CA Network Flow Analysis

User Guide

9.1.1

technologies

CA Technologies Product References

This document references the following CA Technologies products:

- CA Network Flow Analysis
- CA Performance Center
- CA NetVoyant

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At http://ca.com/support, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

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Chapter 1: CA Network Flow Analysis

CA Network Flow Analysis is designed to give you the information you need for comprehensive, visibility into your enterprise network.

This section contains the following topics:

Introducing CA Network Flow Analysis

CA Network Flow Analysis gives you an enterprise-wide view into the composition of traffic on every link and helps you detect threatening traffic patterns in the making. Network groups can quickly identify the source of performance problems, validate the impact of planned and unplanned changes within the network, and avoid unnecessary WAN costs. In addition, management can make accurate decisions regarding cost reduction, capacity planning, troubleshooting, and network traffic analysis across the enterprise.

The following topics provide information and procedures to help you effectively use the CA Network Flow Analysis reporting capabilities.

- Introducing Network Flow Analysis (see page 9)

  Introduces the product components and explains key concepts to establish the knowledge that is required to be an effective user.

- Using Enterprise Overview (see page 23)

  Explains how to use the Enterprise Overview page in CA Network Flow Analysis to identify high-level patterns, anomalies, trends, and issues with your network traffic.

- Interface Reports (see page 35)

  Describes how to use the Interfaces page in CA Network Flow Analysis to access interface-level reports. You can use Interfaces views to identify the cause of network problems or to anticipate upcoming problems.

- Creating Custom Reports (see page 85)

  Explains how to use Custom Reports to solve specific questions and issues, such as a report to help identify network traffic indicative of a security threat.

- Using Flow Forensics (see page 113)

  Describes how to use the Flow Forensics in your environment to leverage the data that Flow Forensics provides, such as reporting data from multiple interfaces in real time.

- Using Analyses (see page 129)

  Explains how to create an Analyses report by using a wizard that steps you through the process. This type of report lets you set a threshold to use for comparing collected data.

Related Documentation

You can find additional information in the following publications:

- *CA Network Flow Analysis Release Notes:* Summarizes CA Network Flow Analysis enhancements, fixes, and open issues.
- *CA Network Flow Analysis Administrator Guide*: Describes how to set up, configure, and maintain CA Network Flow Analysis.
- *Network Flow Analysis online help:* Provides assistance, which you can access by using the Help link in the user interface.

The product documentation is available in PDF format on the CA Network Flow Analysis installation server in the following location: *<NFA_install_path>*\reporter\Web\help.

The latest product documentation is available on the CA self-service portal.

Third Party Acknowledgment and License Agreements

Third-party software was used in the creation of CA Network Flow Analysis. All third-party software has been used in accordance with the terms and conditions for use, reproduction, and distribution as defined by the applicable license agreements.

Information about third-party license agreements is provided in the following document, which is installed automatically with the CA Network Flow Analysis software:

<NFA_install_path>\ThirdPartyContent\ThirdPartyLicenseInfo.rtf

Capabilities of CA Network Flow Analysis

CA Network Flow Analysis capabilities help you analyze network traffic and make informed decisions about resolving issues. The capabilities described in the following list can give you valuable data for capacity planning, troubleshooting, and traffic analysis.

- Identify network traffic that exceeds a specified threshold so you can manage your network proactively.
- Identify bandwidth requirements for applications and users so you can evaluate network capacity precisely.
- Immediately identify the interfaces, hosts, and applications that generate the most traffic in your enterprise. This information is essential for short-term and long-term troubleshooting.
- View the impact of application rollouts on WAN links and measure application traffic growth using protocol-level trend analyses, application baseline trend comparisons, and percent-growth tables. These analyses help yo make more informed infrastructure investments.
- Pinpoint the exact cause of a network problem by examining 100 percent of all NetFlow and IPFIX traffic from the last four hours.
- Review automatic alerts and detailed reports so you discover network problems quickly.
- Design and run reports that are based on criteria that you select.
- View real-time NetFlow and IPFIX monitoring reports and alarms for every interface on the network for past 30 days with 1-minute granularity.
- Establish baselines for protocol and flow data so you can compare current data with past performance.
- Analyze trends in applications, hosts, and conversations per class of service. This information helps you optimization your network infrastructure for application performance.
- Drill into raw flows per interface to assist with troubleshooting.
- Review trend settings for historical data and for future projections to perform more effective capacity planning.

Product Components

CA Network Flow Analysis software components can be installed on a single, standalone server or on separate servers in your network.

How Data Is Collected

The CA Network Flow Analysis components work together to collect and report information about network traffic:

Routers

Send flow datagrams to the Harvesters at regular intervals.

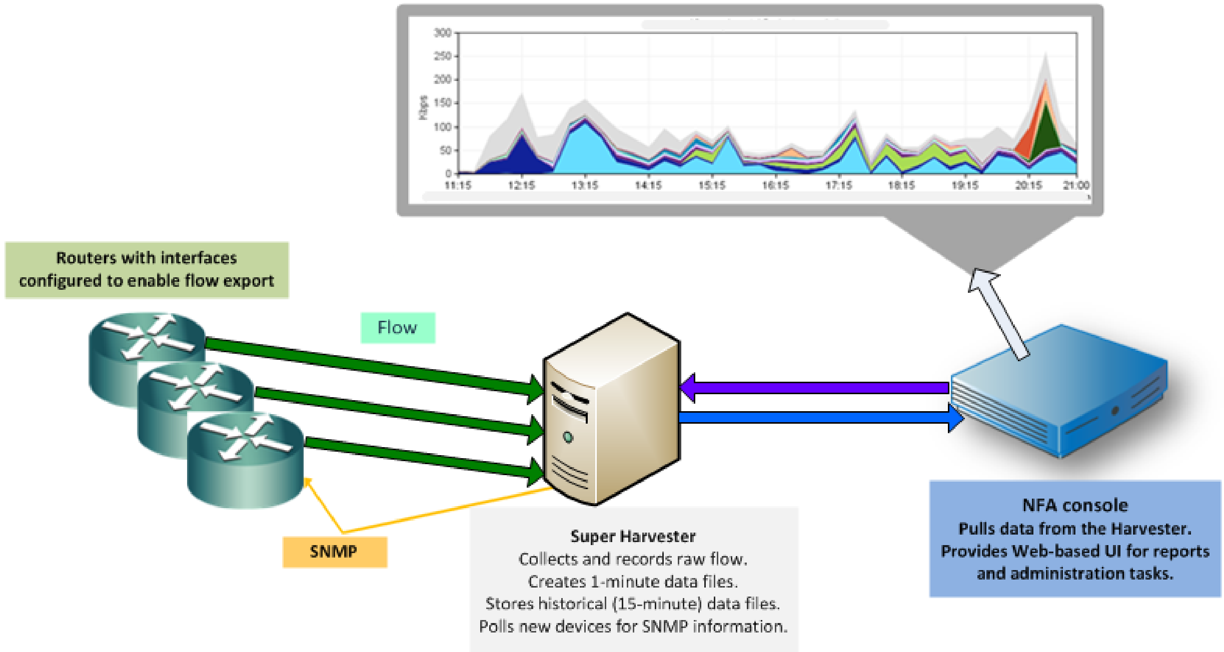
Harvesters

Distill the raw flows, parse the data, and compile it. In the two-tier data collection architecture, the Harvesters store the following data:

- Raw flow data for the previous 24 hours
- 1-minute resolution data--Interface-specific report data of the following types for the previous 2 months:
  - Top Protocols
  - Top Hosts
  - Top Conversations
  - Top ToS
- Historical (15-minute) data:
  - Protocol data for the previous 13 months
  - Interface summary data for the previous 13 months
  - ToS summary data for the previous 13 months
  - Top protocols for the top ToS values for the previous 13 months
  - Host and conversation data for the previous 2 months
  - Top hosts and top conversations for the top ToS values for the previous 2 months

NFA console

Gathers data from the Harvester as needed and displays report data in the web interface. Stores Enterprise Overview data.



