:** The utilization data is derived from collected statistics. It will not be an exact match to utilization data available via CLI from the NE.

For a report to be available as a drill-down, the MPLS LSP Egress Stats Aggregator must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). If the aggregator is not enabled, the Link Utilization Summary report can still be created, but the drill-down will not be available.

To avoid errors, Nokia recommends creating the report with 4 500 interfaces or less.

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 19-7 Link Utilization Summary report prerequisites for MDM-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr/md-aggr-base/telemetry-router-interfaces/router-interface	Telemetry Base Interface	telemetry:/base/router-interfaces/router-interface	GRPC/Telemetry collection for NSP-managed NEs	7750 SR-12
md-aggr/md-aggr-base/telemetry-interfaces/interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	GRPC/Telemetry collection for NSP-managed NEs	7750 SR-12
md-aggr/md-aggr-base/telemetry-mpls-interfaces/mpls-interface	Telemetry Base Interface	telemetry:/base/mpls-interfaces/mpls-interface	GRPC/Telemetry collection for NSP-managed NEs	7750 SR-12

Table 19-8 Link Utilization Summary report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Ip Interface Stats Aggregator	rtr.NetworkInterface	rtr.IpInterfaceStats	Performance statistics	vRtrIfStatsEntry	7250 IXR 7705 SAR-H 7750-SR Note: 7210 SAS is not supported
Ip Interface Additional Stats Aggregator	rtr.NetworkInterface	rtr.IpInterfaceAdditionalStats	Performance statistics	vRtrIfStatsExtEntry	7250 IXR 7750-SR Notes: 7210 SAS is not supported 7705 SAR-H is not supported. The report logic considers Transmit Bytes from IP Interface Additional statistics and Receive Bytes (Rx Bytes) from SAR IP statistics. Therefore, the impact of the SAR-H NEs on the report is that Tx Bytes is zero and total traffic is equal to Rx Bytes.
SAR Ip Interface Stats Aggregator	rtr.NetworkInterface	rtr.SarIpInterfaceStats	Performance statistics	—	7705 SAR 7705 SAR-H 7705 SAR Hm Note: 7210 SAS is not supported
Mpls Interface Stats Aggregator	rtr.NetworkInterface	mpls.MplsInterfaceStats	Performance statistics	vRtrMplsIfStatEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR Omnisystem NE

Report characteristics

The following table lists the principal report characteristics.

Table 19-9 Link Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Interface types supported	IP (IS-IS, OSPF, RIP), MPLS Note: IP (IS-IS, OSPF, RIP) is not supported for MD NEs

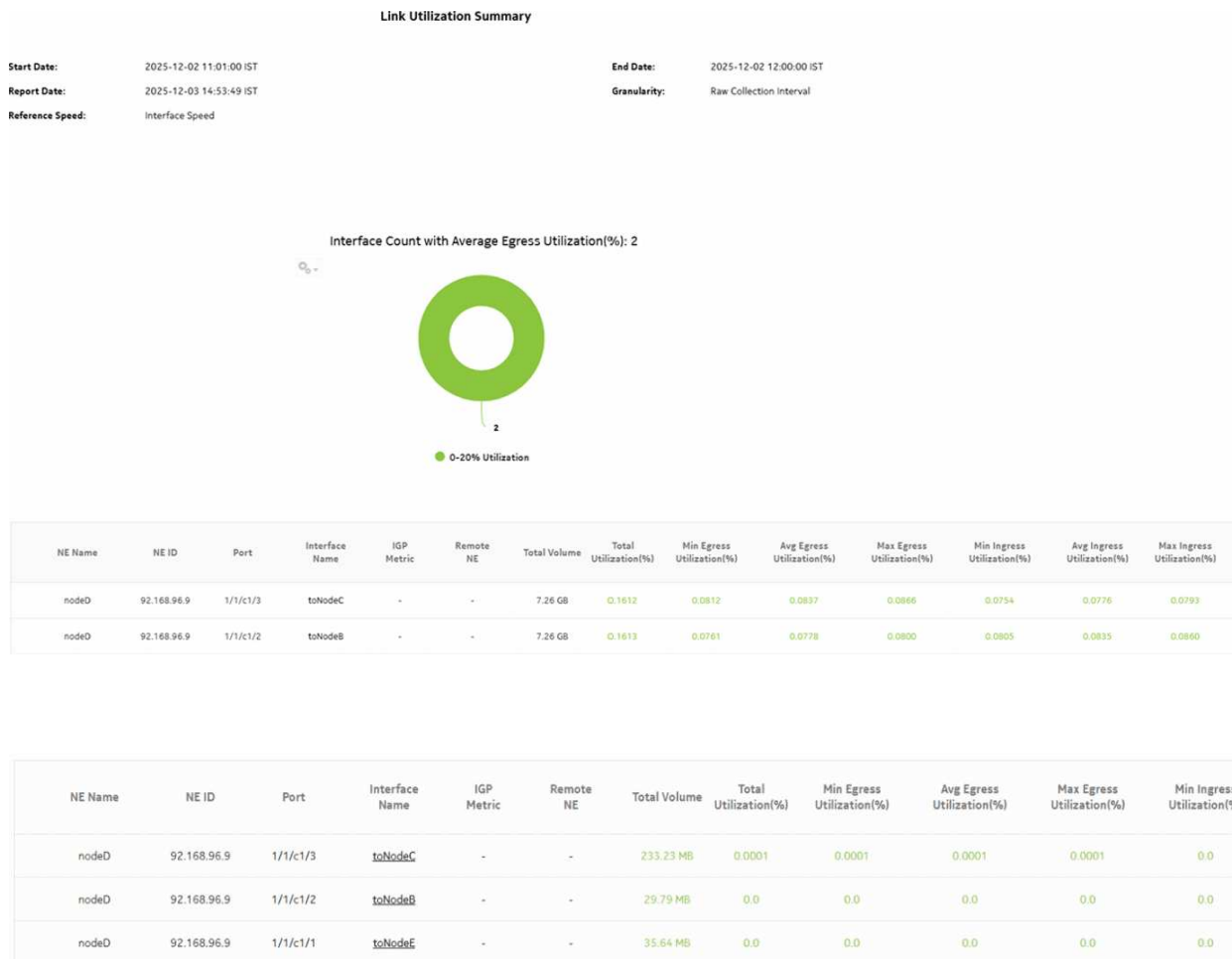
Table 19-9 Link Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Name or name pattern for interfaces	
	Top N	Enter a value between 1 to 4500 to limit the interfaces listed by utilization.
	Reference Speed	Interface Speed or Physical Port Speed Notes: • IP-only utilization can be calculated with Interface Speed or Physical Speed. • MPLS-only and IP + MPLS calculations can only be calculated with Physical Speed.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Click on an interface name to open an Interface Utilization Details report for the selected interface. Note: Drill down is not supported for MD NEs.	

19.4.2 Example

The following figure shows a report example.

Figure 19-3 Link Utilization Summary report



19.5 LSP Throughput with Forecast report

19.5.1 LSP Throughput with Forecast report overview

The LSP Throughput with Forecast report provides the throughput trend for an LSP. The report can generate a forecast, depending on the granularity; the forecast is generated for daily and monthly granularities. There is no forecast plot for raw and hourly granularities; forecast periods and periods per season are ignored in this case.

Use cases

Capacity planning—Use the report to examine LSP throughput data for planning future capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Prerequisites

The session time zone must match the aggregation time zone. When these two settings are different, the report does not run correctly and the system returns an error. See section 1.10 “[How do I configure the Analytics session time zone?](#)” (p. 31) for more information about configuring the session time zone.

To configure LSP records collection, you must install the IETF and tunnel intents, which are available in nsp-mdt-intents.

NEs must be in IPV4 format. The IPV6 format is currently not supported

The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see 1.9 “[How do I configure analytics aggregation?](#)” (p. 30). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See the *NSP NFM-P Statistics Management Guide* for information about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-10 LSP Throughput with Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-base-lsps-lsp-egress/telemetry-base-lsps-lsp-egress	lsp	telemetry:/base/lsps/lsp/egress	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled
md-aggr:/md-aggr-base/telemetry-base-lsps-lsp-egress-path/telemetry-base-lsps-lsp-egress-path	lsp path	telemetry:/base/lsps/lsp/egress/path	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled

The following table describes the LSP Throughput with Forecast report prerequisites for NFM-P-managed NEs.

Table 19-11 LSP Throughput with Forecast report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB	NE types
MPLS LSP Egress Aggregator	mpls.DynamicLsp mpls. P2MPDynamicLsp mpls. SegmentRouting- TeLsp	mpls. mplsLspEgress	Performance statistics	TIMETRA- MPLS- MIB.vRtr MplsLsp Statistics Entry	7750 SAR 7750 SR Note: 7210 SAS and 7250 IXR are not supported

Report characteristics

The following table lists the principal report characteristics.

Table 19-12 LSP Throughput with Forecast report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
LSP types supported	Dynamic, P2MP Dynamic, SR TE, RSVP

Table 19-12 LSP Throughput with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report Range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Select individual items.
	Name or name pattern for NE	Search using partial names or wildcard (%). Select individual items.
	NE	Select individual items.
	Name or name pattern for LSP	Search using partial names or wildcard (%). Select individual items.
	LSP	Select individual items. You must enter data for this field.
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	Logo resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

Table 19-12 LSP Throughput with Forecast report characteristics (continued)

Characteristic	Value
Drill-down support	No

19.5.2 Example

The following figure shows a report example.

Figure 19-4 LSP Throughput with Forecast report—For LSPs managed by the 7750 MD SR

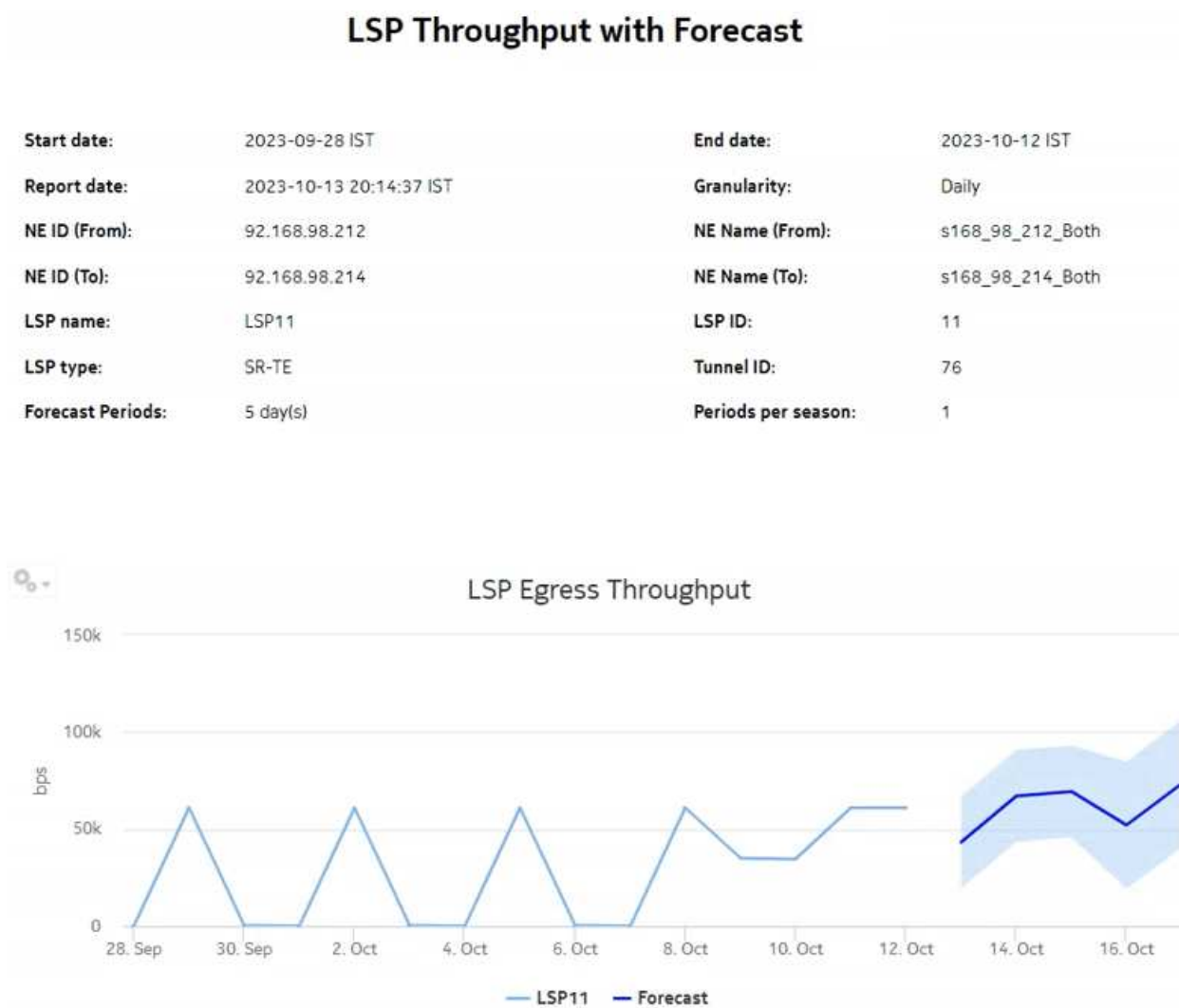
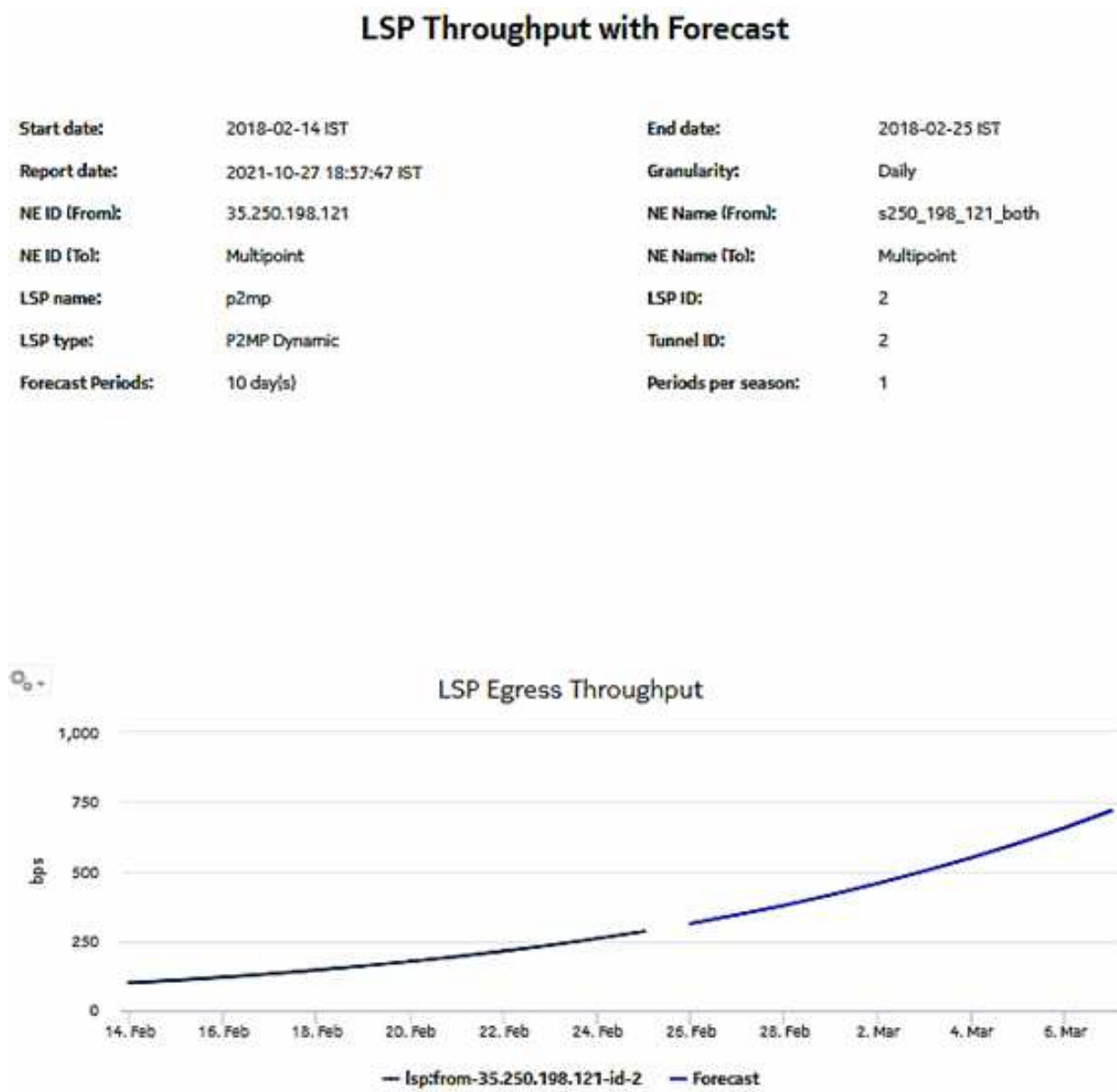


Figure 19-5 LSP Throughput with Forecast report—For LSPs managed by the NFM-P



19.6 Port-LAG Details report

19.6.1 Port-LAG Details report overview

The Port-LAG Details report shows the throughput and utilization by a specified port, LAG, or MC LAG. The default display is a set of time series graphs, showing total, ingress, and egress traffic.

The report includes throughput data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. For classic+gRPC NEs, the report shows the default NFM-P description in the Physical ports or LAGs or MC LAGs report input if there is no description provided in the port. The report can be run by itself or as a drill-down from a Port Throughput Summary report. The report can also be displayed along with baseline values. See [1.1.5 “Baselining in Analytics reports” \(p. 20\)](#) for more information about how baselines are defined. For classic+gRPC NEs, the NE IP must be in IPV4 format. The IPV6 format is currently not supported by the report.

Additionally, the plot or graph shows the actual values at a specified time.

To enable or disable a baseline box plot, click on the baseline item in the graph legend. When you run the report for MC-LAG or LAG, enable only one baseline legend to align the baseline plot with the axis.

Limitations

Report limitations include:

- There is potential for duplication of data in the report inputs when classic NEs are managed in the NSP. If a classic NE is discovered in the NSP with statistics enabled in the NFM-P, the input details are duplicated as both collection schema (NSP) and samdb dictionary tables (NFM-P) will have the entries.
- When the report is exported to the RTF file type, graphs and tables may not display.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a port, LAG, or MC LAG basis, to plan for capacity requirements.

Prerequisites

The following table describes the aggregation rules that must be enabled and the accounting policies that must be configured for the NEs on which statistics are to be collected; see the *NSP NFM-P Statistics Management Guide* for information about configuring an accounting policy. To view the report for granularities other than raw data, the aggregation rules must be enabled; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#).

Table 19-13 Port-LAG Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Interface Utilization Statistics Aggregator	equipment. PhysicalPort lag.Interface	equipment. InterfaceAdditional-Stats	Performance statistics	ifXEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR
PortNet-IngressStats Error Stats Aggregator	equipment. PhysicalPort	equipment. PortNet-IngressStats	Performance statistics	TIMETRA-PORT-MIB. tmnxPortNetIngressStatsEntry	7705 SAR 7705 SAR-H
PortNetEgressStats Error Stats Aggregator	equipment. PhysicalPort	equipment. PortNetEgressStats	Performance statistics	TIMETRA-PORT-MIB. tmnxPortNetEgressStatsEntry	7705 SAR 7705 SAR-H
Dot3Stats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. Dot3Stats	Performance statistics	EtherLike-MIB. dot3StatsEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR
Interface Error Stats Aggregator	equipmet. PhysicalPort lag.Interface	equipment. InterfaceStats	Performance statistics	ifEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR
EthernetStats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. Ethernet-StatsLogRecord	Performance statistics	etherStatsEntry	7210 SAS 7250 IXR 7705 SAR-Hm 7750 SR
AdditionalEthernetStats Error Stats Aggregator	equipment. PhysicalPort	ethernetequipment. AdditionalEthernetStats	Performance statistics	tmnxPortEtherEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-Hm 7750 SR
IngressPortFwdEngDropReasonStats Error Stats Aggregator	equipment. PhysicalPort	equipment. IngressPortFwdEngDropReasonStats	Performance statistics	TIMETRA-PORT-MIB. tPortIngressFwdEngDRStatsEntry	7250 IXR 7705 SAR-Hm 7750 SR

Table 19-14 Port-LAG Details report prerequisites for MD NE

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/ingress/packet/ octets	Accounting, file and log policies	7220 IXR-D2L (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/ accounting/complete/ service/egress/packet/ octets	Accounting, file and log policies	7220 IXR-D2L (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled
md-aggr:/md-aggr-base/telemetry-interfaces/interface	Telemetry Base Interface	telemetry:/base/ interfaces/interface	Telemetry Statistics	7220 IXR-D2L (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Table 19-14 Port-LAG Details report prerequisites for MD NE (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-interfaces/interface-errors	Telemetry Base Interface errors	telemetry:/base/ interfaces/interface/ errors	Telemetry Statistics	7220 IXR-D2L (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp- NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Report characteristics

The following table lists the principal report characteristics.

Table 19-15 Port-LAG Details report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-15 Port-LAG Details report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Types	Search using partial names or wildcard (%).
	Node Name (or Node Name Pattern)	Select individual items.
	Nodes	
	Port Modes	Select Access, Network, or Hybrid. Select individual items or click Select All .
	Port-LAG/MC LAG	Select one radio button
	Port Name (or Port Name Pattern)	Select Access, Network, or Hybrid. Select individual items.
	Physical Ports / LAGs / MC LAGs	
	Enable Baseline	Select the check box to include baseline data in the report.
	Baseline End Date	Calendar date or relative date (for example, two days ago) and time
	Baseline Report Range	Length of time to calculate the baseline, in minutes, hours, days, or months. A longer baseline range will improve baseline accuracy.
	Baseline Definition	Select a definition to calculate the baseline. For example, "hour of day" means that current data is compared against the baseline calculated from the historical data from the same hour within the baseline time frame.
	Baseline NEs	Select one NE to use as an example for baseline data

Table 19-15 Port-LAG Details report characteristics (continued)

Characteristic	Value	
Report inputs	Baseline port mode	Select Access, Network, or Hybrid. Select individual items or click Select All .
	Name or name pattern for baseline ports	Search using partial names or wildcard (%). Select individual items or click Select All .
	Baseline port or LAG or MC-LAG	Select a baseline port, LAG, or MC-LAG.
	Total Threshold	Specify in bps/Kbps/Mbps/Gbps
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

19.6.2 Example

The following figures show a report example.

Figure 19-6 Port-LAG Details report with baseline

Port-LAG Details

Start Date:	2023-10-11 14:01:00 IST	End Date:	2023-10-11 15:00:00 IST
Report Date:	2023-10-14 13:00:33 IST	Granularity:	Raw Collection Interval
NE ID:	fded:fade:face:ffff::18b	NE Name:	s168_96_219_acpm
Port Name:	1/2/1	Port Mode:	Network
Baseline Start Date:	2023-09-11 00:00:00 IST	Baseline End Date:	2023-10-11 15:00:00 IST
Baseline Definition:	Raw + Hour of Day	Baseline NE Name:	s168_96_219_acpm
Baseline NE ID:	fded:fade:face:ffff::18b	Baseline Port Mode:	Network
Baseline Port Name:	1/2/1		

Figure 19-7 Port-LAG Details report with baseline—Total Traffic Bitrate

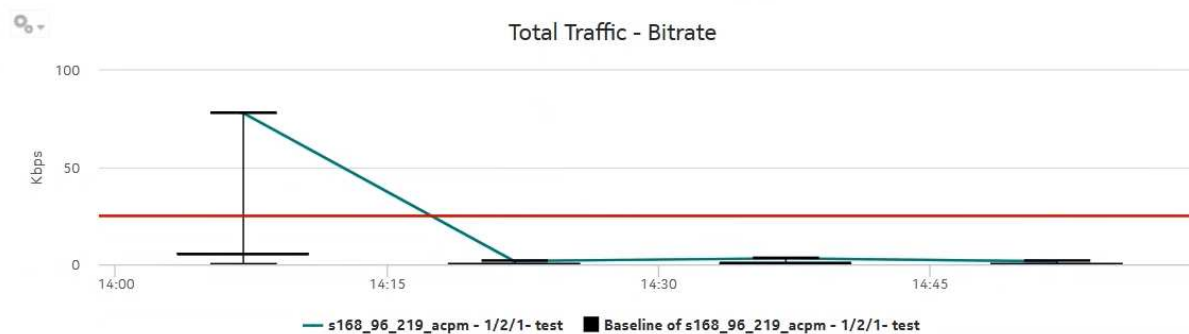


Figure 19-8 Port-LAG Details report with baseline—Total Traffic Utilization

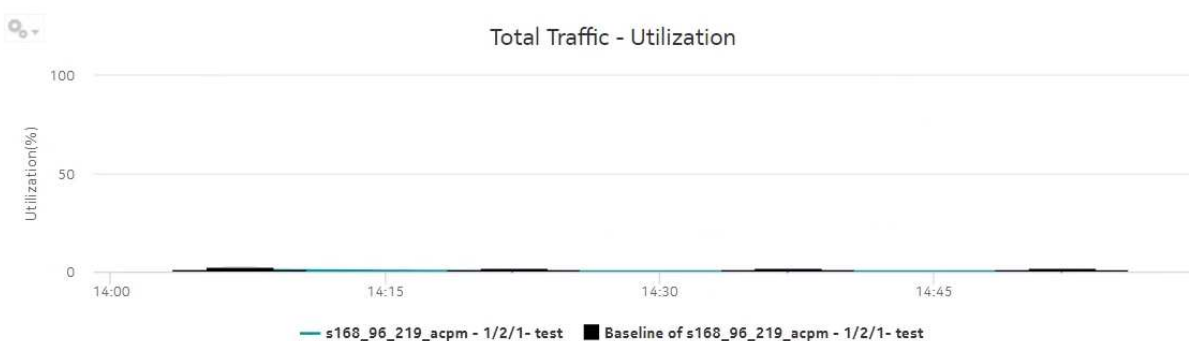


Figure 19-9 Port-LAG Details report with baseline—Ingress Traffic Bitrate

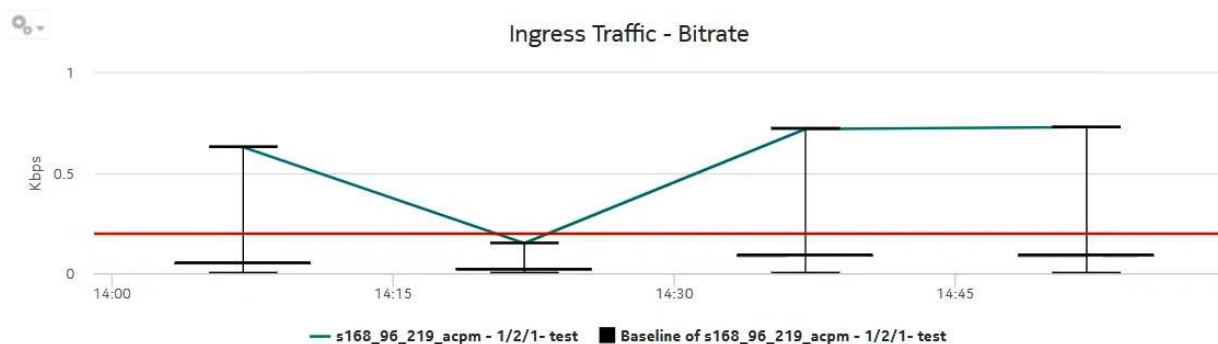
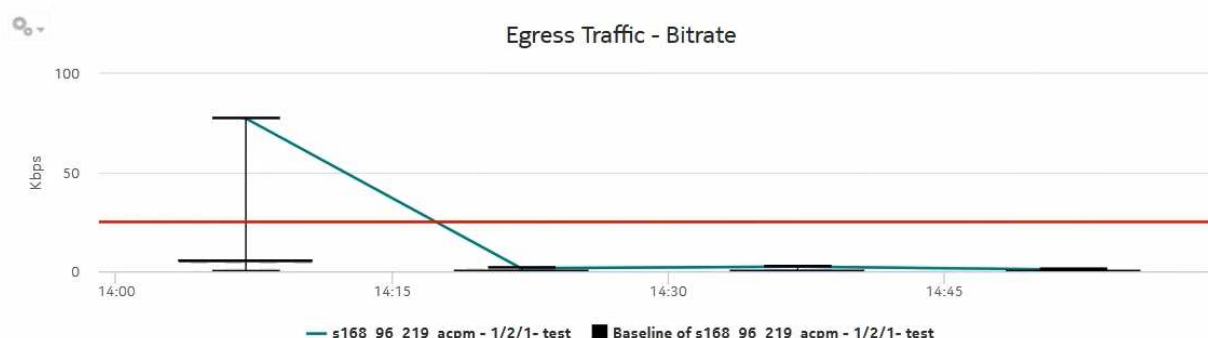


Figure 19-10 Port-LAG Details report with baseline—Egress Traffic Bitrate



19.7 Port Throughput Summary report

19.7.1 Port Throughput Summary report overview

The Port Throughput Summary report shows bandwidth utilization by specified ports for selected NFM-P and MDM-mediated NEs. The report can display a set of time series graphs, showing total, ingress, and egress. The report includes throughput data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

For classic+GRPC NEs, the NE IP must be in IPV4 format. The IPV6 format is currently not supported by the report.

The port mode may show its value as Unknown for multivendor NEs because it is specific to Nokia.

The top five ports with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum throughput values and the average utilization, along with percentiles, for all the ports selected. The summary table displays the ports in descending order of average total throughput. The report also shows information such as the total count of errors of all types for the port.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

The values entered in the ingress, egress, and total threshold input prompts are compared with the average of ingress, egress, or total values and accordingly the records or rows in the table are highlighted. The highlighted rows (that is, the average values) are populated in the three rows above the table.

Additionally, the plot or graph shows the actual values at a specified time.

You must apply unique descriptions to classic NEs with gPRC when they are discovered in the NFM-P and SDN; otherwise, they are displayed as duplicates in the 'Physical ports or LAGs or MC LAGs' report input options.

How to calculate total throughput values

1. Add the Received Octets Periodic value and the Transmitted Octets Periodic value to calculate the total throughput value.
2. Calculate the minimum, maximum, and average throughput values based on the total throughput value.

Limitations

Report limitations include:

- The report is not available as an RTF file.
- For the Juniper NE, LAG is not supported.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- Some table columns cannot be sorted and filtered; see [1.21 "Which report table columns cannot be sorted and filtered?"](#) (p. 43).
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

You must configure SAP on an access port. When an access port is not configured with SAP, the drill-down from Port Throughput to Service Utilization per Port Details does not generate a report and shows a warning in the input prompts.

The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 "How do I configure analytics aggregation?"](#) (p. 30). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See the *NSP NFM-P Statistics Management Guide* for information about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-16 Port Throughput Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-interfaces/interface	equipment.PhysicalPort	telemetry:/base/interfaces/interface	GNMI/GRPC-based performance statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)
md-aggr:/md-aggr-base/telemetry-interfaces/interface-errors	Telemetry Base Interface errors	telemetry:/base/interfaces/interface/errors	Telemetry statistics	7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

The following table describes the Port Throughput Summary report prerequisites for NFM-P-managed NEs.

Table 19-17 Port Throughput Summary report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	ifXEntry	equipment.InterfaceAdditional-Stats	Performance statistics	7210-SAS All 7250 IXR variants 7705 SAR 7750-SR

Table 19-17 Port Throughput Summary report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	MIB name	Statistics class	Statistics collection	NE types
PortNet-IngressStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA- PORT-MIB. tmnxPort NetIngress StatsEntry	equipment. PortNet- IngressStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
PortNetE- gressStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA- PORT-MIB. tmnxPort NetEgress StatsEntry	equipment. PortNetEgressStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
Dot3Stats Error Stats Aggregator	equipment. PhysicalPort	EtherLike- MIB.dot3Stats Entry ifEntry RMON- MIB.etherStats Entry	equipment. InterfaceStats ethernetequipment. EthernetStats ethernetequipment. Dot3Stats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR 7750 SR
IngressPortF- wdEngDropRea- sonStats Error Stats Aggregator	equipment. PhysicalPort	TIMETRA- PORT-MIB. tPortIngress FwdEngDR StatsEntry	equipment. IngressPortF- wdEngDropRea- sonStats	Performance statistics	7210 SAS All 7250 IXR variants 7705 SAR Hm 7750 SR

Report characteristics

The following table lists the principal report characteristics.

Table 19-18 Port Throughput Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-18 Port Throughput Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	NE Types	Search using partial names or wildcard (%). Select individual items or click Select All .
	Name or name pattern for NEs	
	NEs	
	Port modes	Select Access, Network, or Hybrid. Select individual items or click Select All .
	Port-LAG or MC LAG	Select one radio button
	Name or name pattern for ports	Search using partial names or wildcard (%). Select individual items, select all for 1000 ports, or leave selection blank to launch for all available ports.
	Physical ports or LAGs or MC LAGs	
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Total Threshold	
	Average total utilization threshold	—
	Average ingress utilization threshold	
	Average egress utilization threshold	
	Percentile	Identify a percentile of interest between 1 and 99.

Table 19-18 Port Throughput Summary report characteristics (continued)

Characteristic	Value	
Report inputs	<i>Prompt</i>	<i>Notes</i>
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes: - Click on an entry in the Average Utilization (%) column to open the Service Utilization per Port Details report for the selected port. - Click on an entry in the Minimum column to open the Port Forwarding Class Details for the selected port or LAG. Note: You can drill down on an NFM-P managed port but the hyperlink is disabled for MDM-managed ports.	

19.7.2 Example

The following figures show report examples.

Figure 19-11 Port Throughput Summary report

Port Throughput Summary

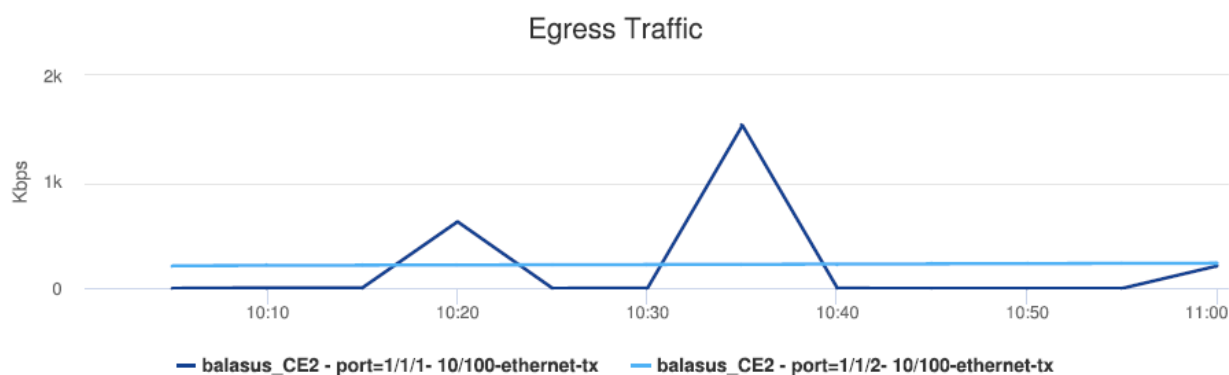
Start Date: 2019-10-18 10:01:00 IST

End Date: 2019-10-18 11:00:00 IST

Report Date: 2019-12-05 12:16:27 IST

Granularity: Raw Collection Interval





Ports Over Total Threshold:	N/A	Ports Over Total Utilization Threshold:	N/A
Ports Over Ingress Threshold:	N/A	Ports Over Ingress Utilization Threshold:	N/A
Ports Over Egress Threshold:	N/A	Ports Over Egress Utilization Threshold:	N/A

Direction	NE Name	NE ID	Port/LAG	Port Speed (Mbps)	Port Mode	Description	Minimum (Kbps)	Average (Kbps)	Maximum (Kbps)	95 PCTL (Kbps)	Average Utilization(%)	#Errors	Maximum (Time)	Max Count
Total	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.19	325.78	1535.12	1041.01	0.03	0	10-18-2019 10:35 IST	1
Ingress	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.09	126.69	627.35	623.34	0.01	0	10-18-2019 10:15 IST	1
Egress	balasus_CE2	92.168.96.103	Port 1/1/1	1000.0	Unknown	10/100-ethernet-tx	0.02	199.08	1534.49	1035.7	0.02	0	10-18-2019 10:35 IST	1
Total	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	226.45	255.49	288.08	281.3	0.03	0	10-18-2019 11:00 IST	1
Ingress	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	0.38	30.5	60.61	55.44	0.0	0	10-18-2019 10:05 IST	1
Egress	balasus_CE2	92.168.96.103	Port 1/1/2	1000.0	Unknown	10/100-ethernet-tx	213.12	224.99	236.86	235.67	0.02	0	10-18-2019 11:00 IST	1

19.8 Resource Group Utilization Detail with Forecast report

19.8.1 Resource Group Utilization Detail with Forecast report overview

The Resource Group Utilization Detail with Forecast report includes utilization data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report shows forecast support for utilization and throughput. Forecasts are available for daily or monthly granularities. The report displays a set of time series graphs or tables for Rx and Tx throughput, Rx and Tx utilization, Rx and Tx throughput with forecast, and Rx and Tx utilization with forecast.