CA Performance Center

You can access the CA Performance Center from the NFA console once you add CA Network Flow Analysis as a data source in CA Performance Center. To learn more about CA Performance Center and how it lets you customize views from all related products, see the *CA Performance Center Administrator and User Guide*.

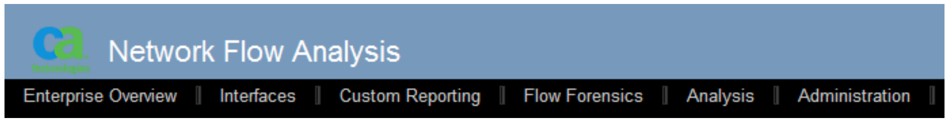
Certain administrative tasks are performed in CA Performance Center. Install CA Performance Center and register CA Network Flow Analysis as a data source so you can use all the CA Network Flow Analysis features.

About Collected Data and Reports

CA Network Flow Analysis uses collected data to generate statistics that are formatted and displayed in reports. Reports can be customized to suit your enterprise and your reporting requirements. This section provides information about the collected data and the types of CA Network Flow Analysis reports that are available. To learn how to access or create the available reports, see the topics that follow.

CA Network Flow Analysis collects, displays, and stores flow data. For detailed information about the data that the product collects, see the *CA Network Flow Analysis Administrator Guide.*

Note: CA Network Flow Analysis calculates a kilobyte as 1000 bytes, not 1024 bytes, in compliance with the International Systems of Units.



CA Network Flow Analysis analyzes, formats, and displays collected data in the following page views:

Enterprise Overview Page

Summarizes information about the interfaces that exceed or are close to exceeding a utilization threshold that product administrators can establish. The Enterprise Overview page also shows the top interfaces, protocols, and hosts for your enterprise. The timeframe for this report is the most recent 24 hours available to the NFA console.

Interfaces Page

Lists available routers and their component interfaces. Click an interface to drill down to more detailed information about the interface. You can choose a timeframe and can choose a report type.

Custom Reporting Page

Displays the current list of defined Custom Reports and provides options for running, creating, editing, and managing the reports. You can use a wizard to create Custom Reports. Several report types are available, including interface, protocol, ToS, host, and conversation. You can combine the types to produce the results you want. You can save and run these reports on demand or on a schedule.

Flow Forensics Page

Displays the current list of defined Flow Forensics reports and provides options for running, creating, editing, and managing the reports. You can open the Report Settings dialog to create a Flow Forensics report. You can add filters and can specify the data collection time span. For example, you can analyze protocols, hosts, or conversations on your network. You can export the data on the screen to a file in comma-separated value (CSV) format. You can save and run these reports on demand or on a schedule.

Analysis Page

Displays the current list of defined Analysis reports and provides options for running, creating, editing, and managing the reports. You can use a wizard to create an Analysis report. An Analysis report lets you establish a threshold for comparing collected data. For example, you could use an Analysis report to see which interfaces exceeded 70 percent utilization over a certain timeframe. You can save and run these reports on demand or on a schedule.

Administration Page

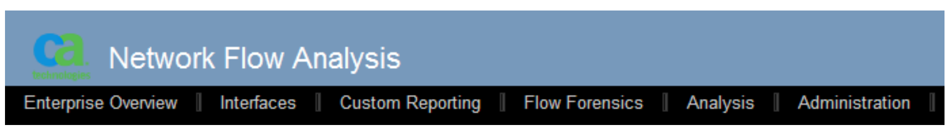
Provides access to administrative tasks for Administrators of CA Network Flow Analysis, as described in the *CA Network Flow Analysis Administrator Guide.*

Network Flow Analysis Console

The primary CA Network Flow Analysis user interface is the NFA console, a web interface that you use to view the collected data, as well as perform administrative tasks. To start using the NFA console, open a browser window and enter the server name or IP address of the server that hosts the NFA console:

```
http://<IP_Address>
```

You are prompted to log in when you first access the NFA console. You can get the CA Network Flow Analysis server name or IP address and your login information from your Administrator.



When you log in to the NFA console, the Interfaces page opens. You can open the six primary pages from the NFA console menu:

- Enterprise Overview Page (see page 23): Quickly determine whether any of the interfaces in your network are nearing or have surpassed an acceptable utilization level.
- Interfaces Page (see page 35): Select one or more interfaces and run reports.
- Custom Reporting Page: Define and run Custom Reports.
- Flow Forensics Page (see page 113): Define and run reports on raw data.
- Analysis Page (see page 129): Create proactive troubleshooting reports designed to compare collected network data to a threshold, identifying potential bottlenecks, anomalies, and viruses.
- Administration Page: Perform administrative tasks for CA Network Flow Analysis, as described in the *CA Network Flow Analysis Administrator Guide.*

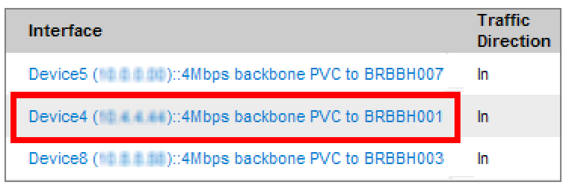
As you use the navigation links to move between console pages, some product settings are saved and other settings are cleared as you leave the page. For example, when you navigate to Enterprise Overview, Interfaces, or Flow Forensics pages, the previous settings are preserved. As you navigate to Custom Reporting, Analyses, or Administration, your previous settings are cleared and the default values are restored.

Console Tips and Shortcuts

The NFA console simplifies viewing and using CA Network Flow Analysis data. Some of the common NFA console features are described in the following topics.

Use Drilldown Links

When you view reports in the NFA console, many items are displayed in blue. Click the blue links for interfaces, hosts, conversations, and other items to drill down to additional information about the items.



Interface	Traffic Direction
Device5 ([illegible])::4Mbps backbone PVC to BRBBH007	In
Device4 ([illegible])::4Mbps backbone PVC to BRBBH001	In
Device8 ([illegible])::4Mbps backbone PVC to BRBBH003	In

From the Interface report page that opens, you can open other detailed reports specific to the selected interface, host, conversation, or other traffic type.

Display Tooltips

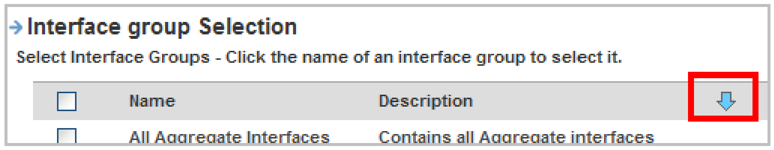
You can display detailed information for some items in report views by positioning your cursor over the item. For example, place your cursor over a bar that represents an interface to open a Tooltip. The Tooltip shows additional details about the interface, such as its parent router, description, and number of bytes.

Sort Tables by Column Heading

Sortable column headings are provided for tables of interfaces, reports, or other items. Click a column heading to sort the data. Click a second time to switch the sort mode between descending and ascending order.

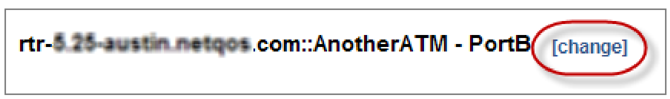
Jump Down

Some selection dialogs include a blue Jump Down arrow, which you can use to jump to the bottom of the page. For example, you can use the Jump Down arrow to locate the Save button quickly in the Interface Group Selection dialog.



Change the Interface for a Report

When you click an interface link on the Interface page, you drill down to an interface report. To view a report for a different interface, click the [change] link at the top of the page, then select another interface from the Interface Index. The report is updated to show data for the selected interface.



Also See:

Open Interface Reports (see page 35)

Search for a Router, Interface, or Interface Group

The Interface Index page includes a Search utility that you can use to filter the list and locate a router or interface. To perform a search, enter a text string in the text box and click Search.

You can include the wild card * as part of your search term. (The wild card * by itself is not a valid entry.) For example, to search for an IP address you can enter 10.0.7* to display only the addresses that begin with 10.0.7. In this example, the filtered list could include 10.0.7.1, but would not include 10.0.8.1.

The page displays a list of items that match the filter expression.

- Under the listed items, click the Next arrow or click a page number to display another page of list items.
- To display a different number of items per page, select a different value from the Max per Page list.

Save Report Data to CSV Files

You can save a report to a comma-separated value (CSV) file.

Follow these steps:

1. Display the data that interests you in one of the following locations: the Enterprise Overview page; an interface drilldown view; or a report you run on the Custom Reporting, Flow Forensics, or Analysis page.
2. Click the blue arrow next to a report view name.
3. Select the Export to CSV option from the menu that opens.

   The File Download dialog opens.
4. Click Save.

   The Save As dialog opens.
5. Specify a name and location for the .csv file, then click Save.

Open Online Help

Online help provides useful information that is easy to access when you are working in the NFAconsole. You can access the help system at any time by clicking the Help link that is near the top-right corner.

Email Reports

You can send a displayed report in an email immediately, or you can set up a schedule to generate an updated, complete report automatically as a PDF file.

The Email icon is included at the top of all report views:

- Enterprise Overview page views.
- Interface drilldown views.
- Reports that you run from the Custom Reporting, Flow Forensics, and Analysis pages.

If you are logged in with Administrator rights, you can email any of the reports by clicking the Email icon and you can schedule reports to be sent as PDFs by email.

Note: To email reports, an email server must be configured for CA Network Flow Analysis. If no email server is configured, an error message is displayed when you attempt to use the email function. For information about setting up an email server, contact your Administrator or see the *CA Network Flow Analysis Administrator Guide.*

Follow these steps:

1. Display a completed report.
2. Click the Email icon at the top-right corner of the report page.

   The Email Information dialog opens.

3. Enter the following information:

   Send To

   Enter the email address to which you want to send the report page. Separate multiple email addresses with commas.

   Subject

   Enter the subject line for the email.

   Message

   Enter a message to explain the report or the purpose of the email.

   Scheduling Options: Select one of the following options:

   Send Now

   Send the report by email immediately.

   Send on a Schedule

   Schedule the report to generate and send on multiple days a week or to send once a week, month, quarter, or year.

   If you select Send on a Schedule, select one of the following options:

   - Send Daily: Select which days of the week to send the email.
   - Send Weekly: Select which day of the week to send the email.
   - Send Monthly: Sets the email to be sent on the last day of the month.
   - Send Quarterly: Select the month that designates the end of the first quarter to send the email. The email is sent on the last day of each reporting quarter.
   - Send Yearly: Select the last month of the year. The email is sent on the last day of the year.

   Note: Scheduled emails generate a report PDF by using a stored URL address. The saved report definition is used to generate the scheduled report that is sent.

4. Click OK.
   - Send Now: The email is sent immediately with the current report page attached as a PDF file.
   - Send on a Schedule: The email schedule is configured. The report is generated and sent according to the schedule.

     If you have administrator privileges, you can view, edit, or delete the email schedules that you configure in the Administration pages of the NFA console. For more information, see the CA *Network Flow Analysis Administrator Guide.*

Print Reports

You can print a report view from the browser window or save the report as a PDF file.

The Print icon is included at the top of all report views:

- Enterprise Overview page views
- Interface drilldown views
- Reports that you run from the Custom Reporting, Flow Forensics, and Analysis pages

If you are logged in with Administrator rights, you can print any of the reports by clicking the Print icon.

Follow these steps:

1. Select the completed report to display it.
2. Click the Print icon at the top-right corner of the report page.

   A printable version of the report opens in a new browser window.
3. In the browser toolbar, click the Printer icon.

   Your browser displays a Print dialog box, which you use to select a printer and set other printing options.
4. Click OK to print the PDF file.

Refresh the View Data

Turn on Refresh mode for the report page to make it automatically update to reflect the most recently collected 15-minute data. When the Refresh icon is green and revolving, the page is in Refresh mode. To disable Refresh, click the icon again. Once you enable Refresh, data continues to be refreshed even when you navigate away from the page. If you leave the Enterprise Overview page, be sure to turn off Refresh.

Note: The Refresh function is available for real-time data you view in CA Network Flow Analysis--in the Enterprise Overview page and in Interface drilldown reports.

Chapter 2: Using Enterprise Overview

The views on the Enterprise Overview page give you an overview of network traffic across the enterprise. These topics describe the enterprise-level built-in reports.

This section contains the following topics:

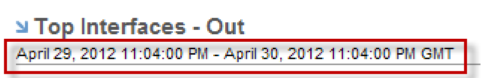
Enterprise Overview Page

The Enterprise Overview page shows a set of standardized views of real-time network performance data To display the Enterprise Overview page, click Enterprise Overview in the NFA console menu.

Depending on your access settings, the Enterprise Overview page may contain data for some or all of the following views:

- Interface Utilization: A table of data about the interfaces with the highest utilization levels
- Top Interfaces - In: Utilization and volume information for the interfaces that have high volumes of inbound traffic
- Top Interfaces - Out: Utilization and volume information for the interfaces that have high volumes of outbound traffic
- Top Protocols: Total volume of traffic associated with the most heavily used protocols
- Top Hosts: Traffic volumes of the most active hosts (inbound, outbound, and total traffic)

The Enterprise Overview displays data for the most recent 24-hour period that is available. The reporting timeframe is noted under the title of each view.



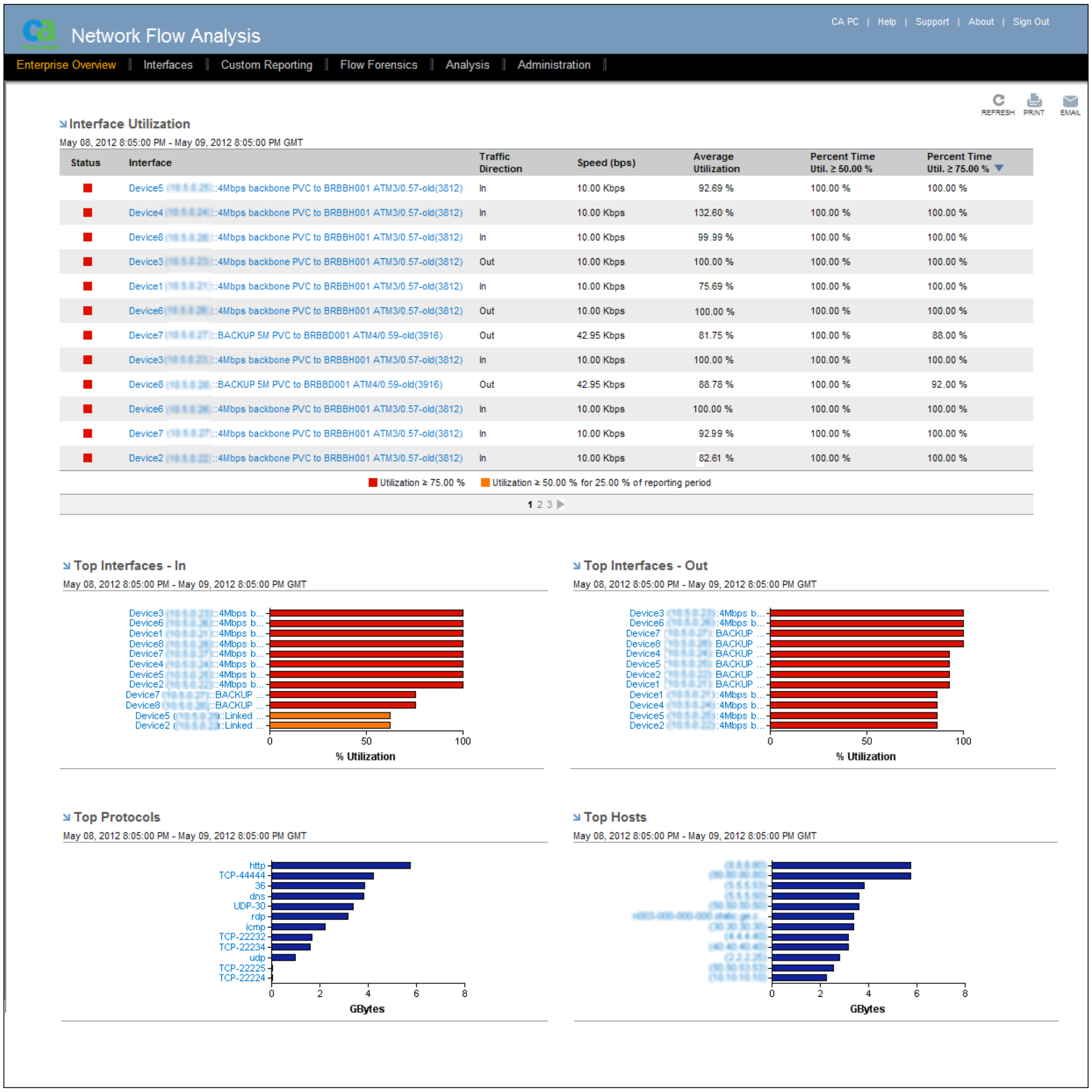
Available Actions for the Enterprise Overview Page