There must be data in the data dictionary tables in order to generate the Resource Group Utilization Detail with Forecast report. Otherwise, an error occurs when executing the SQL statement for the report; see /opt/nsp/analytics/log/analytics.server.log for more information.

Use cases

Capacity planning—Use the report to examine resource group utilization patterns to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the CSV or DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-19 Resource Group Utilization Detail with Forecast report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr/md-aggr-base-interfaces-interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Table 19-20 Resource Group Utilization Detail with Forecast report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	MIB name	NE types
Interface Utilization Statistics Aggregator	equipment. PhysicalPort lag.Interface	equipment. InterfaceAdditional-Stats	Performance statistics	ifXEntry	7210 SAS 7250 IXR 7705 SAR 7750 SR 9500 MPR-A Chassis 1 9500 MPR-A Chassis 4 9500 MPR-A Chassis 8 9500 MPR-E Chassis 1 9500 MPR-E Chassis 4 9500 MPR-E Chassis 8 9500 MSS-1c 9500 MSS-O ANSI 9500 MSS-O ETSI 9500 SA Wavence UBT-SA Wavence UBT-I Wavence MSS-1 Wavence MSS-1c Wavence MSS-4 Wavence MSS-8 Wavence MSS-E Wavence MSS-HE Wavence MSS-XE Wavence MSS-O Wavence SA

Report characteristics

The following table lists the principal report characteristics.

Table 19-21 Resource Group Utilization Detail with Forecast report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-21 Resource Group Utilization Detail with Forecast report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	Start date End date	Calendar date or relative date (for example, two days ago) and time For the Start Date, enter the start date, which is before the End Date For the End Date, enter the end date, which is after the Start Date
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Resource Groups	Port and LAG resource groups as created in the Maps Layouts and Groups, Map Layout view.
	Average utilization threshold	—
	Maximum utilization threshold	—
	Forecast periods	The range for the forecast to work. The value is based on the granularity selected. For example, a period of 30 would mean 30 days if the granularity is daily, and 30 months if the granularity is monthly.
	Periods per Season	The frequency at which there is a similarity in data. For example, the frequency at which a plot has similar values. The behavior is the same as the forecast period. For example, a period of 7 would mean 7 days if the granularity is daily, and 7 months if the granularity is monthly.
	KPI	Rx Throughput Tx Throughput Rx Utilization Tx Utilization
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.

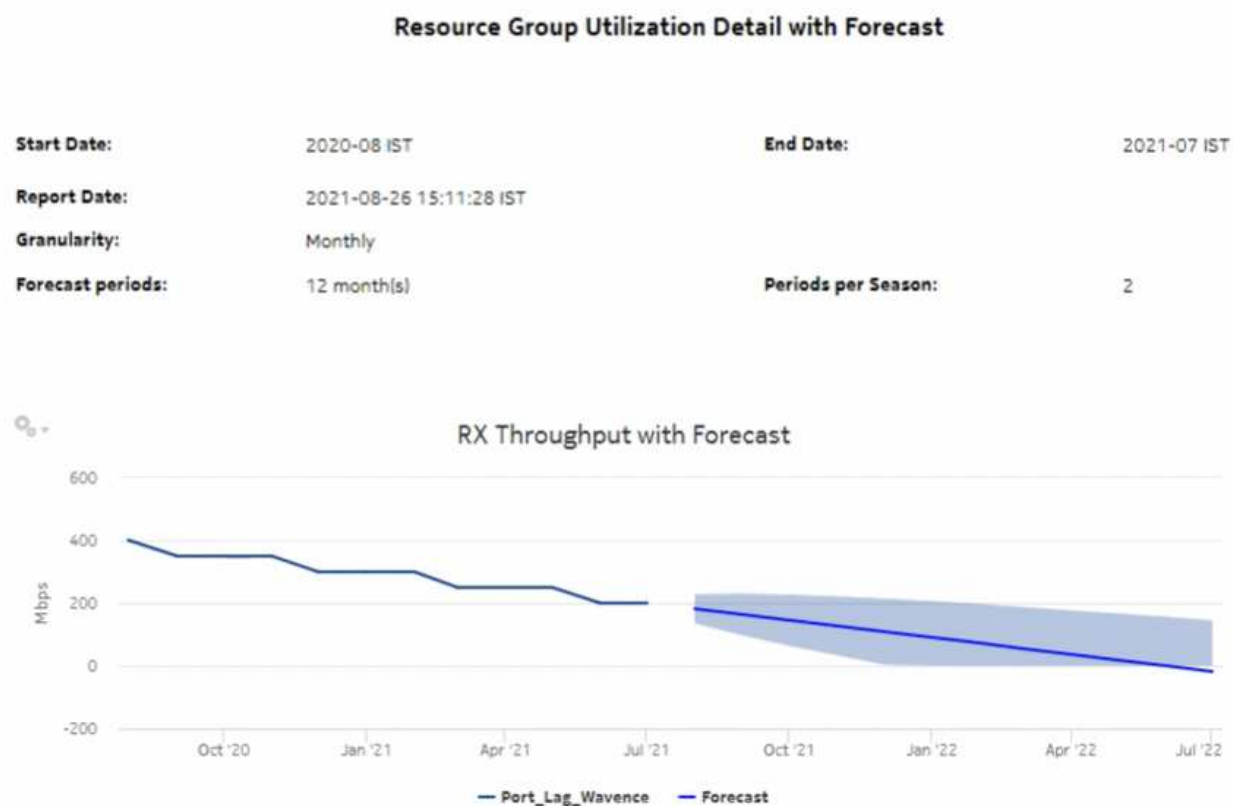
Table 19-21 Resource Group Utilization Detail with Forecast report characteristics (continued)

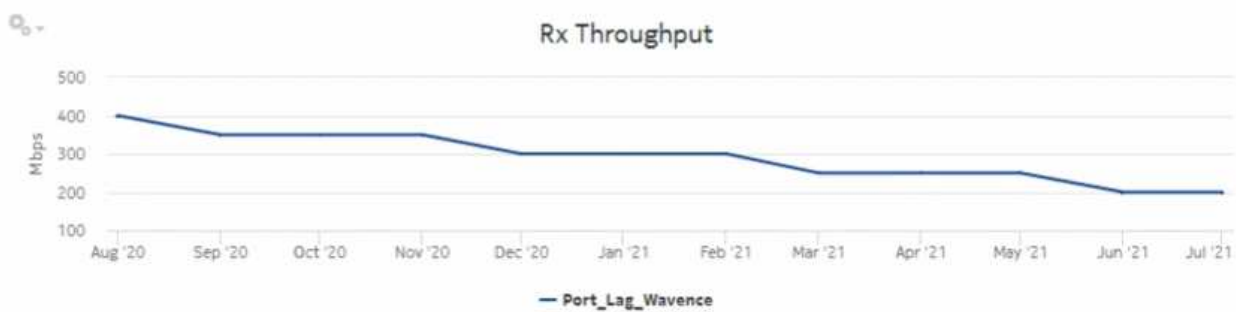
Characteristic	Value
Drill-down support	Yes—Drills down to the Resource Group Utilization Summary report.

19.8.2 Example

The following figures show a report example.

Figure 19-12 Resource Group Utilization Detail with Forecast report







NE Name	NE ID	Port/LAG	Speed (Mbps)	Mode	Description	Avg Rx Throughput (Mbps)	Min Rx Throughput (Mbps)	Max Rx Throughput (Mbps)	Avg Rx Utilization (%)	Min Rx Utilization (%)
MSS8 NE2 UBT BENCH	172.26.65.2	LAG 1	668	Network	N/A	291.67	200.0	400.0	29.16666666666667	20.0

Max Rx Utilization (%)	Min Rx Utilization time	Max Rx Utilization time	Avg Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Max Tx Throughput (Mbps)	Avg Tx Utilization (%)	Min Tx Utilization (%)	Max Tx Utilization (%)
40.0	06-01-2021 00:00:00 IST	08-01-2020 00:00:00 IST	291.67	200.0	400.0	29.16666666666667	20.0	40.0

Min Tx Utilization time	Max Tx Utilization time	Max Utilization	Avg Threshold Violation	Max Threshold Violation
06-01-2021 00:00:00 IST	08-01-2020 00:00:00 IST	40.0	0	1

19.9 Resource Group Utilization Summary report

19.9.1 Resource Group Utilization Summary report overview

The Resource Group Utilization Summary report includes utilization data for NEs managed by the NFM-P only, by the MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs. The report computes throughput and utilization based on ports and LAGs contained in resource groups defined in the NSP. Port/LAG speed is used to calculate utilization. You can select one or more resource groups to report on. The report contains one or more resource groups as per a multi-select prompt. The table-type report contains one summary row per resource group with the average maximum utilization for the top-N periods in the select date range (for example, top five days in one month).

The table is sorted by decreasing average maximum utilization; the resource group with the highest utilization is first. The top-N periods are sorted by decreasing max utilization. Sort order is fixed. Minimum and maximum timestamp columns (time of occurrence of minimum and maximum utilization) are for Rx and Tx utilization only.

Use cases

Capacity planning—Use the report to examine resource group utilization patterns to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- For the Juniper NE, LAG is not supported.
- Some table columns cannot be sorted and filtered; see [1.21 “Which report table columns cannot be sorted and filtered?” \(p. 43\)](#).
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the CSV file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-22 Resource Group Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base-interfaces-interface	Telemetry Base Interface	telemetry:/base/interfaces/interface	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) (LAG only) Cisco XRV 7.6.2 (port and LAG) Huawei NetEngine 8000 (huawei-vrp-NE8K-M8) (port and LAG) Juniper vMX Junos 21.4R1.12 (port and LAG)

Table 19-23 Resource Group Utilization Summary report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
Interface Utilization Statistics Aggregator	equipment.PhysicalPort lag.Interface	equipment. InterfaceAdditionalStats	Performance statistics	7210 SAS 7250 IXR 7705 SAR 7750 SR 9500 MPR-A Chassis 1 9500 MPR-A Chassis 4 9500 MPR-A Chassis 8 9500 MPR-E Chassis 1 9500 MPR-E Chassis 4 9500 MPR-E Chassis 8 9500 MSS-1c 9500 MSS-O ANSI 9500 MSS-O ETSI 9500 SA Wavence UBT-SA Wavence UBT-I Wavence MSS-1 Wavence MSS-1c Wavence MSS-4 Wavence MSS-8 Wavence MSS-E Wavence MSS-HE Wavence MSS-XE Wavence MSS-O Wavence SA

Report characteristics

The following table lists the principal report characteristics.

Table 19-24 Resource Group Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database

Table 19-24 Resource Group Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), weeks (w), or months (months, m)
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Weekly • Monthly
	Resource Groups	Port and LAG resource groups as created in the Maps Layouts and Groups, Map Layout view
	Average utilization threshold	—
	Maximum utilization threshold	—
	Top N	Enter the number of results to display.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	Yes—Drills down to the Resource Group Utilization Detail with Forecast report.	

19.9.2 Example

The following figure shows a report example. The table below is a single table, but is separated due to its width.

Figure 19-13 Resource Group Utilization Summary report

Resource Group Utilization Summary

Start Date:2021-02-09 09:00 IST

End Date:2021-02-09 10:59 IST

Report Date:2021-03-02 10:40:51 IST

Granularity:Hourly

Resource Group	Avg Max Utilization	Top-N Date	Avg Rx Throughput (Mbps)	Min Rx Throughput (Mbps)	Max Rx Throughput (Mbps)	Avg Rx Utilization (%)	Min Rx Utilization (%)	Max Rx Utilization (%)	Min Rx Utilization time	Max Rx Utilization time
New_Portlag_Group	5.3975 %									
		02-09-2021 09:15 IST	2.04	0.40	6.83	2.04	0.40	6.83	02-09-2021 09:15 IST	02-09-2021 09:15 IST
		02-09-2021 09:45 IST	1.85	0.41	5.99	1.85	0.41	5.99	02-09-2021 09:45 IST	02-09-2021 09:45 IST
		02-09-2021 09:00 IST	1.54	0.31	4.85	1.54	0.31	4.85	02-09-2021 09:00 IST	02-09-2021 09:00 IST
		02-09-2021 09:30 IST	1.26	0.30	3.92	1.26	0.30	3.92	02-09-2021 09:30 IST	02-09-2021 09:30 IST

Avg Tx Throughput (Mbps)	Min Tx Throughput (Mbps)	Max Tx Throughput (Mbps)	Avg Tx Utilization (%)	Min Tx Utilization (%)	Max Tx Utilization (%)	Min Tx Utilization time	Max Tx Utilization time	Max Utilization	Avg Threshold Violation	Max Threshold Violation
									4	4
2.90	0.50	4.95	2.90	0.50	4.95	02-09-2021 09:15 IST	02-09-2021 09:15 IST	6.83	1	1
4.01	1.73	5.10	4.01	1.73	5.10	02-09-2021 09:45 IST	02-09-2021 09:45 IST	5.99	1	1
2.55	0.41	5.04	2.55	0.41	5.04	02-09-2021 09:00 IST	02-09-2021 09:00 IST	5.04	1	1
2.28	0.40	4.01	2.28	0.40	4.01	02-09-2021 09:30 IST	02-09-2021 09:30 IST	4.01	1	1

19.10 SAP Throughput report

19.10.1 SAP Throughput report overview

The SAP Throughput report shows bandwidth utilization by specified services and SAPs. The default display is a set of time series graphs, showing ingress and egress. The report includes throughput data for NEs managed by the NFM-P only, MDM (model-driven) only, or NFM-P+MDM-mediated NEs.

The report shows throughput by a specified service and SAPs. The default display is a set of time series graphs, showing ingress and egress.

The top 5 SAPs with the highest throughputs are shown in the report plots.

The summary table shows the minimum, average, and maximum SAP throughput values along with percentiles, for all the SAPs selected. The summary table displays the SAPs in descending order of average total throughput.

The following describes some of the report output parameters:

- Minimum: The lowest throughput value within the selected time range.
- Maximum: The highest throughput value within the selected time range.
- Average: The average throughput over the selected time range.
- Maximum Time: The timestamp when the maximum throughput occurred.
- Max Count: The number of times that the maximum throughput occurred.
- Minimum (Gbps) is calculated as: Total Minimum = min(Actual Ingress Throughput + Actual Egress Throughput)

The report currently shows policers with stat mode “minimal” only.

If a percentile value from 1 to 99 is entered in the Percentile input, the selected percentile value of the data is shown in the table.

i Note: The report may not complete if it is run on more than 400 000 SAPs.
For SR variants, 7705 SAR-Hm, and 7705 SAR-Hmc, the report supports QoS policies, virtual schedulers, queue overrides, policer overrides, and the egress aggregate rate limit.
For the 7210 SAS, the report supports QoS policies, queue/meter overrides, and the egress aggregate rate limit.
For the 7705 SAR, the report supports QoS policies and the egress aggregate rate limit.

Use cases

Capacity planning—Use the report to examine traffic usage and patterns on a per service or per SAP basis, to plan for capacity requirements.

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.

- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.
- When there are null values in the database statistics table for a large reporting period, the graphs do not display. Perform all of the prerequisites to ensure that the graphs display.

Prerequisites

The following items need to be performed in the NFM-P for SAP Throughput reports to be created:

- For raw data, the periodic counter must be enabled from the Periodic Counter Manager; see the *NSP NFM-P Statistics Management Guide* for information about creating and managing periodic accounting statistics calculations.
- The following table describes the aggregation rules that must be enabled and the telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

Table 19-25 SAP Throughput report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-ingress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/ingress/packet/octets	Accounting, file, and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled
md-aggr:/md-aggr-base/complete-service-egress-packet-octets/complete-service-egress-packet-octets	queue-id sap-id statmode	telemetry:/base/accounting/complete/service/egress/packet/octets	Accounting, file, and log policies	7750 MD SR Classic NE with gRPC telemetry collection enabled

Table 19-26 SAP Throughput report prerequisites for NFM-P-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Egress	service. AccessInterface	service. CompleteService-EgressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR

Table 19-26 SAP Throughput report prerequisites for NFM-P-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details	NE types
SAP Interface Stats Aggregator Ingress	service. AccessInterface	service. CompleteServiceIngressPacketOctets	Accounting, file, and log policies	completeSvcInEg policy	7250 IXR-R6 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR
Service Egress Octets Aggregator	service. AccessInterface	service. ServiceEgressOctets	Accounting, file, and log policies	svcEgressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H
Service Ingress Octets Aggregator	service. AccessInterface	service. ServiceIngressOctets	Accounting, file, and log policies	svcIngressOctet policy	7210 SAS-D 7210 SAS Dxp 7210 SAS-K 7210 SAS-M 7210 SAS-Mxp 7210 SAS-R 7210 SAS-S/Sx 7210 SAS-T 7210 SAS-X 7705 SAR-H

Viewing collection statistics in the NFM-P GUI

For 7210 SAS and 7750 SR NEs, the statistics collected to create the SAP Throughput report can be viewed in the NFM-P GUI, from the SAP properties Statistics tab:

- For 7210 SAS NEs, the Service Ingress Octets and Service Egress Octets record types show the statistics with All Octets Forwarded, which are used for throughput calculations.
- For 7750 SR and 7705 SAR NEs, the Complete Service Ingress Packet Octets and Complete Service Egress Packet Octets record types show the statistics used for throughput calculations.

7210 SAS counter type

Reports are available for 7210 SAS NEs using both counter types. The throughput information is calculated based on the counter type configured at the time the report is taken. If multiple SAPs are selected for reporting, Analytics assumes that the counter type of all the selected SAPs can be the same or different. Currently the sum of throughputs of multiple SAPs chosen would be plotted.

For more information about counter types, see the NE documentation.

Report characteristics

The following table lists the principal report characteristics.

Table 19-27 SAP Throughput report characteristics

Characteristic	Value
Data type	Statistics
Source database	Auxiliary database
Service types supported	VPRN, VPLS, Epipe, Ipipe, Cpipe

Table 19-27 SAP Throughput report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	Node Type	Search using partial names or wildcard (%). Select individual items or click Select All .
	Node	
	Customer Name (or Name Pattern)	Search using partial names or wildcard (%).
	Customer	Search using partial names or wildcard (%). Select individual items or click Select All .
	Service	
	SAP Name (or Name Pattern)	Search using partial names or wildcard (%).
	SAP	Search using partial names or wildcard (%). Select individual items or click Select All .
	Ingress Threshold	Specify in bps/Kbps/Mbps/Gbps
	Egress Threshold	
	Percentile	Identify a percentile of interest between 1 and 99.
	Logo Resource ID	The logo to add to the report. Enter the Resource ID of the logo image in the Images folder. The default is the Nokia logo. To create the report without a logo, leave the Logo Resource ID field blank.
	Logo Position	Choose Left, Middle, or Right. The logo appears on the left on the first page of the report if you choose Left or Middle.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

19.10.2 Example

The following figures show a report example.

Figure 19-14 SAP Throughput report





SAPs Over Total Threshold : N/A

SAPs Over Ingress Threshold : N/A

SAPs Over Egress Threshold : N/A

Direction	NE Name	NE ID	SAP	Service Name	Description	Minimum (Kbps)	Average (Kbps)	Maximum (Kbps)	95 PCTL (Kbps)	Maximum (Time)	Max Count
Total	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	11.46	147.87	688.16	528.1	02-11-2021 09:15 IST	1
Ingress	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	3.08	19.52	40.64	40.08	02-11-2021 08:45 IST	1
Egress	s168_96_15_Both	92.168.96.15	1/1/4:23	Test	sap_MDM	2.67	128.34	663.1	507.8	02-11-2021 09:15 IST	1
Total	NE81	35.250.40.81	1/1/1	VPLS 2	TIM_Up_SAP	0.0	0.28	0.55	0.55	02-11-2021 10:00 IST	4
Ingress	NE81	35.250.40.81	1/1/1	VPLS 2	TIM_Up_SAP	0.0	0.28	0.55	0.55	02-11-2021 10:00 IST	4
Total	s168_96_57_Both	35.249.149.7	1/1/35:2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0
Ingress	s168_96_57_Both	35.249.149.7	1/1/35:2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0
Egress	s168_96_57_Both	35.249.149.7	1/1/35:2000	VPLS 14	N/A	0.0	0.0	0.0	0.0	02-11-2021 09:46 IST	0

19.11 Temperature, CPU, Memory Utilization Details report

19.11.1 Temperature, CPU, Memory Utilization Details report overview

The Temperature, CPU, Memory Utilization Details report shows the temperature, memory and CPU usage details for selected NEs and sites. The report includes throughput data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

The temperature, CPU, and memory in the report graph are averaged at the NE level for the NEs, whereas the temperature, CPU, and memory readings are from the card sensors.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127°C, -128°C
- For non ETR NEs: all negative temperatures

Limitations

Report limitations include:

- If memory values are very low, the values on the y-axis in the graph may be incorrect.
- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- For Cisco and Juniper NEs, only the graph is displayed.
- When the report is exported to the CSV or DOCX file type, some data may not display or the table may not align properly.
- When the report is exported to the RTF file type, some table columns may not display.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-28 Temperature, CPU, Memory Utilization Details report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12

Table 19-29 Temperature, CPU, Memory Utilization Details report prerequisites for NFMP-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
System CPU Usage Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
System Memory Stats Aggregator	equipment. SystemStatsHolder	equipment.System MemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryUsed	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS

Table 19-29 Temperature, CPU, Memory Utilization Details report prerequisites for NFMP-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryPoolAllocate	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
Available Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiMemoryAvailable	7210 SAS 7250 IXR 7705 SAR 7705 SAR Hm 7750 SR 7950 XRS Note: 7705 SAR-H is not supported. Memory Usage is as follows: Memory Usage = (systemMemoryUsageInKb / (allocatedMemoryInKb + availableMemoryInKb)) * 100 For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage = (systemMemoryUsageInKb / (allocatedMemoryInKb)) * 100

Table 19-29 Temperature, CPU, Memory Utilization Details report prerequisites for NFMP-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment.MCCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro- cessor equipment.XioCard	equipment. HardwareTempera- ture	Performance statistics	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750-SR 7950 XRS Omnisystem NEs
Card Health Stats Aggregator	equipment. CardSlot	equipment. CardHealth Stats	Performance statistics	ALCATEL-IND1- HEALTH-MIB. healthModuleEntry	7705 SAR-H Omnisystem NEs and their variants

Report characteristics

The following table lists the principal report characteristics.

Table 19-30 Temperature, CPU, Memory Utilization Details report characteristics

Characteristic	Value
Data type	Statistics NE configuration information
Source database	Auxiliary database

Table 19-30 Temperature, CPU, Memory Utilization Details report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE types	Select individual NE types or click Select All . Search using partial names or wildcard (%).
	Name or name pattern for NE	Search using partial names or wildcard (%). Select individual items or click Select All .
	NE	If the report is opened from the Temperature, CPU, Memory Utilization report, the NE is displayed. Otherwise, select from the list of NEs for the selected NE types.
	Temperature unit (C/F)	Celsius or Fahrenheit. Default is Celsius.
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold (%)	
	Memory threshold (%)	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

19.11.2 Example

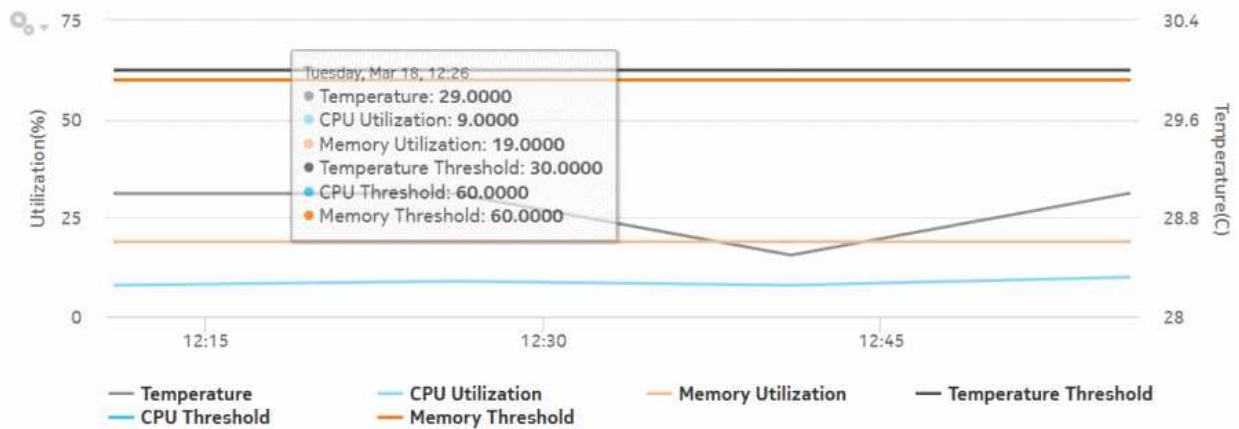
The following figure shows a report example. The tables below are each a single table, but are separated due to width.

Figure 19-15 Temperature, CPU, Memory Utilization Details report

Temperature,CPU,Memory Utilization Details

Start Date: 2025-03-18 12:01:00 IST End Date: 2025-03-18 13:00:00 IST
Report Date: 2025-04-08 15:26:10 IST Granularity: Raw Collection Interval
Temperature Threshold: 30 C CPU Threshold: 60 %
NE ID : 38.120.234.180 Memory Threshold: 60 %
NE Name: srl-ixr6e

Temperature, CPU, Memory Utilization Details



Temperature

NE ID	NE Name	Card Name	Card Position	Temperature Max(C)	Max Temperature Time	Temperature Min(C)	Min Temperature Time
38.120.234.180	srl-ixr6e	380-01mm38-402g-epd6e	slot11-card38-3-card1	33	2025-03-18 12:38:53	33	2025-03-18 12:58:53
38.120.234.180	srl-ixr6e	CPM-40gmm-3e1	slot11-card38-3-card4	25	2025-03-18 12:38:53	24	2025-03-18 12:41:53

CPU and Memory

NE ID	NE Name	Card Name	Card Position	CPU Max(%)	CPU Max Time	CPU Min(%)	CPU Min Time	Memory Max(%)	Memory Max Time	Memory Min(%)	Memory Min Time
38.120.234.180	srl-ixr6e	CPM-40gmm-3e1	slot11-card38-3-card4	10.0	2025-03-18 12:58:54	8.0	2025-03-18 12:41:54	19.0	2025-03-18 12:38:54	18.0	2025-03-18 12:58:54

19.12 Temperature, CPU, Memory Utilization Summary report

19.12.1 Temperature, CPU, Memory Utilization Summary report overview

The Temperature, CPU, Memory Utilization Summary report shows the maximum and average temperature and memory and CPU usage for selected NEs. The default display is a table displaying details. By default, the table is sorted according to the NE Name column. Table sorting is enabled for the CPU Memory Average and Maximum columns. The report includes throughput data for NEs managed by the NFM-P only, MDM (model-driven Nokia) only, or NFM-P+MDM-mediated NEs.

The temperature in the report is at the NE level, since the temperature readings from all of the card sensors are averaged at the NE level as the NE temperature.

To generate meaningful average temperature data, Nokia recommends using raw or hourly interval statistics.

Memory Usage is computed in the report using the following formula: $[\text{memory in use} / (\text{allocated memory} + \text{available memory}) * 100]$. The calculation is displayed at the footnote section of the reports.

If no telemetry subscriptions are enabled for CPU, Memory, and Temperature, the report shows -1 values for CPU and Memory and N/A for Temperature.

Utilization results are colored red when utilization reaches or exceeds user-defined thresholds. Thresholds are defined separately. The default value for the temperature threshold is 30°C. The default value for the memory and CPU thresholds is 60%.

The following temperatures can be reported by the NE when no temperature sensor is available. These temperatures are invalid and will not be displayed in the report.

- For ETR NEs: -127°C, -128°C
- For non ETR NEs: all negative temperatures

Limitations

Report limitations include:

- Minimum and maximum throughput aggregation cannot be compared with the minimum and maximum throughput values generated from raw granularity.
- Some table columns cannot be sorted and filtered; see [1.21 "Which report table columns cannot be sorted and filtered?" \(p. 43\)](#).
- There is a limitation in the length of string which is passed when you choose Select All for the display name for some report inputs; in particular, when you multiselect a report input, you cannot exceed a string length of 65,000 octets.
- When the report is exported to the RTF file type, some table columns may not display.
- When the report is exported to the ODS or ODT file type, some data may not display.
- When the report is exported to the CSV file type, some data may not display or the table may not align properly.

Prerequisites

The following table describes the aggregation rules that must be enabled and telemetry

subscriptions that must be configured for the NEs on which statistics are to be collected. The aggregation rules must be enabled to view the report for granularities other than raw data; see [1.9 “How do I configure analytics aggregation?” \(p. 30\)](#). Enable aggregation and configure telemetry subscriptions; see the Telemetry information on the [Network Developer Portal](#) and the *NSP Data Collection and Analysis Guide*.

See information in the *NSP NFM-P Statistics Management Guide* about creating or modifying a specific MIB statistics policy using a bottom-up method.

Table 19-31 Temperature, CPU, Memory Utilization Summary report prerequisites

Aggregator name	Monitored object class	Statistics class	Statistics collection	NE types
md-aggr:/md-aggr-base/telemetry-system-info/system	Card Memory pool Shelf	telemetry:/base/system-info/system	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco IOS-XR (NCS 7.6.2) Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12
md-aggr:/md-aggr-base/telemetry-hardware/temperature	Card Port Shelf	telemetry:/base/hardware/temperature	Telemetry statistics	7220 IXR D3 (SRL) 7250 IXR-6 (SRL) 7250 IXR-6e (SRL) 7750 MD SR Classic NE with gRPC telemetry collection enabled Cisco NCS 7.6.2 Cisco XRV 7.6.2 Juniper vMX Junos 21.4R1.12

Table 19-32 Temperature, CPU, Memory Utilization Summary report prerequisites for NFMP-managed NEs

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
System CPU Usage Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemCpuStats	Performance statistics	TIMETRA-SYSTEM-MIB. sgiCpuUsage	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS

Table 19-32 Temperature, CPU, Memory Utilization Summary report prerequisites for NFMP-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
System Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. SystemMemoryS- tats	Performance statistics	TIMETRA- SYSTEM-MIB. sgiMemoryUsed	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
Allocated Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AllocatedMemoryS tats	Performance statistics	TIMETRA- SYSTEM-MIB. sgiMemoryPoolAl- locate	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS
Available Memory Stats Aggregator	equipment. SystemStatsHolder	equipment. AvailableMemoryS- tats	Performance statistics	TIMETRA- SYSTEM-MIB. sgiMemoryAvail- able	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS Note: 7705 SAR-H is not supported. Memory Usage is as follows: Memory Usage =(systemMemory UsageInKb/ (allocatedMemory InKb+available MemoryInKb)*100 For SAR-H NEs, the available memory statistics are not supported; the calculation is as follows: Memory Usage =(systemMemory UsageInKb/ (allocatedMemory- InKb)*100

Table 19-32 Temperature, CPU, Memory Utilization Summary report prerequisites for NFMP-managed NEs (continued)

Aggregator name	Monitored object class	Statistics class	Statistics collection	Details (MIB name)	NE types
Hardware Temperature Stats Aggregator	equipment. BaseCard equipment. CardSlot equipment.CCM equipment.FanTray equipment. ControlProcessor equipment. DaughterCard equipment. MCMCard equipment. PowerSupplyTray equipment.Shelf equipment. SwitchFabricPro- cessor equipment. XiomCard	equipment. Hardware Temperature	Performance statistics	TIMETRA- CHASSIS-MIB. tmnxHwEntry	7210 SAS 7250 IXR 7705 SAR 7705 SAR-H 7705 SAR Hm 7750 SR 7950 XRS Omnisystem NEs
Card Health Stats Aggregator	equipment. CardSlot	equipment. CardHealth Stats	Performance statistics	ALCATEL-IND1- HEALTH-MIB. healthModuleEntry	7705 SAR-H Omnisystem NEs and their variants

Report characteristics

The following table lists the principal report characteristics.

Table 19-33 Temperature, CPU, Memory Utilization Summary report characteristics

Characteristic	Value
Data type	Statistics NE configuration information
Source database	Auxiliary database

Table 19-33 Temperature, CPU, Memory Utilization Summary report characteristics (continued)

Characteristic	Value	
Report inputs	Prompt	Notes
	End date	Calendar date or relative date (for example, two days ago) and time
	Granularity	Aggregation types: • None (raw data) • Hourly • Daily • Monthly
	Report range	Length of time to be reported, in minutes (minutes, min), hours (hours, h), days (days, d), or months (months, m)
	NE Type	Select individual items or click Select All . Search using partial names or wildcard (%).
	Name or name pattern for NE	
	NE	
	Temperature unit (C/F)	Celsius or Fahrenheit. Default is Celsius.
	Temperature threshold	Data at or above thresholds will display in red.
	CPU threshold	
	Memory threshold	
	Logo Resource ID	The logo to add to the report. Enter the resource ID for the logo image uploaded to the Images folder, if any. If no logo ID is provided, the logo area will be blank.
	Logo Position	Choose Left, Middle or Right. The logo will be placed on the left of the first page of the report for both the left and middle options.
	Show report output on one page	Select the check box to enable pagination. Note: Using the Show report output on one page option when creating reports as drill-downs may impact report rendering time. Nokia recommends disabling the Show report output on one page option when creating reports.
Drill-down support	No	

 **Note:** If there is no data for the input date and range, the report displays -1.00 in the table columns.

19.12.2 Example

The following figure shows a report example.

Figure 19-16 Temperature, CPU, Memory Utilization Summary report

Temperature,CPU,Memory Utilization Summary

Start Date: 2023-10-19 10:01:00 IST **End Date:** 2023-10-19 11:00:00 IST **Granularity:** Raw Collection Interval
Report Date: 2023-11-17 20:24:11 IST
Temperature Threshold: 30.0 C **CPU Threshold:** 60.0 % **Memory Threshold:** 60.0 %
NE IDs : 35.249.152.146, 92.168.98.236, 93.1.211.241

NE Name	NE ID	CPU Avg(%)	CPU Max(%)	Memory Avg(%)	Memory Max(%)	Temperature Avg (C)	Temperature Max (C)
s168_96_101_Both	35.249.152.146	23.48	43.50	53.14	56.28	52.33	53.00
s168_98_236_Both	92.168.98.236	3.36	3.47	56.24	56.28	45.60	52.00
srl-1-ixr6	93.1.211.241	16.00	18.00	-1.00	-1.00	50.00	50.00

Part VI: Custom

Overview

Purpose

This part provides information about custom NSP Analytics reports. Custom reports can be created according to your specifications by Nokia Professional Services. Contact your Nokia sales representative for more information.