You can perform the following actions on the Enterprise Overview page, provided that you have the required access:

- Display data about each interface, protocol, or host in bar graphs by opening Tooltips.

You can display detailed information for some items in report views by positioning your cursor over the item. For example, place your cursor over a bar that represents an interface to open a Tooltip. The Tooltip shows additional details about the interface, such as its parent router, description, and number of bytes.

- Open additional reports about each interface, protocol, or host by clicking the bars or the blue drilldown links (see page 16).
- In the Interface Utilization view, customize the status thresholds (see page 27).
- Export the data for each view to a .CSV file (see page 18).
- Update the data by using the Refresh icon (see page 21).
- Print the Enterprise Overview page to a PDF file (see page 20) (Administrator or Power User accounts only).
- Email PDF files of the current views or schedule PDFs to be sent out to one or more recipients on a schedule (see page 18) (Administrator or Power User accounts only).


Network Flow Analysis
CA PC | Help | Support | About | Sign Out
Enterprise Overview | Interfaces | Custom Reporting | Flow Forensics | Analysis | Administration
REFRESH PRINT EMAIL
Interface Utilization
May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT
Status | Interface | Traffic Direction | Speed (bps) | Average Utilization | Percent Time Util. ≥ 50.00 % | Percent Time Util. ≥ 75.00 %
Device5 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 92.69 % | 100.00 % | 100.00 %
Device4 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 132.60 % | 100.00 % | 100.00 %
Device8 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 99.99 % | 100.00 % | 100.00 %
Device3 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | Out | 10.00 Kbps | 100.00 % | 100.00 % | 100.00 %
Device1 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 75.69 % | 100.00 % | 100.00 %
Device6 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | Out | 10.00 Kbps | 100.00 % | 100.00 % | 100.00 %
Device7 ::BACKUP 5M PVC to BRBBD001 ATM4/0.59-old(3916) | Out | 42.95 Kbps | 81.75 % | 100.00 % | 88.00 %
Device3 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 100.00 % | 100.00 % | 100.00 %
Device8 ::BACKUP 5M PVC to BRBBD001 ATM4/0.59-old(3916) | Out | 42.95 Kbps | 88.78 % | 100.00 % | 92.00 %
Device6 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 100.00 % | 100.00 % | 100.00 %
Device7 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 92.99 % | 100.00 % | 100.00 %
Device2 ::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812) | In | 10.00 Kbps | 82.61 % | 100.00 % | 100.00 %
Utilization ≥ 75.00 %
Utilization ≥ 50.00 % for 25.00 % of reporting period
1 2 3
Top Interfaces - In
May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT
% Utilization
Top Interfaces - Out
May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT
% Utilization
Top Protocols
May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT
http
TCP-44444
36
dns
UDP-30
rdp
icmp
TCP-22232
TCP-22234
udp
TCP-22225
TCP-22224
GBytes
Top Hosts
May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT
GBytes

Interface Utilization List

The Interface Utilization view on the Enterprise Overview page lists the most heavily used interfaces throughout the enterprise. The view is a table summary of the interfaces whose utilization exceeds the configured thresholds.

Interface Utilization

May 08, 2012 8:05:00 PM - May 09, 2012 8:05:00 PM GMT

Status	Interface	Traffic Direction	Speed (bps)	Average Utilization	Percent Time Util. ≥ 50.00 %	Percent Time Util. ≥ 75.00 %
	Device5 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	92.69 %	100.00 %	100.00 %
	Device4 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	132.60 %	100.00 %	100.00 %
	Device8 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	99.99 %	100.00 %	100.00 %
	Device3 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	Out	10.00 Kbps	100.00 %	100.00 %	100.00 %
	Device1 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	75.69 %	100.00 %	100.00 %
	Device6 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	Out	10.00 Kbps	100.00 %	100.00 %	100.00 %
	Device7 [illegible]::BACKUP 5M PVC to BRBBD001 ATM4/0.59-old(3916)	Out	42.95 Kbps	81.75 %	100.00 %	88.00 %
	Device3 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	100.00 %	100.00 %	100.00 %
	Device8 [illegible]::BACKUP 5M PVC to BRBBD001 ATM4/0.59-old(3916)	Out	42.95 Kbps	88.78 %	100.00 %	92.00 %
	Device6 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	100.00 %	100.00 %	100.00 %
	Device7 [illegible]::4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	92.99 %	100.00 %	100.00 %
	Device2 [illegible]:4Mbps backbone PVC to BRBBH001 ATM3/0.57-old(3812)	In	10.00 Kbps	82.61 %	100.00 %	100.00 %

Utilization ≥ 75.00 % Utilization ≥ 50.00 % for 25.00 % of reporting period

1 2 3

The Interface Utilization view is similar to the Interfaces Over Threshold view on the CA Performance Center Infrastructure Overview page.

Interface Utilization Data

The Interface Utilization view displays the following information for each interface listed:

Status

Indicates utilization level: Green (Normal), Orange (Warning or Elevated), Red (Critical).

Interface

Identifies the interface by name.

Traffic Direction

Identifies whether the reported traffic is inbound or outbound.

Speed

Lists the speed that is set for the interface by the Administrator.

Average Utilization

Lists the percentage of total utilization of the interface on average.

Percent Time Utilization ≥ Warning Level

Percentage of the time that interface utilization meets or exceeds the Warning level. The default Warning level is 50 percent utilization for 25 percent of the reporting period. The Interface Utilization list contains only the interfaces that meet the Warning level. If an operator changes this setting, the contents of the interface list may change.

Percent Time Utilization ≥ Critical Level

Percentage of the time that interface utilization meets or exceeds the Critical level. The default Critical level is 75 percent utilization of the interface capacity for 25 percent of the reporting period. The operator can change the Critical level.

Legend

A description of the criteria that determine which interfaces are displayed and what the status icons represent. In the example, the icons are defined as follows:

- Critical (red) status: The interface utilizes 75 percent or more of its bandwidth over 25 percent of the reporting period (default settings).
- Warning/Elevated (orange) status: The interface utilizes 50 percent or more of its bandwidth over 25 percent of the reporting period (default settings).

Information about changing the utilization thresholds is in Configure the Display of Interface Utilization Data (see page 27).

Configure the Display of Interface Utilization Data

If your CA Network Flow Analysis user account has the Administrator or Power User role, you can change the configuration of the data displayed in the Interface Utilization view of the Enterprise Overview.