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20 Custom report deployment

20.1 Custom reports

20.1.1 Custom reports overview

You can deploy custom reports in Analytics.

20.2 To deploy a custom report

20.2.1 Purpose

Use this procedure to upload a custom report to Analytics. The report must be in ZIP file format. The custom reports can be in subfolders inside the ZIP folder. The subfolder will be included in the URI of the report when it is deployed.

20.2.2 Steps

- 1 _____
Open Data Collection and Analysis Management, Analytics Server Management.
- 2 _____
Click Deploy Resource Catalog.
- 3 _____
Click to browse to the files to be deployed, then click **Deploy**.
You can select more than one file to deploy.
- 4 _____
Click Data Collection and Analysis Visualizations, Repository when the upload is completed.
The custom report appears in the Reports and Dashboards/Custom folder.

END OF STEPS _____

20.3 To delete a custom report

20.3.1 Purpose

Use this procedure to remove a custom report from Analytics. Reports can only be deleted from the Custom folder.

20.3.2 Steps

- 1 _____
Open Data Collection and Analysis Management, Analytics Server Management.
- 2 _____
Click Delete Resource Catalog.
- 3 _____
Choose the report or folder to be deleted; for example, Reports and Dashboards/Custom/
reportname.
- 4 _____
Click Delete. The report or folder is deleted from the NSP.

END OF STEPS _____

20.4 Dashboard designer overview

20.4.1 General information

You can create custom dashboards in the application. Custom dashboards can include reports that come pre-packaged with the application and custom reports created with the ad hoc editor. The ad hoc editor can be launched from within the dashboard designer to create a report as part of the new dashboard. The ad hoc editor can also be accessed separately; see [Chapter 21, “Ad hoc report design”](#).



Note: Previously created custom reports cannot be added to a custom dashboard. To add a custom report to a custom dashboard, the report must be created in the dashboard designer.

Reports are added to the dashboard with default input values applied, for example, the current date and time and all NE types. Add filters to specify input parameters, and use parameter mapping to apply the same filter to multiple reports in the new dashboard.

Dashboards can be saved to the Results folder. Running the dashboard runs the reports and displays the dashboard with the results. Opening the dashboard opens it in the dashboard designer.

Custom dashboards can be scheduled. The filters in the dashboard are available as parameters when a schedule is created. For example, if you have two reports that need to be run overnight with two NE types of interest, you can create a dashboard composed of the two reports with a filter for NE type. Create one schedule to run the dashboard with one NE type and one to run it with the other NE type. You will receive output showing results of both reports together, for the NE selected.

20.5 To create a custom dashboard

20.5.1 Purpose

Use the steps in this procedure as required to create a custom dashboard. At any time during creation you can click on the eye icon to toggle to display mode and preview the dashboard.

20.5.2 Steps

1

Open Data Collection and Analysis Analytics Reports, Dashboard Designer.

2

Add pre-packaged reports:

1. In the Existing Content panel, expand the folders to display the desired report.
2. Click on the report name and drag and drop it to the canvas. The report is added to the dashboard as a dashlet and input parameters are added to the Filters panel.
3. Drag and drop additional pre-packaged reports as needed.
4. Click and drag report images to move them or drag the edges to resize.
5. Configure the report as required using the parameters in the Dashboard Settings panel.

3

Add a filter:

1. In the Filters panel, expand the report with the input for which you need to create a filter.
2. Click on the input parameter and drag and drop it to the canvas. The filter is displayed.

4

Perform parameter mapping:

1. Click on the parameter mapping icon. The Parameter Mapping dialog opens and displays the filter groups that have been added to the dashboard and the dashlets to which they apply.
2. Click on the plus symbol to add another dashlet to a filter.
3. Configure the Dashlet Affected and Filter/Parameter affected parameters.
4. Click Create New Filter to manually create a new filter.
5. Configure the required parameters and click OK.

5

Create custom reports to include in the dashboard:

1. In the New Content panel, choose a display type and drag and drop it to the canvas.

2. Perform steps [Step 2](#) through [Step 7](#) of [21.2 “To create a report using the ad hoc editor” \(p. 813\)](#).

6

Save the dashboard:

1. Click **Save**, and choose **Save Dashboard As**.
2. Configure the required parameters.
3. Click **Save**. The dashboard appears in the Results folder.

END OF STEPS

20.6 To upload images to a custom dashboard

20.6.1 Purpose

You can add a logo to a custom Analytics dashboard.

i **Note:** You cannot add an image to a custom Analytics report, but you can create a custom dashboard with a logo and add one or more ad hoc reports to the dashboard

Perform this procedure to upload and import an image file for use as a logo. The following file formats are supported:

- JPEG
- JPG
- GIF
- PNG
- SVG
- BMP

i **Note:** In a custom dashboard, the images are not auto-scaled to 80 pixels as in a prepackaged report. Instead, you must manually resize the image dashlet.

20.6.2 Steps

Upload image

1

Open Data Collection and Analysis Analytics Reports, Repository.

2

Click **Folders**, then expand root→Images→Add Resource→File→Image. The Add File form opens.

3 _____
Configure the required parameters.

4 _____
Click **Submit**.

Import image

5 _____
Open Dashboard Designer.

6 _____
Drag the image from the New Content section of the Available Content panel to the dashboard canvas to create a dashlet. The Dashlet Image form opens.

7 _____
Complete the Web Address/Repository URI parameter with this path format:
`repo:/Images/image_name.image_file_type`

where:

- *image_name* is the file name of your image
- *image_file_type* is the file type of your image

8 _____
Click **OK**.

END OF STEPS _____

21 Ad hoc report design

Ad hoc editor

21.1 Ad hoc report design overview

21.1.1 General information

You can use the Adhoc Report Design editor to create custom reports. Data domains provide a data model and abstraction layer for a variety of information stored in the NSP. The editor allows you to select the set of data that you require.

Syncing of data dictionary items to the Aux Db for new classes can be added dynamically to the NSP. These can then be used as input controls in Ad hoc report design. Contact your Nokia sales representative for more information.

The default time zone in data domains is GMT, regardless of the time zone of the user.

See the Analytics landing page for a demonstration video.

21.2 To create a report using the ad hoc editor

21.2.1 Purpose

Use the steps in this procedure as required to create a report. At any time during creation you can click on the eye icon to toggle to display mode and preview the report.

21.2.2 Steps

1

Open Data Collection and Analysis Analytics Reports, Adhoc Report Design. The Select Data window displays.

2

Open the folders, choose a domain, and click **Choose Data**. The list of tables in the data domain displays.

3

Choose the tables in the Source panel that you want to include in the report and click the right arrow to move them to the Selected Fields panel.

4

Click **OK**. The Ad Hoc View canvas displays.

How do I add a field or measure to the ad hoc view after an upgrade?

5

Expand the data tables in the Fields and Measures panels. Click and drag relevant data types to the Columns and Rows selectors.



Note: You can move a data type from field to measure, or vice versa. Right-click on the data type and choose Use as Measure or Use as Field.

6

Right-click on column headers to change grouping, apply and create filters, or sort data as needed.

7

Click **Save** to save the ad hoc view for further editing, or save it and create a report.

After the view has been saved, you need to click **Select Fields** to choose a new table. Do not use the browser Back button.

8

Return to the Repository.

END OF STEPS

21.3 How do I add a field or measure to the ad hoc view after an upgrade?

21.3.1 Purpose

Perform this procedure for Network and Service domains and NSP domains. Perform this procedure to add a field or measure to the ad hoc view when you receive the message, “The following fields and/or measures no longer exist in the datasource” after an upgrade.

21.3.2 Steps

1

Open the ad hoc view.

2

When the window opens, click **Remove Items**. The view opens with a field missing from the existing view.

3

Add the removed field back to the view:

1. Click (More actions) next to the domain name.
2. Click **Choose Visible Fields**.

How do I add a field or measure to the ad hoc view after an upgrade?

4

Double-click on the field from the table which was previously shown in the view. The field is added to the existing table.

5

Click **OK**. The field is now available in the list.

6

Reapply the filters if required and click **Apply** to save the view.

END OF STEPS

Application Assurance domains

21.4 General information

21.4.1 Application Assurance domains general information

You must enable all of the aggregators associated with the domain in the NFM-P.

21.5 IPDR Reference

21.5.1 IPDR Reference general information

The fields and measures included in the data domains are based on statistics described in the *NSP NFM-P IPDR Reference*; see the [Network Developer Portal](#) for the IPDR Reference.

The following do not appear in the *NSP NFM-P IPDR Reference*:

- Node Type: the list of compatible NE types and their system addresses
- Device Operating System Data: the list of compatible device OS, and the number of devices with each OS ID
- ANL Custom Attribute Details Data: the details included in the analytics_anl_details_table_ct table in the auxiliary database; see [6.1.4 “Custom table for ANL data” \(p. 131\)](#)
- IP Family Data (Wi-Fi Subscribers Domain): a static table used to display the name of the IP Family

For CFLOWD comprehensive, TCP performance and Volume statistics at the raw level, IP_POST_PRECEDENCE, also called forwarding class, information is available for ad hoc reporting. Analytics presents each flag as a separate field for reporting.

Volume statistics have eight forwarding class fields for reporting; performance statistics have eight per session direction. Field names ending in C2s indicate client to server session direction, while S2c indicate server to client. The field names are the following:

• AFImmediate	• H2FlashOverride
• BEBestEffort	• L1Flash
• EFCritical	• L2Priority
• H1InternetNetworkControl	• NCNetworkControl

21.5.2 Data domain mapping to the *NSP NFM-P IPDR Reference*

The following tables provide information about where data domain statistics can be found in the IPDR Reference document.

Table 21-1 Business Devices and Domains

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Business Comprehensive Device Application Group * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ GRP_SUB_DEV
Business Comprehensive Application Group Host * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ GRP_SUB_HOST
Business Comprehensive Application Device * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ SUB_DEV
Business Comprehensive Application Host * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE	AGG_BUS_APP_ SUB_HOST
Business Comprehensive Special Study Stats * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE_SS	AGG_BUS_RAW

Table 21-2 Business Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Business Performance RTP Audio Application * Data	AA CFLOWD	BUSINESS	RTP_AUDIO	AGG_BUS_RAW
Business Performance RTP Video Application * Data	AA CFLOWD	BUSINESS	RTP_VIDEO	AGG_BUS_RAW
Business Performance RTP Voice Application * Data	AA CFLOWD	BUSINESS	RTP_VOICE	AGG_BUS_RAW
Business Performance TCP Application Group * Data	AA CFLOWD	BUSINESS	TCP_PERF	AGG_BUS_APP_GRP
Business Performance TCP Application * Data	AA CFLOWD	BUSINESS		AGG_BUS_APP

Table 21-2 Business Performance Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Business Performance Comprehensive Special Study Stats * Data	AA CFLOWD	BUSINESS	COMPREHENSIVE_SS	AGG_BUS_RAW

Table 21-3 Business Subscribers Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Business Subscribers Application Group * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application Group
Business Subscribers Application * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application
Business Subscribers Charging Group * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Charging Group
Business Subscriber Aggregates * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Aggregates
Business Subscriber Protocol * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Protocol
Business Subscriber UAPPS Application * Data	AA Accounting	BUSINESS	Subscriber Business Transit Sub EsmMac	Application
Business Subscriber Application Special Study Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application

Table 21-3 Business Subscribers Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Business Subscriber Protocol Special Study Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Protocol
Business Subscriber IP Detail Application Group Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application Group
Business Subscriber IP Detail Application Stats * Data	AA Accounting	BUSINESS	Special Study - Subscriber Special Study - Business Transit Sub Special Study - EsmMac	Application

Table 21-4 IP Family Usage Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
IP Traffic * Data	AA Accounting	RESIDENTIAL	Router	IP Family
IP Family Business Volume Application * Data	AA CFLOWD	BUSINESS	VOLUME	AGG_BUS_APP
IP Family Mobile Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Residential Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Residential Volume RG Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_ APP_GRP
IP Family Residential Volume RG Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_ APP

Table 21-4 IP Family Usage Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
IP Family Wi-Fi Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
IP Family Wi-Fi Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_ GRP
IP Family Wi-Fi Volume RG Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_ APP_GRP
IP Family Wi-Fi Volume RG Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_ APP
IP Family Mobile Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_ GRP
IP Family Mobile Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW
IP Family Wi-Fi Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW
IP Family residential Volume Special Study * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-5 ISA Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
ISA Performance * Data	Network Performance	RESIDENTIAL	ISA Performance statistics	—
ISA Performance Collector * Data				

Table 21-6 Fixed Wireless Access Devices and Domains

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Comprehensive Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_DEV
Mobile Comprehensive Application Group Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_HOST
Mobile Comprehensive Application Group Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_SUB_DEV
Mobile Comprehensive Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ DEV
Mobile Comprehensive Application Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ HOST
Mobile Comprehensive Application Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ SUB_DEV
Mobile Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-7 Fixed Wireless Access Location and Congestion Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Flow Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Mobile Flow Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP

Table 21-7 Fixed Wireless Access Location and Congestion Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Flow Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL
Mobile Session Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Mobile Session Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP_GRP
Mobile Session Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_ CONGESTION	AGG_RES_ANL_ APP

Table 21-8 Fixed Wireless Access RTP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile RTP Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Mobile RTP Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Mobile RTP Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW
Mobile Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-9 Fixed Wireless Access Subscribers Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Volume Application Group * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG-RES_APP_ GRP
Mobile Volume Application * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP

Table 21-9 Fixed Wireless Access Subscribers Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile Volume Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-10 Fixed Wireless Access TCP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Mobile TCP Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_ GRP
Mobile TCP Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP
Mobile TCP RG Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP_GRP
Mobile TCP RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP

Table 21-11 Residential Devices and Domains

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Comprehensive Device Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_DEV
Residential Comprehensive Host Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_HOST
Residential Comprehensive Device Application Group Subscriber * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_SUB_DEV
Residential Comprehensive Device Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_DEV

Table 21-11 Residential Devices and Domains (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Comprehensive Host Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ HOST
Residential Comprehensive Device Application Subscriber * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ SUB_DEV
Residential Comprehensive RG Device Application Group * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_ APP_GRP_DEV
Residential Comprehensive RG Device Application * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_ APP_DEV
Residential Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-12 Residential RTP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential RTP Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Residential RTP Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Residential RTP Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW

Table 21-13 Residential Subscribers Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Subscriber Application Group * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application Group

Table 21-13 Residential Subscribers Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential Subscriber Application * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application
Residential Subscriber Aggregates * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Aggregates
Residential Subscriber Protocol * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Application Group
Residential Subscriber Charging Group * Data	AA Accounting	RESIDENTIAL	Subscriber Residential Transit Sub EsmMac	Charging Group
Residential Subscriber Application Special Study Stats * Data	AA Accounting	RESIDENTIAL	Special Study - Subscriber Special Study - Residential Transit Sub Special Study - EsmMac	Application
Residential Subscriber Protocol Special Study Stats * Data	AA Accounting	RESIDENTIAL	Special Study - Subscriber Special Study - Residential Transit Sub Special Study - EsmMac	Protocol

Table 21-14 Residential TCP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential TCP RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP
Residential TCP RG Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP_GRP

Table 21-14 Residential TCP Performance Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Residential TCP Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_ GRP
Residential TCP Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP

Table 21-15 Router Partition Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Router Partition Router Application Group * Data	AA Accounting	RESIDENTIAL	Router	Application Group
Router Partition Router Application * Data	AA Accounting	RESIDENTIAL	Router	Application
Router Partition Router Protocol * Data	AA Accounting	RESIDENTIAL	Router	Protocol
Router Partition Tethering * Data	AA Accounting	RESIDENTIAL	Router	Tethering

Table 21-16 Wi-Fi Devices and Domains

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Comprehensive Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_DEV
Wi-Fi Comprehensive Application Group Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_HOST
Wi-Fi Comprehensive Application Host * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ HOST
Wi-Fi Comprehensive Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ DEV
Wi-Fi Comprehensive Application Group Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_ GRP_SUB_DEV

Table 21-16 Wi-Fi Devices and Domains (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Comprehensive Residential Group Application Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_APP_DEV
Wi-Fi Comprehensive Residential Group Application Group Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_GRP_APP_GRP_DEV
Wi-Fi Comprehensive Subscriber Device * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE	AGG_RES_APP_SUB_DEV
Wi-Fi Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	COMPREHENSIVE_SS	AGG_RES_RAW

Table 21-17 Wi-Fi Location and Congestion Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Flow Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP_GRP
Wi-Fi Flow Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP
Wi-Fi Flow Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL
Wi-Fi Session Congestion ANL Application Group * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP_GRP
Wi-Fi Session Congestion ANL Application * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL_APP
Wi-Fi Session Congestion ANL * Data	AA CFLOWD	RESIDENTIAL	FLOW_CONGESTION	AGG_RES_ANL

Table 21-18 Wi-Fi RTP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi RTP Performance Audio Application * Data	AA CFLOWD	RESIDENTIAL	RTP_AUDIO	AGG_RES_RAW
Wi-Fi RTP Performance Video Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VIDEO	AGG_RES_RAW
Wi-Fi RTP Performance Voice Application * Data	AA CFLOWD	RESIDENTIAL	RTP_VOICE	AGG_RES_RAW

Table 21-19 Wi-Fi Subscribers Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi Subscriber Application Group Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP_GRP
Wi-Fi Subscriber Application Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_APP
Wi-Fi Subscriber RG Application group Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP_GRP
Wi-Fi Subscriber RG Application Volume * Data	AA CFLOWD	RESIDENTIAL	VOLUME	AGG_RES_GRP_APP
Wi-Fi Subscriber Volume Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	VOLUME_SS	AGG_RES_RAW

Table 21-20 Wi-Fi TCP Performance Domain

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi TCP Performance Application Group * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP_GRP
Wi-Fi TCP Performance Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_APP

Table 21-20 Wi-Fi TCP Performance Domain (continued)

Adhoc Report Design Editor Source	NSP NFM-P IPDR Reference			
	Category	Aggregation Domain	Type	Aggregation Type
Wi-Fi TCP Performance RG Application Group* Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP_GRP
Wi-Fi TCP Performance RG Application * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF	AGG_RES_GRP_ APP
Wi-Fi Comprehensive Special Study Stats * Data	AA CFLOWD	RESIDENTIAL	TCP_PERF_SS	AGG_RES_RAW

Network and Service domains

21.6 General information

21.6.1 Network and Service domains general information

You must enable all of the aggregators associated with the domain in the NFM-P.

21.7 Fields and Measures

21.7.1 Fields and Measures general information

The fields and measures included in the data domains are based on packages and classes described in the *XML API Reference*.

The following do not appear in the *XML API Reference*:

- Aux DB Enum Table: Information about the NE from the auxiliary database, such as chassis type
- Temperature
- Maintenance Window: information about configured maintenance windows
- Creation and Deletion Time: information about the time of creation and deletion of a SAP or service
- Outages

21.8 Data domain mapping to the *XML API Reference*

21.8.1 Comprehensive domain

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-21 Comprehensive Domain

Adhoc Report Design Editor Source	<i>XML API Reference</i>	
	Package	Class
Memory Stats * Data	equipment	AllocatedMemoryStats
	equipment	SystemMemoryStats
	equipment	AvailableMemoryStats
DDM Stats * Data	equipment	DDMStats
Hardware Temperature Stats * Data	equipment	HardwareTemperatureStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStatsStats
CPU Stats * Data	equipment	SystemCpuStatsStats
MPLS Interface Stats * Data	mpls	mplsInterfaceStats

Table 21-21 Comprehensive Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
IP Interface Stats * Data	rtr	InterfaceAdditionalStats
	rtr	IpInterfaceStats
	rtr	sarIpInterfaceStats
CFM DMM Session Stats * Data	saspm	CFMDMMSessAccstats
CFM SLM Session Stats * Data	saspm	CFMSLMsSessAccstats
TWL Session Stats * Data	saspm	TWLSessionAccStats
TWL Session Loss Stats * Data	saspm	TWLSessionLossAccStats
Combined Network Egress Octets Stats * Data	service	CombinedNetworkEgressOctets
Combined Network Ingress Octets Stats * Data	service	CombinedNetworkIngressOctets
Complete Service Egress Packet Octets Stats * Data	service	CompleteServiceEgressPacketOctets
Complete Service Ingress Packet Octets Stats * Data	service	CompleteServiceIngressPacketOctets
Service Egress Octets Stats * Data	service	serviceEgressOctets
Service Ingress Octets Stats * Data	service	serviceIngressOctets
Network Element	netw	NetworkElement
Topology Group Binding	netw	topologygroupbinding
Physical Port	equipment	Physicalport
Access Uplink Specific	accessuplink	accessUplinkSpecifics
Lag Interface	lag	interface
Port DDM	equipment	DigitalDiagnosticMonitoring
Bundle Interface	bundle	Interface
	bundle	Porttermination
	tdmequipment	DS0ChannelGroup
	tdmequipment	DS0ChannelGroupSpecifics
Service	service	service
MPLS Interface	mpls	Interface
SAP	vpn, vll, vlan, vpls, ies,	L2AccessInterface/L3 AccessInterface
OAM CFM DMM Session	ethernetoam	cfmdmmsession
OAM CFM SLM Session	ethernetoam	cfmslmsession

Table 21-21 Comprehensive Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
OAM TWL Session	ethernetoam	TWLSession
Analytics Router Network Interface	ethernetequipment	NetworkEgrQGroup
	nqueue	NetworkQueueForwardingClass
	lag	porttermination
	rtrif	ntwInterface
	sasqos	networkingressmeter
POS Port	equipSonet	Sts12Channel
Scada Port	equipment	scadabranch
Access Queue Forwarding Class	aengr, aingr	queue
	sasqos	accessingressqueue
	aengr, aingr	policer
	sasqos	meter
	aengr, aingr	Forwardingclass
	sasqos	AccessIngressForwardingclass, AccessEgressForwardingclass
Maintenance Window	analytics	AnalyticsManager

Table 21-22 Comprehensive Domain—Custom details

Domain Table	Table Name	Description
MW Node Availability Stats * Data	analytics_Network_Element_AVAILABILITY	Consists of the availability records for network element equipment; see 11.4 "Node Availability Details report" (p. 338)
	samdb.analytics_MaintenanceWindow_ct	Consists of the maintenance windows that you provide.

Table 21-22 Comprehensive Domain—Custom details (continued)

Domain Table	Table Name	Description
MW Port Availability Stats * Data	analytics_bundleInterface_AVAILABILITY	Consists of availability records for the bundle interface; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	analytics_business_aa_sub_AVAILABILITY	Consists of the availability records for the VPRN, VLL, VLAN, VPLS, and IES SAP; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	analytics_lagInterface_AVAILABILITY	Consists of the availability records for LAG interface; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	analytics_PhysicalPort_AVAILABILITY	Consists of the availability records for physical port equipment; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	analytics_rtr_ntwInterface_AVAILABILITY	Consists of the availability records for RTRIF network interface; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	samdb.analytics_sts12channel_Availability	Consists of the availability records for the equipSonet.POS port; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	samdb.analytics_scadaport_AVAILABILITY	Consists of the availability records for ScadaPort equipment; see 11.6 "Ports and Interfaces Availability Details report" (p. 346)
	samdb.analytics_MaintenanceWindow_ct	Consists of the maintenance windows that you provide.
MW Service Availability Stats * Data	samdb.analytics_MaintenanceWindow_ct	Consists of the maintenance windows that you provide.

Note: MW denotes Maintenance Window.

21.8.2 Inventory domain

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-23 Physical Inventory Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
LSP Path	mpls	LspPath
Transport Connection	svt	TransportConnection
Service Tunnel	svt	ServiceTunnel
Services	service	Services
SDP Binding	svt	SdpBinding
SAP	vpn, vpls, vlan, vll	L3AccessInterface/ L2AccessInterface
Router Network Interface	rtr	RouterNetworkInterface
Port Lag	lag	Port Lag
MPLS Interface	mpls	Interface
LSP	mpls	LSP
Cross Connect	mpls	CrossConnect
Bundle Interface	bundle	Interface
Daughter Card Slot	equipment	DaughterCardSlot
Base Card Slot	equipment	BaseCardSlot

21.8.3 Utilization domains

The following table provides information about where data domain statistics can be found in the *XML API Reference*.

Table 21-24 Emulated Services Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Channels	tdmequipment	Datachannel, DS1E1Channel
Customer	subscr	subscriber
DS0ChannelGroup	tdmequipment	ds0channelgroup
Endpoint	service	endpoint
Network Element	netw	networkElement
SAP	vll	L2AccessInterface
Service	service	service
CEM SAP Stats * Data	service	CemSapStats

Table 21-25 Flow Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Interface	rtr	NetworkInterface
Router VIR Interface	rtr	VirtualInterfaceIcmpConfiguration
Interface Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ot_if_r (Observed Traffic / Interface)
Conversation Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ct_ip1ip2_r (Conversation Traffic / Host IP1 to Host IP2)
Conversation Traffic per Interface Stats * Data	cflowdlog	Analytics_cflowd_sys_ct_if_ip1ip2_r (Conversation Traffic / Interface / Host IP1 to Host IP2)
Host Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ht_hip_r (Host Traffic / IP)
Host Traffic per Interface Stats * Data	cflowdlog	Analytics_cFlowd_sys_ht_if_hip_r (Host Traffic / Interface / IP)
Protocol Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_pt_proto_r (Protocol Traffic)
TOS Summary Stats * Data	cflowdlog	Analytics_cflowd_sys_ot_tos_r (Observed Traffic / TOS)
AS AS Pair Stats * Data	cflowdlog	Analytics_cflowd_sys_sas_das_r (Traffic Volume / Source AS - Destination AS)
Basic IPv4 Stats * Data	cflowdlog	Analytics_cflowd_sys_basic_ipv4_r (Basic IPv4)
MPLS IPv4/IPv6 Stats * Data	cflowdlog	Analytics_cflowd_sys_mpls_r (MPLS IPv4/IPv6)
Netflow V5 Statistics Stats * Data	cflowdlog	Analytics_cflowd_sys_netflow_v5_r (Netflow v5)
Network Element	netw	networkElement
Service	vppls, vprn, ies	vprn,vpls,ies
SAP	vprn, vpls, ies	l3accessinterface,l2accessinterface
Service Site	vprn, vpls, ies	site
L2/L3 VPN Data	cflowdlog	Analytics_cflowd_sys_vpn_r
L2 IP Data	cflowdlog	analytics_cflowd_sys_l2_ip_r

Table 21-26 Link Utilization Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Isis Interface	topology	IsisLink
Network Interface	rtr	NetworkInterface
Ospf Interface	ospf	Interface
Lsp Details	mpls	StaticLsp

Table 21-26 Link Utilization Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Crossconnect	mpls	Crossconnect
Ip Interface Stats * Data	equipment	IpInterfaceStatsLogRecord
Mpls Interface Stats * Data	mpls	MplsInterfaceStatsLogRecord
Mpls Lsp Egress Stats * Data	mpls	MplsLspEgressStats
Physical Port	equipment	PhysicalPort
Mpls Interface	mpls	Interface
Rip Interface	Rip	Interface

Table 21-27 Port Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Physical Port	equipment	PhysicalPort
LAG Interface	lag	Interface
Port Termination	lag	PortTermination
MC Lag Interface	Multichassis	MultichassisLag
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats
Network Queue Policy	nqueue	Policy
Network Queue Forwarding Class	nqueue	ForwardingClass
Access Uplink Specific	accessuplinkspecifics	AccessUplinkSpecifics
SAS Network Queue Policy	sasQos	Nqueue
SAS Network Queue Forwarding Class	sasQos	NqueueForwardingClass
Combined Network Ingress Stats * Data	service	PortNetIngressStats
Combined Network Egress Octets Stats * Data	service	PortNetEgressStats
Complete Network Egress Packet Octets Stats * Data	service	PortNetEgressStats
Complete Network Ingress Packet Octets Stats * Data	service	PortNetIngressStats
Network Egress Octets Stats * Data	service	PortNetEgressStats
Network Ingress Octets Stats * Data	service	PortNetIngressStats
Network Egress Packets Stats * Data	service	PortNetEgressStats

Table 21-27 Port Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Ingress Packets Stats * Data	service	PortNetIngressStats
Network Element	netw	NetworkElement
Physical Shelf	equipment	shelf
Cellular Specific	cellularequipment	CellularSpecifics
Cellular Port Specific	cellularequipment	CellularPortSpecifics
Cellular Port Stats * Data	cellularequipment	cellularportstats

Table 21-28 Temperature-CPU-Memory Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
CPU Stats * Data	equipment	SystemCpuStats
Memory Stats * Data	equipment	MemoryUtilizationStats
Temperature Stats * Data	equipment	HardwareTemperature
Card Health Stats * Data	equipment	CardHealthStats

Table 21-29 Uptime Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Service Stats	service	cpipe, epipe, fpipe ,ies, ipipe, vlan, vpls, mvpls ,vprn
SAP	service	ies, ipipe, mvpls, vlan, vll, vpls, vprn
Customer	subscr	Subscriber
Event	assurance	Event
Maintenance Window	analytics	AnalyticsManager

Table 21-30 Utilization Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Service	service	cpipe, epipe, fpipe, ies, ipipe, mvpls, vlan, vprn, vpls
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Physical Port	equipment	PhysicalPort

Table 21-30 Utilization Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
LAG Interface	lag	Interface
MC LAG Interface	multichassis	MultiChassisLag
Ingress Queues Policers Meters	package:aingr Parent Package:Policy	Policer
Ingress Forwarding Class	package:aingr Parent Package:Policy	ForwardingClass
Egress Queues Policers Meters	package:aingr Parent Package:Policy	Policer
Egress Forwarding Class	package:aengr Parent Package:Policy	ForwardingClass
Complete Service Ingress Packet Octets Stats * Data	service	SapIngQosPlcyQueueStats
Complete Service Egress Packet Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats
Service Egress Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Ingress Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Egress Packets Stats * Data	service	SapEgrQosHsmdaQueueStats
Service Ingress Packets Stats * Data	service	SapEgrQosHsmdaQueueStats
Customer	subscr	Subscriber

21.8.4 Wavence domains

You must enable all of the aggregators associated with the domain using NSP Classic management.

The following table provides information on where data domain statistics can be found in the *XML API Reference*.

Inventory domain

Table 21-31 Wavence License Inventory Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Radio Port Specifics	radioequipment	RadioPortSpecifics
Physical Port	equipment	PhysicalPort

Table 21-31 Wavence License Inventory Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
MPR Protection	mpr	mprprotection
MPR TMN	mpr	mprtmn
Static Routes	mpr	wavencestaticroutes
OSPF Area	mpr	ospfarea
TMN VLAN Port	mpr	tmnvlanport
Feature Inventory	mpr	wavencefeatureInventory
Capacity Inventory	mpr	wavencecapacityInventory

Utilization domain

Table 21-32 Advance Stats Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Peak And Average History 15Min Stats * Data	radioequipment	PeakAndAverageHistoryDataStats15Min
Physical Port	equipment	PhysicalPort

Table 21-33 Bandwidth Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Ingress Rx Stats * Data	ethernetequipment	AggrMaintRxStats
Egress Tx Stats * Data	ethernetequipment	AggrMaintTxStats
Radio Physical Link	netw	RadioPhysicalLink
Physical Link	netw	PhysicalLink
Discovered Physical Link	netw	DiscoveredPhysicalLink

Table 21-34 Link Budget Calculation Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Port Termination	lag	PortTermination
Physical Port	equipment	PhysicalPort
Radio Port Specifics	radioequipment	RadioPortSpecifics
RSL Hop HD 15Min Stats * Data	radioequipment	RSLHopHistoryDataStats15MinLogRecord
RSL Hop HD 24Hr Stats * Data	radioequipment	RSLHopHistoryDataStats24HrLogRecord

Table 21-35 MWA Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Physical Port	equipment	PhysicalPort
Network Element	netw	NetworkElement
Radio Link	mwaLink	Link
MWA Port Termination	mwaLink	Porttermination
MWA Radio Port Specific	mwaLink	RadioPortSpecifics
Radio Analogue Measure Stats * Data	radioEquipment	RadioAnalogueMeasure
Adaptive Modulation 15Min Stats * Data	radioEquipment	AdaptiveModulationHistoryDataStats15Min
Adaptive Modulation 24Hr Stats * Data	radioEquipment	AdaptiveModulationHistoryDataStats24Hr
Pdh Frame Hop History 15Min Stats * Data	radioEquipment	pdhFrameHopHistoryDataStats15Min
Pdh Frame Hop History 24H Stats * Data	radioEquipment	pdhFrameHopHistoryDataStats24Hr

Table 21-36 Quarterly Traffic Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Physical Port	equipment	PhysicalPort

Table 21-37 Radio Interface Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Radio Link	netw	radioPhysicalLink
Radio Port Specifics	radioequipment	RadioPortSpecifics
MPR MPT Stats	mpr	MPTStats
PDH Frame Hop History Stats * Data	radioequipment	PdhFrameHopHistory
Port Termination	lag	PortTermination
Lag Interface	lag	Interface

Table 21-38 Wavence Domain

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Adaptive Modulation Current 15Min Stats * Data	radioequipment	AdaptiveModulationCurrentDataStats15Min
Adaptive Modulation Current 24Hr Stats * Data	radioequipment	AdaptiveModulationCurrentDataStats24Hr
Adaptive Modulation History 15Min Stats * Data	radioequipment	AdaptiveModulationHistoryDataStats15Min
Adaptive Modulation History 24Hr Stats * Data	radioequipment	AdaptiveModulationHistoryDataStats24Hr
Aggr Per Queue Stats * Data	radioequipment	AggrPerQueueMaintStatsLogRecord
Ethernet Egress Stats * Data	EthernetEquipment	AggrMaintTxStatsLogRecord
Ethernet Ingress Stats * Data	EthernetEquipment	AggrMaintRxStatsLogRecord
Link	netw	RadioPhysicalLink
	lag	porttermination
	radioequipment	radioportspecifics
	netw	PhysicalLink
	netw	DiscoveredPhysicalLink
MPR MPT Stats * Data	mpr	MptStatsLogRecord
MPR Protection	mpr	mprprotection
Network Element	netw	Network Element
PDH Frame Hop Current 15Min Stats * Data	radioequipment	PdhFrameHopCurrentDataStats15Min

Table 21-38 Wavence Domain (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
PDH Frame Hop Current 24Hr Stats * Data	radioequipment	PdhFrameHopCurrentDataStats24Hr
PDH Frame Hop History 15Min Stats * Data	radioequipment	PdhFrameHopHistoryDataStats15Min
PDH Frame Hop History 24Hr Stats * Data	radioequipment	PdhFrameHopHistoryDataStats24Hr
Peak And Average History 15Min Stats * Data	radioequipment	PeakAndAverageHistoryDataStats15Min
Peak And Average History 24Hr Stats * Data	radioequipment	PeakAndAverageHistoryDataStats24Hr
Physical Port	equipment	Physical Port
	lag	Interface
	lag	porttermination
	radioequipment	radioportspecifics
Radio Port Specifics	radioequipment	radioportspecifics
Radio Analogue Measure Stats * Data	radioequipment	RadioAnalogueMeasureLogRecord
RSL Hop Current 24Hr Stats * Data	radioequipment	RSLHopCurrentDataStats24Hr
RSL Hop Current 15Min Stats * Data	radioequipment	RSLHopCurrentDataStats15Min
RSL Hop History 15Min Stats * Data	radioequipment	RSLHopHistoryDataStats15Min
RSL Hop History 24Hr Stats * Data	radioequipment	RSLHopHistoryDataStats24Hr
TSL Hop Current 15Min Stats * Data	radioequipment	TSLHopCurrentDataStats15Min
TSL Hop Current 24Hr Stats * Data	radioequipment	TSLHopCurrentDataStats24Hr

NSP domains

21.9 General information

21.9.1 NSP domains general information

For the NSP domains, you must enable the following:

- all aggregators associated with the domain in NSP Classic management
- all aggregators associated with the domain in the NFM-P

For MDM-only deployments, NSP data domains become non-functional. If the NFM-P is removed from an existing NSP deployment, the data domains remain functional only when the tables in the `samdb` schema are not deleted during the NFM-P removal procedure. Contact your Nokia technical support representative for more information.

21.10 Fields and Measures

21.10.1 Fields and Measures general information

The fields and measures included in some of the data domains are based on packages and classes described in the *XML API Reference*.