For example, you could display the orange status indicator next to interfaces that utilize 65 -74.9 percent of their bandwidth (instead of 50-74.9 percent) for at least 25 percent of the reporting period.

Follow these steps:

1. Click the blue menu arrow on the left side of the Interface Utilization label, then select Configure.

   The legend at the bottom of the Interface Utilization view changes to include editable fields.

2. Enter utilization threshold values for the following settings:

   Red Utilization %

      Set the minimum threshold for assigning a critical status to interfaces. Interfaces are flagged at the critical level when their utilization percentage approaches or exceeds this value.

   Orange Utilization %

      Set the minimum threshold for assigning a warning status to interfaces. Interfaces are flagged at the warning level if their utilization percentage is at or above this value, but is below the minimum threshold for critical status.

   For ... % of reporting period

      Set the reporting period percentage to use for calculating the thresholds.

      For example, if the value is 25, the report includes only the interfaces that have a utilization level above the threshold for 25 percent of the reporting period. For the default reporting period of 24 hours, this list includes interfaces at or above the threshold value for six hours or more during that period.

   Show

      (Optional) Change the number of interfaces that are displayed on each list page.

3. Click Submit Changes when the configuration changes are complete.

   The Interface Utilization table and legend are updated to reflect your modified threshold settings.

Top Interfaces

The middle view on the Enterprise Overview page displays the interfaces in your network that are most heavily used for inbound and outbound traffic during the reporting period.

Each bar is identified on the left by its parent router and interface name. By default, a red bar indicates that the interface exceeds a utilization threshold of 75 percent. An orange bar indicates that the interface utilization is less than 75 percent, but has a utilization of at least 50 percent. A green bar indicates that the interface utilization is less than 50 percent.

Note: The Top Interfaces views are similar to the Routers with the Most Flow Traffic view on the Infrastructure Overview dashboard in CA Performance Center. The Most Flow Traffic view in CA Performance Center shows the total traffic rather than only the inbound or outbound traffic for each interface, however.

You can perform the following tasks in the Top Interfaces views:

- Review the information in the graphical display.
- Display a Tooltip with additional details about the interface by holding your cursor over the interface bar or name.

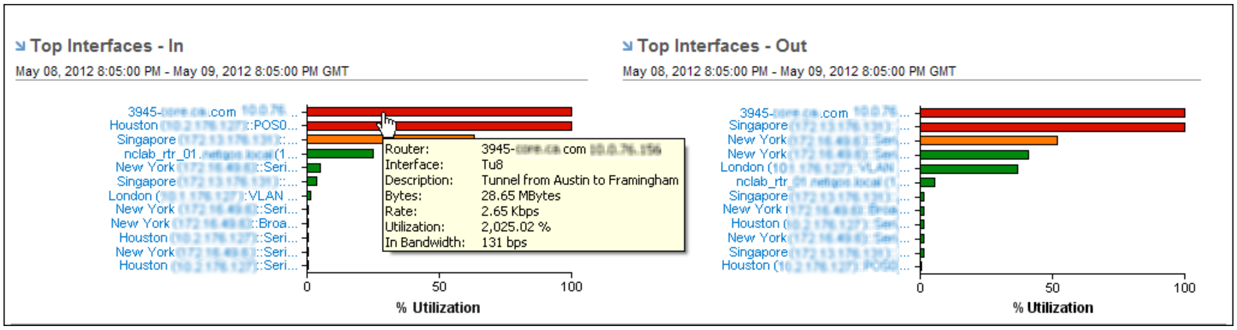
  Tooltips display the parent router name, interface name, interface description, flow volume, flow rate, interface utilization, and inbound speed.
- Drill down to display details on Interface page views by clicking an interface bar or name.

  By default, the Interface page includes the following views: Stacked Protocol Trend In and Out, Stacked ToS Trend In and Out, Host Summary Volume From and To, and Conversation Summary Volume Total.
- Export the view data to a .CSV file.
- Change the utilization thresholds that set the interface bar colors by editing the threshold values in the Interface Utilization view.

Review Interface Use

The Top Interfaces views give you quick visual indicators of the interfaces in your network that are used the most heavily. The Top Interfaces views also give you easy access to more detailed information about specific interfaces.

For example, an interface that exceeds 75 percent utilization for outbound traffic could have degraded application performance. To investigate the issue, click the interface name in the graph. A more detailed report for the interface opens.



Display Additional Information

You can display detailed information for some graphical elements by positioning the cursor over the element. For example, place the cursor over an interface bar or name to display additional details about the interface, such as its parent router and flow volume.

Top Protocols and Hosts

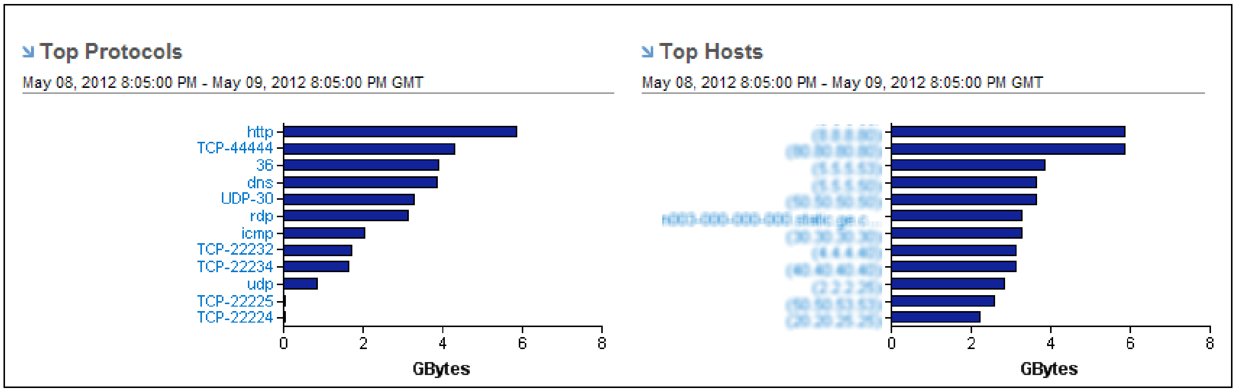
The bottom view of the Enterprise Overview page displays the protocols and hosts in your enterprise that are most heavily utilized. These views display the protocols and hosts that are transferring the most data in your enterprise and how many bytes of data that each one is transferring.

This section contains the following topics:

Review the High-Traffic Protocols and Hosts

The Top Protocols and Top Hosts views provide quick visual indicators of the most utilized protocol and hosts in your network. The links in these views give you access to drilldown views with more detailed information about a specific protocol or host.

For example, suppose a protocol has a high volume of traffic. To investigate whether the traffic is correctly routed over the network, you click the protocol name in the graph to drill down to details.

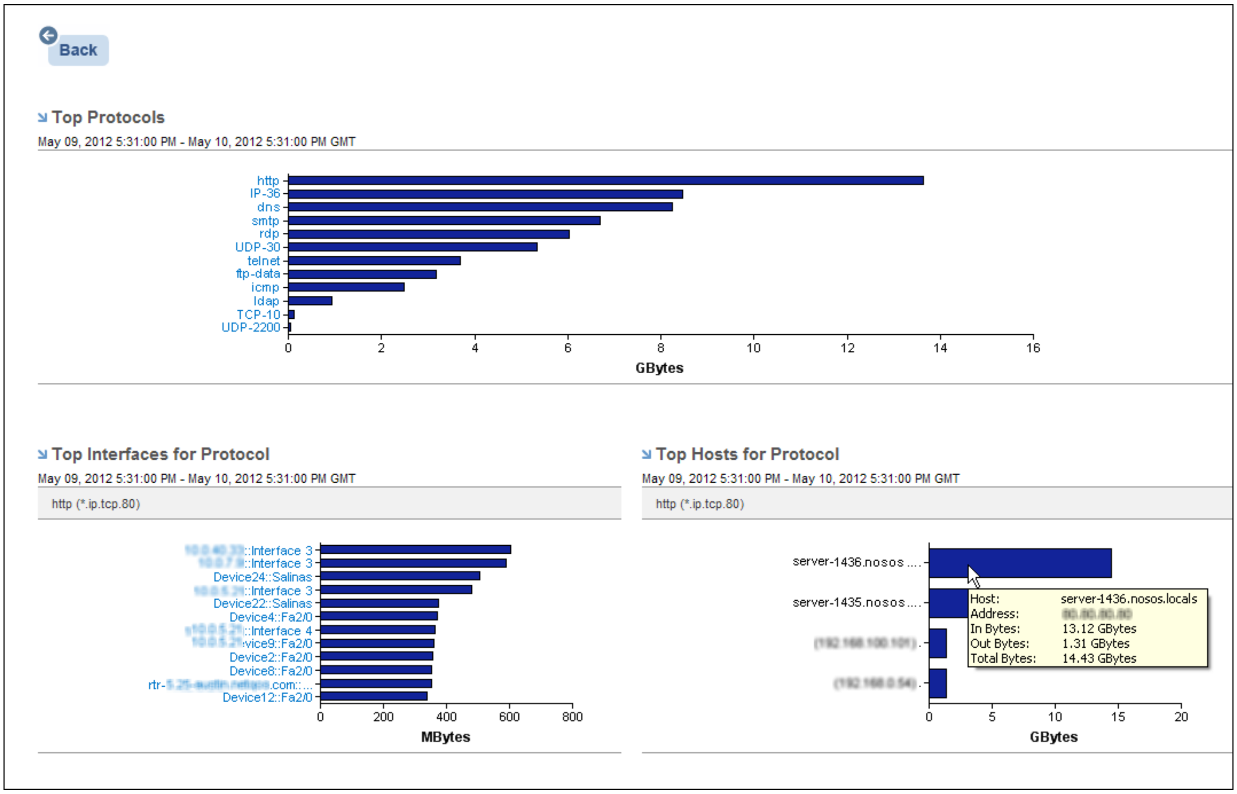


Display Tooltips in the Top Protocols and Top Hosts views by holding your cursor over a name or bar.

- Protocol: Display the protocol name (keyword), encapsulation (transport protocol and port number), and total traffic volume.
- Host: Display the host name, IP address, and volume of inbound, outbound, and total traffic.

Drill Down to Protocol Details

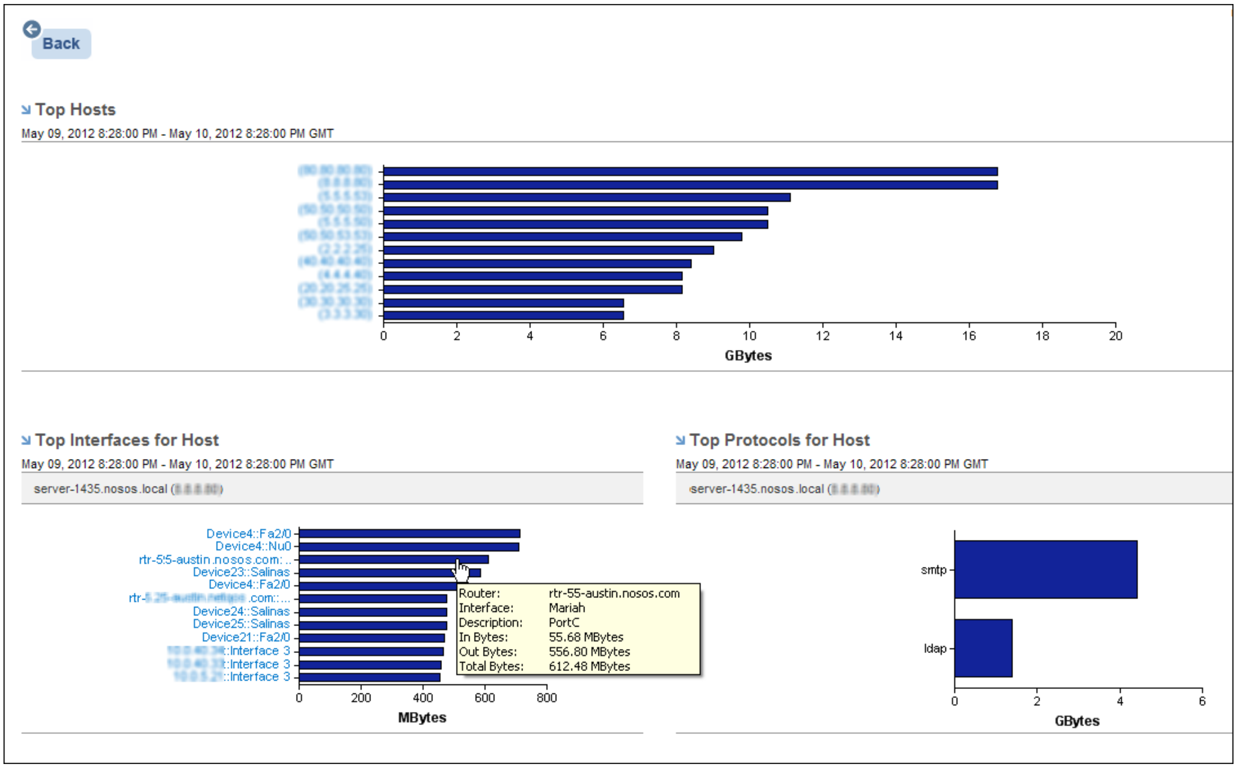
In the Top Protocols report view of the Enterprise Overview page, click an individual protocol to see a more detailed summary report for the protocol, including its top interfaces and hosts. Use this report to perform a high-level investigation of the interfaces involved in the protocol volume.



In the Top Interfaces for Protocol report view, click the name of an interface to open an Interface Protocols report and see detailed protocol data specific to that interface.

Drill Down to Details About a Host

In the Enterprise Overview Top Hosts view, click an individual host name to see a more detailed summary report for the host, including the top interfaces and protocols. Use this report to perform a high-level investigation of the protocols and interfaces involved in the host volume.



In the Top Interfaces for Host report view, click the name of an interface to open an Interface Hosts report and see detailed protocol data specific to that interface.

Chapter 3: Interface Reports

You can review your network traffic by using one of the built-in reports or you can create customized reports, which you can save and run whenever you choose. While the Enterprise Overview provides a quick view of your network, the Interfaces page provides in-depth reports. The following topics describe how to use the Interfaces page to generate a report for an individual interface and provides guidance for interpreting reports.

This section contains the following topics:

Open Interface Reports

Interface reports provide useful information specific to an interface or the interfaces within a specific group. The NFA console provides multiple access points for displaying interface reports for a selected interface or group. If you click the name of a specific interface, the NFA console displays a report view for the interface. The report page also has the functions for changing the report presentation or for opening other interface reports.

Refresh

Turn on Refresh mode for the report page to make it automatically update to reflect the most recently collected 15-minute data. When the Refresh icon is green and revolving, the page is in Refresh mode. To disable Refresh, click the icon again. Once you enable Refresh, data continues to be refreshed even when you navigate away from the page. If you leave the Enterprise Overview page, be sure to turn off Refresh.

Note: The Refresh function is available for real-time data you view in CA Network Flow Analysis--in the Enterprise Overview page and in Interface drilldown reports.

Email

Send the report by email to a selected user or to multiple users (Administrator or Power User accounts only).

Print

Print the entire Enterprise Overview (Administrator or Power User accounts only).

The Flow Forensics links near the top and bottom of the report page lead you to Flow Forensics reports. In Flow Forensics reports, you can drill down to view the raw data flows of the selected interface.

Use the Interface Index

When you log in to the NFA console, the Interfaces page is displayed by default. This page includes the Interface Index, which you can use to select an interface and view reports for that particular interface. You can also search for a router or a group in the Interface Index.