The following do not appear in the *XML API Reference*:

- Aux DB Enum Table: Information about the NE from the auxiliary database, such as chassis type. The table provides information about NE types (chassis types, chassis numbers) and their displayed name
- Temperature
- Creation and Deletion Time: information about the time of creation and deletion of a SAP or service
- Outages
- ModelName
- ClassName/SubscriptionType

21.11 Data domain mapping to the *XML API Reference*

21.11.1

The following tables provide information about data domain statistics. Some tables provide information about where data domain statistics can be found in the *XML API Reference*.

21.11.2 Comprehensive domains (NSP)

Table 21-39 Comprehensive Domain (NSP)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Service	service	cpipe, epipe, fpipe, ies, ipipe, mvpls, vlan, vprn, vpls
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
TWL Session	saspm	TwlSession
CFM DMM Session	ethernetoam	CfmDmmSession
Network Element	netw	NetworkElement
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStats
TWL Session Accounting Stats * Data	saspm	TwlSessionAccStats
CFM SLM Session Stats * Data	ethernetoam	CfmSlmSessionStats
Equipment	equipment	Equipment

Table 21-40 Node Health Domain (NSP) (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Hardware Temperature Stats * Data	—	/telemetry:base/hardware/temperature
Telemetry Info System Stats * Data	—	/telemetry:base/system-info/system
physicalmapregion	group	group.physicalmapregion
mapmember	group	group.mapmember
mapzone	group	group.mapzone

Table 21-41 Node Health Domain (NSP) (Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	NetworkElement
Allocated Stats * Data	equipment	AllocatedMemoryStats
Available Stats * Data	equipment	AvailableMemoryStats
Temperature Stats * Data	equipment	HardwareTemperature
Cpu Stats * Data	equipment	SystemCpuStats
Memory Stats * Data	equipment	MemoryUtilizationStats

Table 21-41 Node Health Domain (NSP) (Classic) (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Topology Group Binding	netw	topologygroupbinding

Prerequisites for the Node Power and Optical Port Domain (NSP) (MDM)

For the Node Power and Optical Port Domain (NSP) (MDM), telemetry statistics only populate if specific components are installed in a particular order; see section [16.4 "Common prerequisites for node power and optical power reports"](#) (p. 624).

Table 21-42 Node Power and Optical Port Domain (NSP) (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Lag Interface	equipment	equipment.Lag
Physical Port	equipment	equipment.PortDetails
Equipment	equipment	Equipment
physicalmapregion	group	group.physicalmapregion
mapmember	group	group.mapmember
mapzone	group	group.mapzone
Telemetry Transceiver DDM and Lane DDM Stats * Data		telemetry:/base/sros-port/port-transceiver-digital-diagnostic-monitoring
Telemetry Port DWDM Coherent Stats * Data	—	telemetry:/base/sros-port/port-dwdm-coherent-statistics
Telemetry System Power Management Stats * Data	—	telemetry:/base/sros-system/system-power-management
Telemetry CPM Hardware Resource Stats * Data	—	telemetry:/base/sros-cpm/cpm-hardware-resource
Telemetry Card Xiom Hardware Resource Stats * Data	—	telemetry:/base/sros-card/card-xiom-hardware-resource
Telemetry Card Xiom MDA Hardware Resource Stats * Data	—	telemetry:/base/sros-card/card-xiom-mda-hardware-resource
Telemetry Card MDA Hardware Resource Stats * Data	—	telemetry:/base/sros-card/card-mda-hardware-resource
Telemetry Card Hardware Resource Stats * Data	—	telemetry:/base/sros-card/card-hardware-resource
Telemetry Chassis Fan Hardware Resource Stats * Data	—	telemetry:/base/sros-chassis/chassis-fan-hardware-resource
Telemetry SFM Hardware Resource Stats * Data	—	telemetry:/base/sros-sfm/sfm-hardware-resource

Table 21-43 Node Power and Optical Port Domain (NSP) (Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Lag Interface	lag	interface
Physical Port	equipment	Physicalport
DDM Stats * Data	equipment	DDMStats
Coherent Opt Port Stats * Data	ethernetequipment	CohOptPortStatsLogRecord
Lane DDM Stats * Data	equipment	LaneDDMStatsLogRecord
Hardware Resource Stats * Data	equipment	HardwareResourceStatsLogRecord
Network Element	netw	NetworkElement
Topology Group Binding	netw	topologygroupbinding
Connector	equipment	Connector
Hardware Environment	equipment	HwEnvironment
PortDDM	equipment	DigitalDiagnosticMonitoring
Port Lane DDM	equipment	LaneDDM

Table 21-44 Collection schema telemetry

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStatsLogRecord
CFM SLM Session Accounting Stats * Data	saspm	CfmSlmSessionAccStatsLogRecord
TWL Session Accounting Stats * Data	saspm	TWLSessionAccStatsLogRecord
TWL Loss Session Accounting Stats * Data	saspm	TWLSessionLossAccStatsLogRecord

21.11.3 Physical Inventory domain (NSP)

Table 21-45 Physical Inventory Domain (NSP)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	equipment	NetworkElement
Shelf	equipment	equipment
Card	equipment	equipment

Table 21-45 Physical Inventory Domain (NSP) (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Physical Port	equipment	equipment, PortDetails

21.11.4 OAM (NSP) domains

Table 21-46 OAM Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
OAM PM Session	md-oam-app	nsp-oam.tests_oam-test.tests_cfm-dmm
	md-oam-app	nsp-oam.tests_oam-test.tests_twamp-light
Network Element	equipment	equipment.NetworkElement
OAM PM Bin Group	md-oam-app	nsp-oam-config.oam-pm_bin-groups
OAM Test CFM DMM	md-oam-app	nsp-oam.tests_oam-test.tests_cfm-dmm
OAM Test Twamp Light	md-oam-app	nsp-oam.tests_oam-test.tests_twamp-light
Telemetry Base OAM PM Ethernet CFM Delay Session Stats * Data	—	/telemetry:base/oam-pm/eth-cfm-delay-session
Telemetry Base OAM PM Ethernet CFM SLM Loss Session Stats * Data	—	/telemetry:base/oam-pm/eth-cfm-slm-loss-session
Telemetry Base OAM PM Accounting CFM DMM Bin Accounting Stats * Data	—	/telemetry:base/oampm-accounting/cfm-dmm-bin-acc-stats
Telemetry Base OAM PM Accounting CFM DMM Session Accounting Stats * Data	—	/telemetry:base/oampm-accounting/cfm-dmm-session-acc-stats
Telemetry Base OAM PM Accounting TWL Bin Accounting Stats * Data	—	/telemetry:base/oampm-accounting/twl-bin-acc-stats
Telemetry Base OAM PM Accounting TWL Session Accounting Stats * Data	—	/telemetry:base/oampm-accounting/twl-session-acc-stats

Table 21-47 OAM Domain (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
IP Session	saspm	IPSession
Bin Group	saspm	BinGroup
PM Session	saspm	PMSession
TWL Session	saspm	TwlSession

Table 21-47 OAM Domain (NSP Classic) (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
CFM DMM Session	ethernetoam	CfmDmmSession
Network Element	netw	NetworkElement
CFM DMM Bin Accounting Stats * Data	saspm	CfmDmmBinAccStats
CFM DMM Session Accounting Stats * Data	saspm	CfmDmmSessionAccStats
CFM DMM Session Stats * Data	ethernetoam	CfmDmmSessionStats
TWL Bin Accounting Stats * Data	saspm	TwlBinAccStats
TWL Session Accounting Stats * Data	saspm	TwlSessionAccStats
CFM SLM Session Stats * Data	ethernetoam	CfmSlmSessionStats

Table 21-48 OAM Domain—Custom details

Domain Table	Table Name	Description
CFM DMM Session with PM Session Stats Raw Data	ethernetoam_CfmDmmSessionStatsLogRecord	Consist of Cfm Dmm Sessions data; see 18.5 “OAM-PM Latency report” (p. 689)
	sas_PmSession BaseStatsLogRecord	Consists of PM Sessions data

21.11.5 Utilization (NSP) domains

Table 21-49 Interface Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.Networkelement
Physical Port	equipment	equipment.PhysicalPort
Lag	equipment	equipment.Lag
Service Endpoint	service	service.Endpoint
Service EndpointResourceBinding	service	service.EndpointResourceBinding
Interface subinterfaces subinterface config	devicemodule	devicemodule.openconfig_67032650terface_subinterfaces_subinterface_config
Attributes interface interface ref config	devicemodule	devicemodule.openconfig_60516277attributes_interface_interface_ref_config
Telemetry base mpls interfaces mpls interface stats * Data	—	telemetry:/base/mps-interfaces/mps-interface

Table 21-49 Interface Utilization Domain (MDM) (continued)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Telemetry Complete Service Egress Packet Stats * Data	—	/telemetry:base/accounting/completeservice-egress-packet-octets
Telemetry Complete Service Ingress Packet Stats * Data	—	/telemetry:base/accounting/completeservice-ingress-packet-octets

Table 21-50 Interface Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	Network Element
Physical Port	equipment	PhysicalPort
Lag	equipment	LogicalPort
GenericNE	genericne	GenericNeInterface
Access Interface	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Network Interface	rtr, mpls	NetworkInterface, Interface
Mpls Interface stats * Data	mpls	MplsInterfaceStats
Complete Service Ingress Packet Octets * Data	service	CompleteServiceIngressPacketOctets
Complete Service Egress Packet Octets * Data	service	CompleteServiceEgressPacketOctets
Service Ingress Octets * Data	service	ServiceIngressOctets
Service Egress Octets * Data	service	ServiceEgressOctets
GenericNe Interface Additional stats * Data	genericne	InterfaceAdditionalStatsLogRecord

Table 21-51 Link Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Base LSP Stats * Data	—	/telemetry:base/lsp/lsp-egress
Te LSP	ietf	/ietf-te:te/lsp/lsp
Te Tunnel	ietf	/ietf-te:te/tunnels/tunnel
Telemetry Base LSP Path Stats * Data	—	/telemetry:base/lsp/lsp-egress-path
Telemetry Router Interfaces Router interfaces stats * Data	—	telemetry:/base/router-interfaces/router-interface

Table 21-52 Link Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Dynamic LSP	mpls	DynamicLsp
Network Element	netw	NetworkElement
P2MP Dymanic LSP	mpls	P2MPDynamicLsp
Segment RoutingTe LSP	mpls	SegmentRoutingTeLSP
Static LSP	mpls	Static LSP
MPLS LSP Egress Stats * Data	mpls	MplsLspEgressStats
Rip Interface	Rip	Interface

Table 21-53 Port Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Physical Port	equipment	equipment.Equipment
	equipment	equipment.LAG
	equipment	equipment.PortDetails
Network Element	equipment	equipment.NetworkElement
Resource Group	group	group.EquipmentGroup
	group	group.LagGroup
Resource Group Members	group	group.group_groupmembers
Telemetry Base Interface Stats * Data	—	/telemetry:base/interfaces/interface
Telemetry Base Interfaces Interface Error Stats * Data	—	telemetry:/base/interfaces/interface-errors
Telemetry Base Accounting Complete Ethernet Port Stats * Data	—	telemetry:/base/accounting/complete-ethernet-port

Table 21-54 Port Domain (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
MC Lag Interface	Multichassis	MultichassisLag
Network Element	netw	NetworkElement
Physical Port	equipment	PhysicalPort
Ingress Port Fwd Eng Drop Reason Stats * Data	equipment	IngressPortFwdEngDropReasonStats
Interface Additional Stats * Data	equipment	InterfaceAdditionalStats

Table 21-54 Port Domain (NSP Classic) (continued)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Interface Stats * Data	equipment	InterfaceStats
Port Net Egress Stats * Data	equipment	PortNetEgressStats
Port Net Ingress Stats * Data	equipment	PortNetIngressStats
Additional Ethernet Stats * Data	ethernetequipment	AdditionalEthernetStats
Ethernet Stats * Data	ethernetequipment	EthernetStats
Aggr MaintRx Stats * Data	ethernetequipment	AggrMaintRxStats
Aggr MaintTx Stats * Data	ethernetequipment	AggrMaintTxStats
Dot3 Stats * Data	ethernetequipment	Dot3Stats
Ethernet Stats * Data	ethernetequipment	EthernetStats

Table 21-55 Temperature-CPU-Memory Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Telemetry Hardware Temperature Stats * Data	—	/telemetry:base/hardware/temperature
Telemetry Info System Stats * Data	—	/telemetry:base/system-info/system

Table 21-56 Temperature-CPU-Memory (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	NetworkElement
Allocated Stats * Data	equipment	AllocatedMemoryStats
Available Stats * Data	equipment	AvailableMemoryStats
Temperature Stats * Data	equipment	HardwareTemperature
Cpu Stats * Data	equipment	SystemCpuStats
Memory Stats* Data	equipment	MemoryUtilizationStats

Table 21-57 Utilization Domain (MDM)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Network Element	equipment	equipment.NetworkElement
Customer Details	service	service.CustomerDetails

Table 21-57 Utilization Domain (MDM) (continued)

Adhoc Report Design Editor Source	ModelName	ClassName/SubscriptionType
Service Endpoint	service	service.Endpoint
Service	service	service.Service
Service Site	service	service.Site
Telemetry Complete Service Egress Packet Stats * Data	—	/telemetry:base/accounting/complete-service-egress-packet-octets
Telemetry Complete Service Ingress Packet Octets Stats * Data	—	/telemetry:base/accounting/complete-service-ingress-packet-octets

Table 21-58 Utilization Domain (NSP Classic)

Adhoc Report Design Editor Source	XML API Reference	
	Package	Class
Network Element	netw	NetworkElement
SAP	service	ies, ipipe, mvpls, vlan, vll, vprn, vpls
Complete Service Egress Packet Octets Stats * Data	service	SapEgrQosHsmdaQueueStats
Complete Service Ingress Packet Octets Stats * Data	service	SapIngQosPlcyQueueStats

NSP API documentation

21.12 NSP API documentation availability

21.12.1 Purpose

This part provides information about NSP API documentation for ad hoc reports.

21.12.2 NSP API documentation availability

The XML API Reference is a representation of the model for classically managed network elements only. For NSP MDM-managed devices, API documentation can be found in the [Network Developer Portal](#). The portal provides links to the *NSP NFM-P IPDR Reference* and NSP RESTCONF API and NSP REST API resources, which include Swagger documentation, Yang HTML browser, and sample code “Postman” collections for all of the listed NSP APIs.

Part VII: Sample procedures

Overview

Purpose

This part provides information about NSP Analytics sample procedures.

Contents

Chapter 22, Analytics sample procedures	857

22 Analytics sample procedures

22.1 Creating an ad hoc report

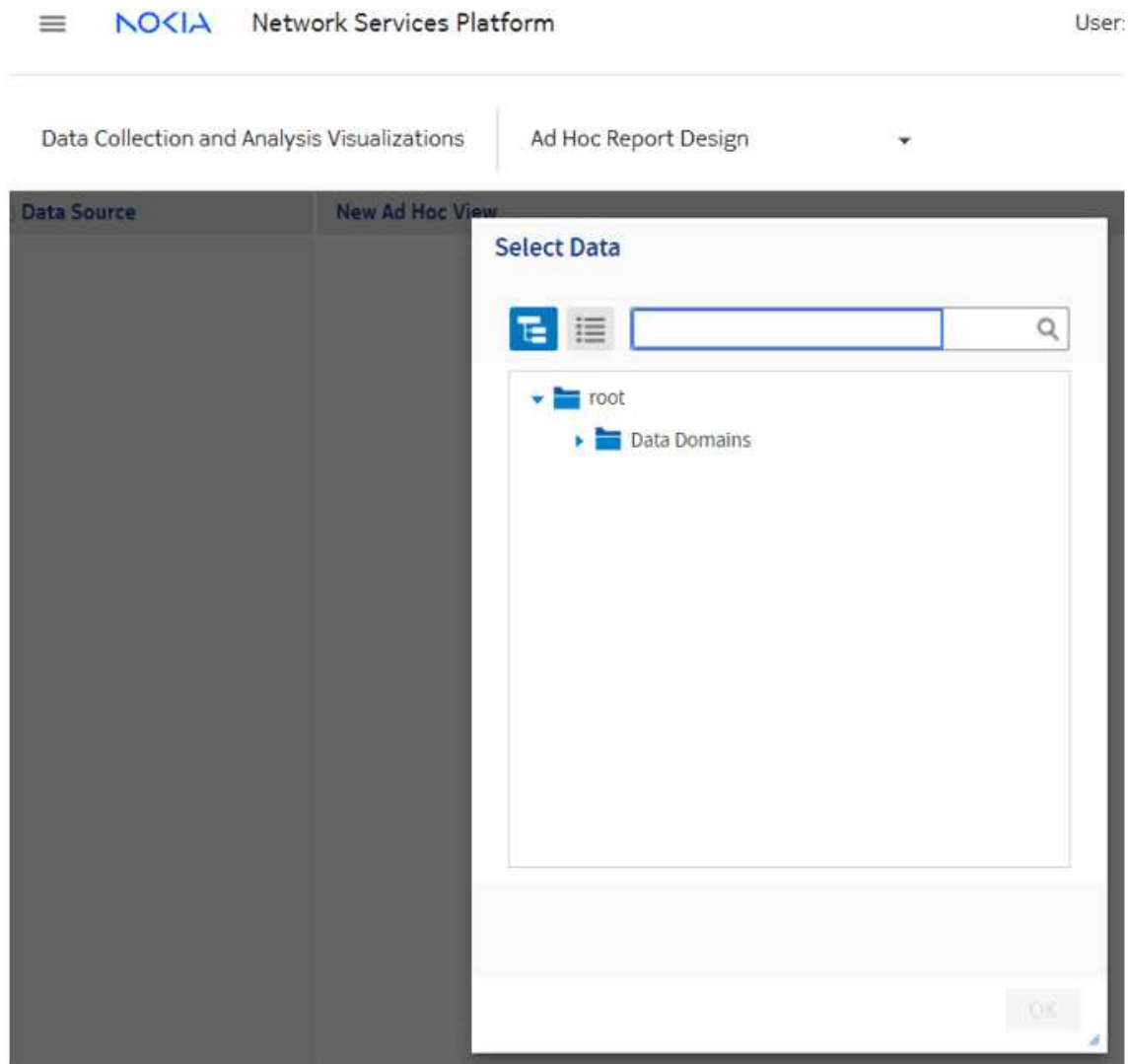
22.1.1 Sample procedure overview

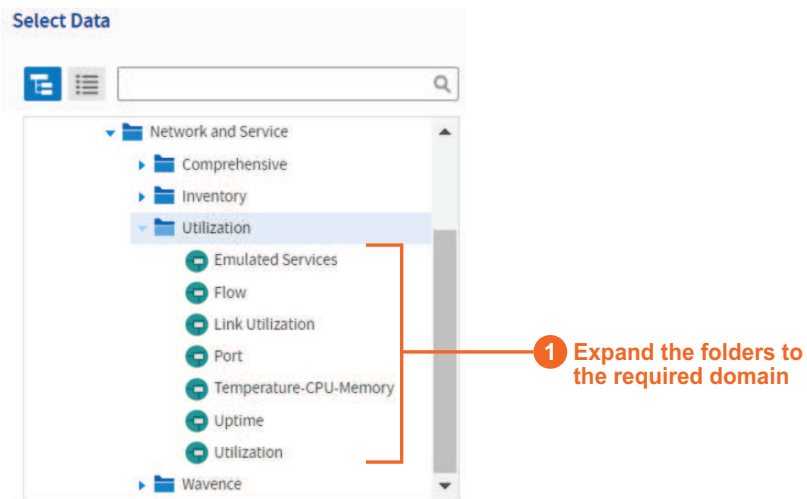
This article shows how to create an ad hoc report in Analytics. In this sample procedure, we want to trigger action for link expansion if a link has throughput exceeding a pre-defined capacity. To aid in making the decision, we'll create a report showing the data we need.

22.1.2 Let's go

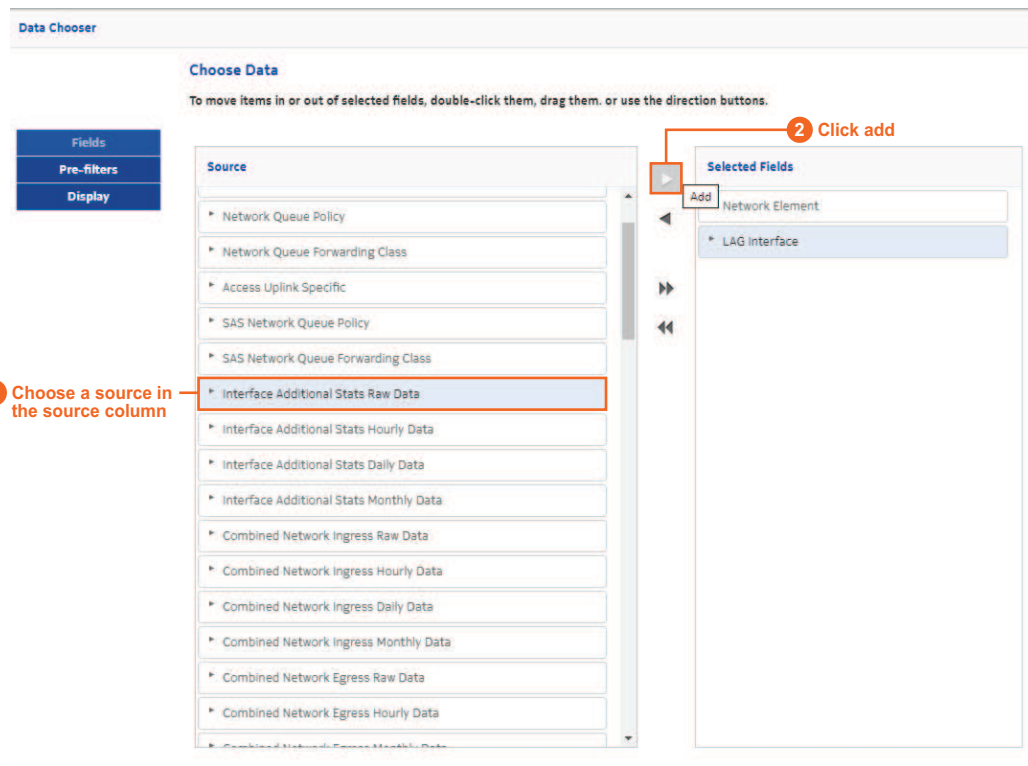
To create a custom report, we'll open the Adhoc Report Design view.

The information we'll be tracking is in the Port Domain.





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The fields and measures that are included with the data domains can be customized. Let's update the names of some of the fields so that they're easy to identify.

Data Chooser

Choose Data

To move items in or out of selected fields, double-click them, drag them, or use the direction buttons.

Fields
Pre-filters
Display

3 Click Display

Source

- Network Queue Forwarding Class
- Access Uplink Specific
- SAS Network Queue Policy
- SAS Network Queue Forwarding Class
- Interface Additional Stats Hourly Data
- Interface Additional Stats Daily Data
- Interface Additional Stats Monthly Data
- Combined Network Ingress Raw Data
- Combined Network Ingress Hourly Data
- Combined Network Ingress Daily Data
- Combined Network Ingress Monthly Data

Selected Fields

- Network Element
 - displayName
 - fullName
 - ipAddress
 - nodeType
 - systemAddress
- LAG Interface
- Interface Additional Stats Raw Data

1 Expand the field type

2 Choose a field

OK Cancel

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Data Chooser

Customize the Display

Change the display name for fields, re-order them, and pick the list type.

Fields

Pre-filters

Display

Fields

Display as: **Nested List** | Flat List

Source Name	Display Label
Network Element	Network Element
displayName	neName
fullName	fullName
ipAddress	ipAddress
nodeType	nodeType
systemAddress	systemAddress

1 Choose the field to customize

2 Enter the new name

3 Click OK

OK

Cancel

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Now we're ready to start designing the report. Our report will track ingress and egress utilization measures, and display information about the NEs and LAGs in the table fields.

The utilization measures are calculated values, so we need to create custom measures to obtain the values.

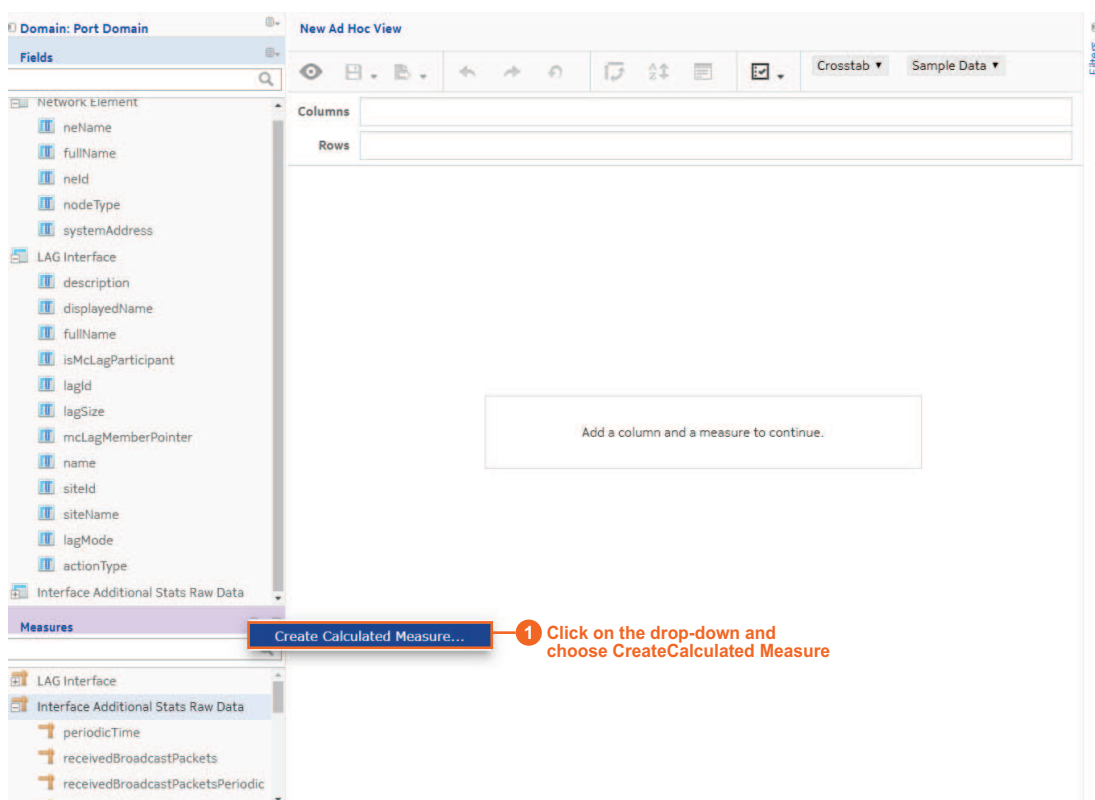
The utilization measures are calculated using default measures, according to the following formulas:

- ingressUtilization: "receivedTotalOctetsPeriodic" * 8 / 900 / "lagSpeedInBps" * 100
- egressUtilization: "transmittedTotalOctetsPeriodic" * 8 / 900 / "lagSpeedInBps" * 100

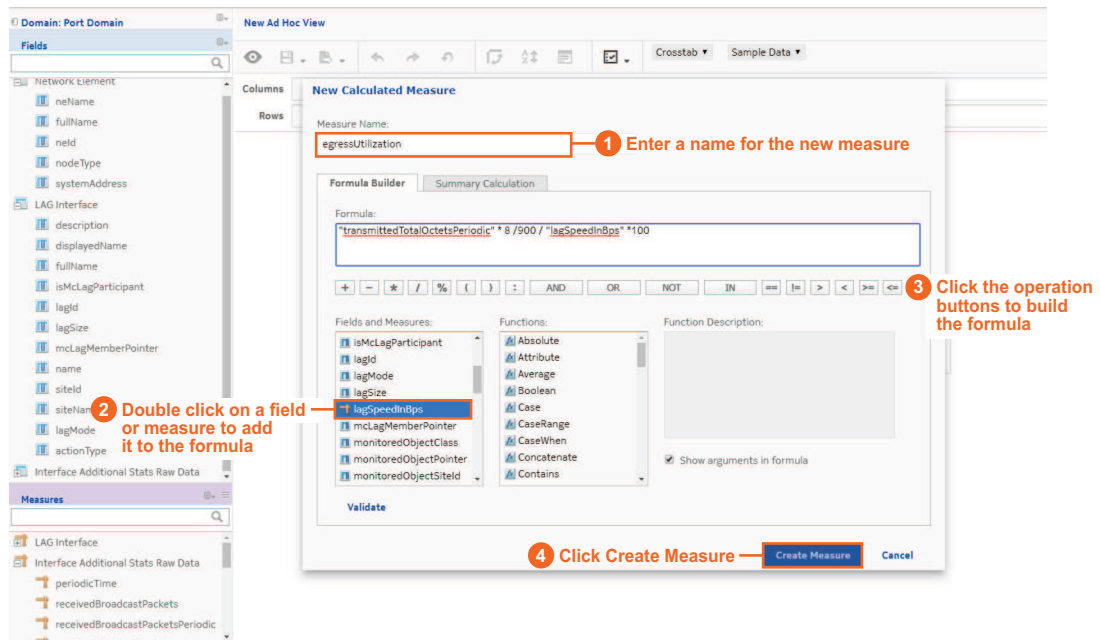
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Add the values you need to the rows and columns. We'll use the Measures as the column values and put the Fields in each row. As the report is built, the values are populated to show how the report will look.

Note: You can choose to place either Fields in the Rows area and Measures in the Columns area or vice versa, but you cannot mix fields and measures in the same area.

1 Drag and drop the values you need to the Rows or Columns areas

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One of the values we want to show in the rows is the LAG speed. This value is a measure by default, so we'll need to change it to a field.

1 Right click on the value and choose Use as Field

neName	neId	lagId	lagSize	IngressUtilization	EgressUtilization
7750-SR(128)	Totals	Totals	Totals	0.00	0.00
Boston 33	Totals	Totals	Totals	0.00	0.00
CPM_35_A	Totals	Totals	Totals	0.00	0.00
CPM_63_A	Totals	Totals	Totals	0.00	0.00
CPM_90_A	Totals	Totals	Totals	0.00	0.00
Chicago 109	Totals	Totals	Totals	0.00	0.00
ChicagoESS196	Totals	Totals	Totals	0.00	0.00
CloudMG	Totals	Totals	Totals	0.00	0.00
DXB-NSH-D7L	Totals	Totals	Totals	0.00	0.00
Dallas 244	Totals	Totals	Totals	0.00	0.00
Denver 106	Totals	Totals	Totals	0.00	0.00
DenverESS195	Totals	Totals	Totals	0.00	0.00
Houston 245	Totals	Totals	Totals	0.00	0.00
Los Angeles 98	Totals	Totals	Totals	0.00	0.00
Los Angeles 213	Totals	Totals	Totals	0.00	0.00
NE	Totals	Totals	Totals	0.00	0.00
NE63	Totals	Totals	Totals	0.00	0.00
New York 32	Totals	Totals	Totals	0.00	0.00
PE-1	Totals	Totals	Totals	0.00	0.00
PE-2	Totals	Totals	Totals	0.00	0.00
PGW	Totals	Totals	Totals	0.00	0.00
PHN_WDM_179.230	Totals	Totals	Totals	0.00	0.00
PLAZA-9004R-CPAA	Totals	Totals	Totals	0.00	0.00
Phoenix 107	Totals	Totals	Totals	0.00	0.00

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Continue adding the relevant values to the rows. The report will include descriptions about the NEs and their LAGs: NE name, NE ID, LAG ID, LAG size, LAG speed, and LAG description.

We have created a table that can be run as a report. If we saved this view and created a report from it, it would show all the available information for the selected values.

To allow the report to show a subset of data, we'll need to create filters. The filters we create will also become inputs in the report.

We'll filter based on the following:

- LAG speed
- Date and time

The screenshot shows the 'New Ad Hoc View' interface. On the left, there's a 'Fields' pane with a search bar and a list of fields including 'lagSpeedInBps'. Below it is a 'Measures' pane with 'egressUtilization' and 'ingressUtilization'. The main area displays a data table with columns: neName, neId, lagId, lagSize, lagSpeedInBps, and description. A context menu is open over the 'lagSpeedInBps' column, showing options like 'Remove from Crosstab', 'Switch to Column Group', and 'Create Filter'. Two orange annotations are present: '1 Right click on the value to filter on' pointing to the 'lagSpeedInBps' column header, and '2 Choose Create Filter' pointing to the 'Create Filter' option in the menu.

35737

The filter appears in the Filters column. Let's set the default filter expression to greater than zero.

1 Click on the drop-down

2 Choose is greater than

3 Zero is the default value

35738

Set a second filter for date between previous day and current day.

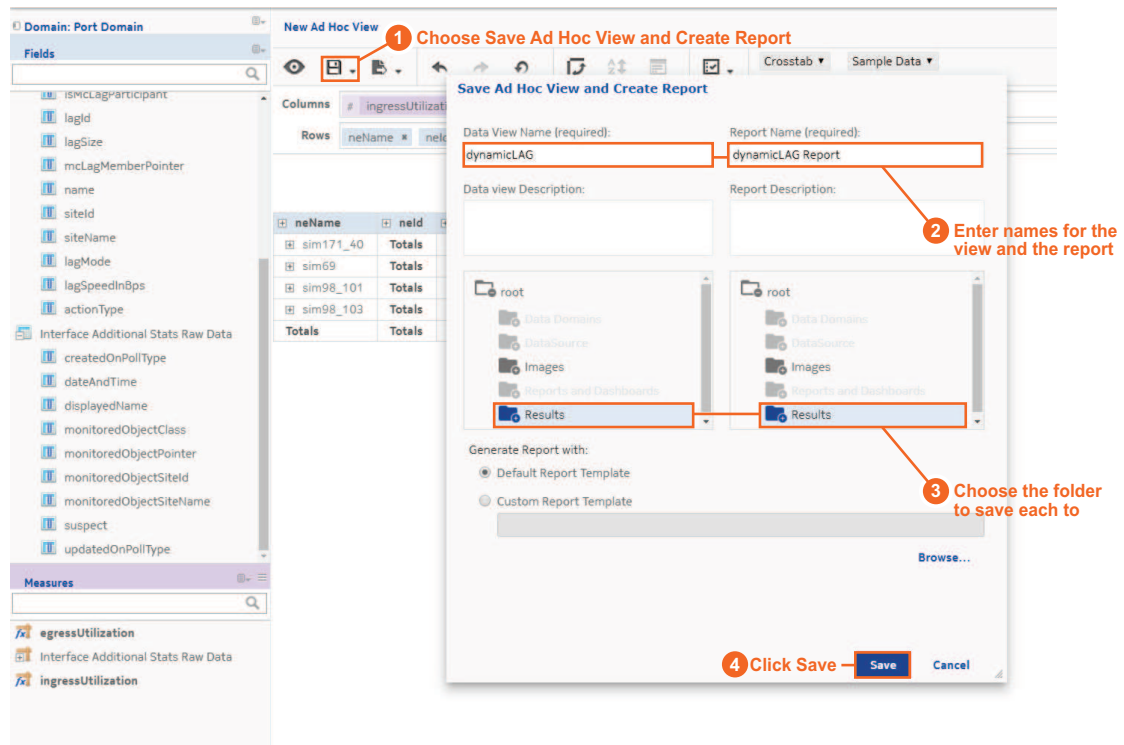
1 Right click dateAndTime and choose Create Filter

2 Choose is between

3 Enter DAY-1 and DAY+1 for the interval

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From the Save drop-down, choose Save Ad Hoc View and Create Report. Saving the Ad Hoc View will let us modify it in the future as needed. Creating the report allows us to run or schedule it.



35740

22.1.3 We're done

We have created a custom report for egress and ingress LAG utilization. From the Results folder where the report is stored, we can create a schedule to run the report periodically, and output results in the desired format. The customer can use these results to trigger updates based on LAG utilization when required.