Note: The Group tab appears in the Interface Index view provided CA Network Flow Analysis is registered as a data source with CA Performance Center. If CA Network Flow Analysis is not registered, the Interface tab appears in place of the Group tab.

To change the number of items that are shown on each page, use the Max per Page option in the top right corner.

Open an Interface Report by Router

The Router tab in the Interface Index view displays a list of all routers that have been discovered in CA Network Flow Analysis. The list is sorted alphanumerically and displays 20 routers per page by default. Use this tab to locate an interface by router.

Follow these steps:

1. Select Interfaces in the NFA console menu.

   The Interfaces page opens.

2. Make sure the Router tab on the Interface Index page is displayed.

3. Click the router name to expand a list of its interfaces.

4. (Optional) Use one of the following functions to locate an interface:

   - Sort by Column Heading: Click a column heading to re-sort the list according to the values in that column. The entire list is sorted, not just the items that are shown on the current page.
   - Filter by: Click one of the 'Filter by' options to display active, inactive, or all interfaces.
   - Search: Use the Search options to filter the list of interfaces. Search for whole or partial text strings to match values in the Interface or Description column.
   - Max per Page: Change the Max per Page setting to change the number of interfaces on each list page.

5. Click the interface that you want to investigate.

   An Interface Overview report opens, which displays data for the selected interface.

6. (Optional) Change the format or type of data displayed in the report: Click the gray bar on the left side of the page to open the Presentation menu, select the desired display and metric options, then click the bar again to hide the menu.

   Note: As you scroll up or down the page, the Presentation menu moves to remain in view by default. To position the Presentation menu in a fixed position at the top of the page, select Keep Settings at Top. More information about the presentation options is in Set the Presentation Options (see page 66).

Open an Interface Report by Group

If the Interface Index page includes the Group tab, you can locate and select an interface by group. The Group tab presents all groups and subgroups in a navigable hierarchical tree. The tree makes it easier to locate a specific interface or other managed object, especially when your enterprise has large numbers of routers, interfaces, or other devices.

Note: The Group tab is shown on the Interfaces Index page only if CA Network Flow Analysis is registered with CA Performance Center as a data source.

Follow these steps:

1. Select Interfaces from the NFA console menu, if the Interface Index page is not already visible.

   The Interface Index page opens. This is the first page that you see when you log in.

2. Click the Group tab.

   The group tree is displayed in the left pane.

3. Expand the group tree by clicking the Expand/Collapse arrow icons next to group names.

4. Select the desired group.

   A list of interfaces opens in the right pane. The list includes all the interfaces that are in the selected group and its child groups.

5. (Optional) Use one of the following functions to locate an interface:

   - Sort by Column Heading: Click a column heading to re-sort the list according to the values in that column. The entire list is sorted, not just the items that are shown on the current page.
   - Filter by: Click one of the 'Filter by' options to display active, inactive, or all interfaces.
   - Interface Search: Use the Interface Search options to filter the list of interfaces. Search for whole or partial text strings to match values in the Router, Interface, or Description column.
   - Max per Page: Change the Max per Page setting to change the number of interfaces on each list page.

6. Click the interface that interests you.

   The Interface Overview report displays data for the selected interface.

7. (Optional) Change the format or type of data displayed: Click the gray Presentation bar on the left side of the interface report page to expand the Presentation menu, then select the report presentation type and data type.

The Interface tab displays a list of all the interfaces that are discovered in CA Network Flow Analysis. The list is sorted alphanumerically by router and displays 10 interfaces per page by default. To re-sort the table data, click a column heading.

Open an Interface Report from Other Pages

You can open different types of report pages by clicking links in a report that you are viewing.

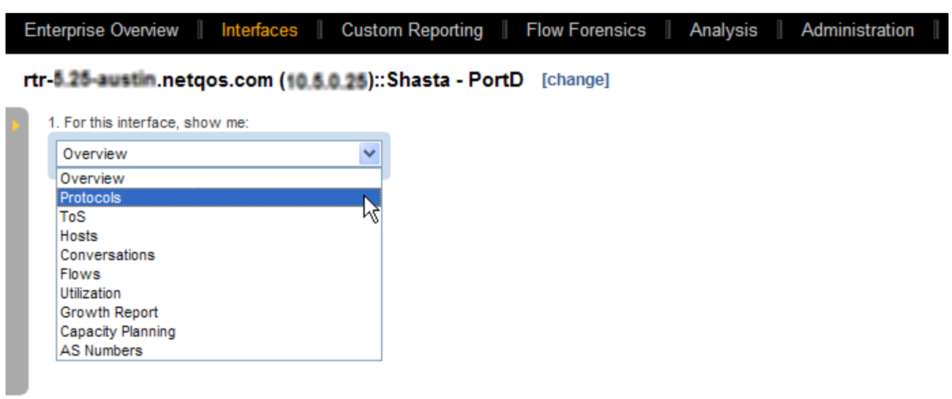
To open an Interface Overview report, click an interface name in a report view.This way of opening an interface report is an alternative to using the Interface Index.

For example, the Enterprise Overview includes an Interface Utilization table. The table lists the top interfaces that exceed the utilization threshold over the past 24-hour time period. Drill down from any interface link in this table to see additional interface-specific data.

Interface Report Types

When you select an interface under one of the routers in the Interface Index, an Overview report for that interface opens.

To change the report type, select an option from the list in the upper left corner of the page.



The following topics describe the report types that you can display in drilldown Interface reports.

- Overview (see page 39)
- Top N Protocols (see page 41)
- Top N ToS (see page 44)
- Top N Hosts (see page 47)
- Top N Conversations (see page 50)
- Flows (see page 52)
- Utilization (Calendar Chart) (see page 53)
- Growth (see page 54)
- Capacity Planning (see page 56)
- Top N Autonomous System (AS) Numbers (see page 61)

Use the icons at the top-right to refresh, print, or email the current report.

Interface Overview Report

An interface Overview report is a broad summary report about the selected interface.

To display an Overview report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Make sure that Overview is selected as the report type at the top-left corner of the page.

   The report page is shows the following interface data:
   - Protocol data that is Inbound to the interface and outbound from the interface
   - ToS data that is Inbound to the interface and outbound from the interface
   - Data that travels to and from hosts
   - Total volume of conversation data

   Note: To display another report type, select an option from the report menu at the top-left corner of the page.

3. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).

   - Mixed Chart of Rate, Volume, or Utilization data: Show stacked trend charts of incoming and outgoing protocol and ToS data, pie charts of data volumes that travel to and from hosts, and a pie chart of the total volume of conversation data.
   - Mixed Trend of Rate, Volume, or Utilization data: Show stacked trend charts of incoming and outgoing protocol and ToS data, trend summary charts of data volumes that travel to and from hosts, and a trend summary chart of the total volume of conversation data.

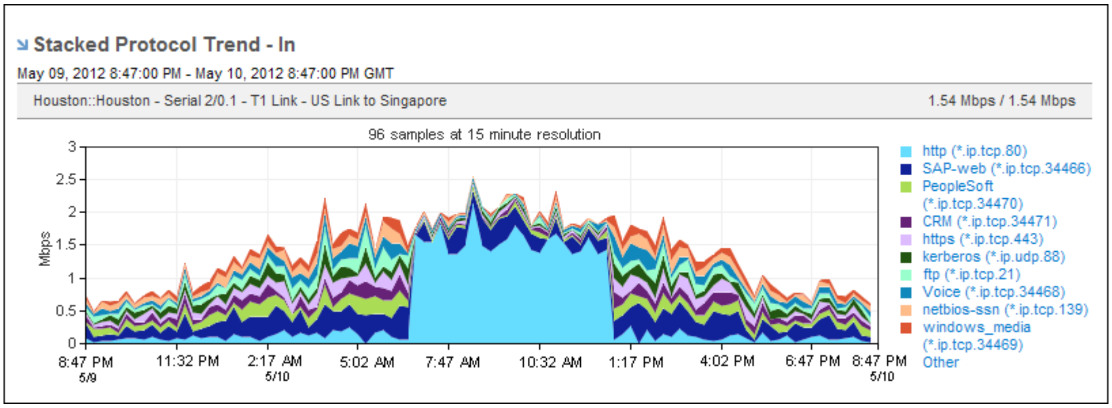
     Use the Show Top setting to specify the maximum number of conversations to include. (Default setting)
   - Pie Chart: Use pie charts to show incoming and outgoing protocol and ToS data, volumes of data that travel to and from hosts, and the total volume of conversation data.

4. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Top N Protocols Report

A Top N Protocols report provides information about the protocols that generate the most traffic on a specific interface .



To display a Top N Protocols report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Protocols from the report type menu at the top-left corner of the page.
3. Make sure that the report scope is set to Top N Protocols. The Top N Protocols link should appear next to the report type setting.

   The report page is updated to show protocol data in stacked trend charts by default. The report includes views for inbound, outbound, and total protocol data.
4. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).
   - Stacked Trend Chart of Rate, Volume, or Utilization data
   - Trend Chart of Rate, Volume, or Utilization data: Use the Show Top setting to specify the maximum number of conversations to include. (Default setting)
   - Pie Chart
   - Summary Table of Rate, Volume, or Utilization data

   Each option displays data that is inbound and outbound with respect to the selected interface.

5. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Note: You also can display Protocol Summary views in a Custom Report.

Open a Drilldown Protocol Report

To drill down to more detailed, protocol-specific data for the selected interface, click the name of a protocol in any of the Top N Protocol views. An overview report opens for the protocol on the selected interface.

Display an Interface Report for a Single Protocol

To drill down to details about a specific protocol, click one of the protocol links in a Top N Protocols view. A report opens, which you can display in Overview, Details, Hosts, or Conversations mode. The options in the Presentation menu are mode-specific. You can display any of the following types of data and views:

- Overview mode Mixed Chart or Mixed Trend chart: Rate, volume, or utilization data for the protocol on the selected interface.
- Overview or Hosts mode Pie Chart in all of the following views:
  - From: Protocol data going out from the interface.
  - To: Protocol data coming into the interface.
  - Total: All protocol data coming into or going out of the interface.
- Details mode Multi-Period Trend chart: Rate, volume, or utilization data in any combination of the following views, which are shown with or without baselines:
  - Last Hour (displayed by default).
  - Last 2 Hours (displayed by default).
  - Last 8 Hours (displayed by default).
  - Daily (displayed by default).
  - Weekly.
  - Monthly.
  - Yearly.
- Details mode Calendar Chart Rate in either of the following views:
  - Direction In: Protocol data coming into the interface.
  - Direction Out: Protocol data going out from the interface.
- Hosts mode Trend Chart: Rate, volume, or utilization data for the number of top hosts you specify.

- Hosts mode Summary Table: Table of rate, volume, or utilization data for hosts who used the protocol on the selected interface.
- Conversations mode Trend Chart or Summary Table: Rate, volume, or utilization data for conversations that used the protocol on the selected interface.
- Conversations mode Pie Chart: Data for all conversations that used the protocol on the selected interface.

To return to the summary view of all protocols on the interface, click the link that is named for the currently selected protocol and click Select Top N Protocols.

Find Comparable Views in CA Performance Center

You can display the following Protocols views in the CA Performance Center console:

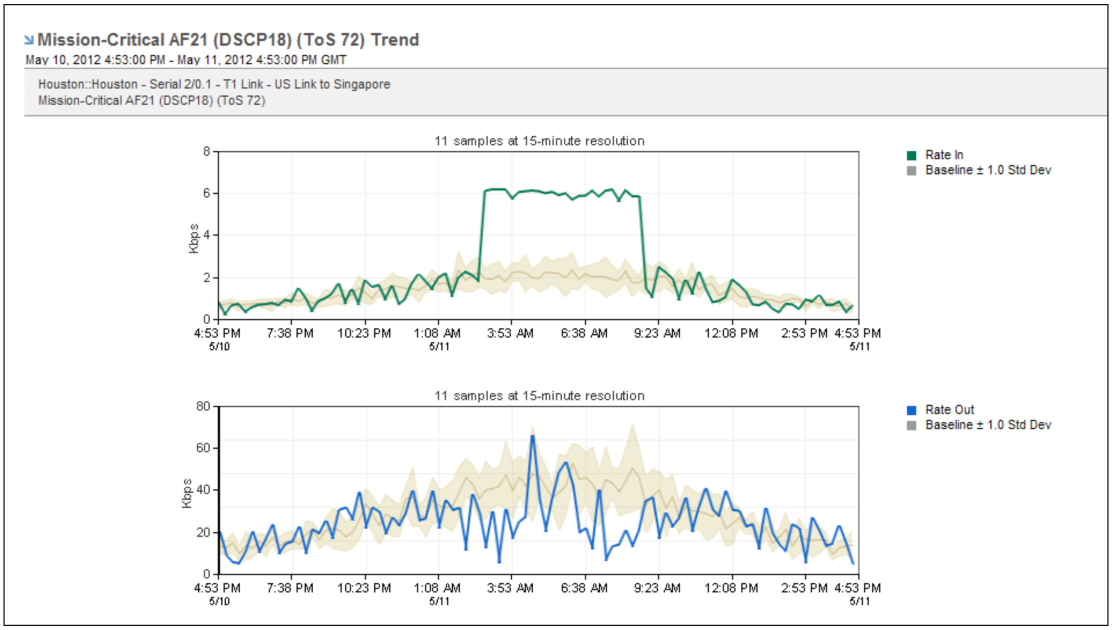
- Stacked Protocol Trend: Look for the built-in views on the IP Performance tab and the CBQoS tab of the Interfaces Pages. You also can add views of the following types to a custom dashboard: Rate, Bytes, Utilization, In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- Top Protocols (Bar) and Top Protocols (Pie): Add views of the following types to a custom dashboard: In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- Top Protocols (Table): Add Rate, Volume, and Utilization views to a custom dashboard.

See Also:

Protocol Trend Views (see page 69)
Protocol Summary Views (see page 74)
Stacked Protocol Trend (see page 162)

Top N ToS Report

A Top N ToS report provides information about the Types of Service (ToS) markings of the packets that generate the most traffic for the selected interface.



To display a Top N ToS report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select ToS from the report type menu at the top-left corner of the page.
3. Make sure that the report scope is set to Top N ToS. The Top N ToS link should appear next to the report type setting.

   The report page is updated to show ToS data in stacked trend charts by default. The report includes views for inbound, outbound, and total ToS data.

4. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).
   - Stacked Trend Chart of Rate, Volume, or Utilization data (Default setting)
   - Trend Chart of Rate, Volume, or Utilization data: Use the Show Top setting to specify the maximum number of conversations to include.
   - Pie Chart
   - Summary Table of Rate, Volume, or Utilization data

   Each option displays data that is inbound and outbound with respect to the selected interface.
5. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Display an Interface Report for a Single ToS

To drill down to more detailed, ToS-specific data for the selected interface, click a ToS link in a Top N ToS view. An overview report for the ToS value on that interface opens.

You can view the report in Overview or Details mode by selecting one of the following report types:

- Overview mode Mixed Chart or Mixed Trend chart: Rate, volume, or utilization data for the ToS on the selected interface
- Overview mode Pie Chart views:
  - ToS Protocol Summary - In: Incoming data for the protocols that use the ToS (data coming into the interface)
  - ToS Protocol Summary - Out: Outgoing data for the protocols that use the ToS (data going out of the interface)
  - ToS Hosts Summary - From: Outgoing data for the hosts that use the ToS (data going out of the interface)
  - ToS Hosts Summary - To: Incoming data for the hosts that use the ToS (data coming into the interface).
  - ToS Conversations Summary - Total: Data for all conversations that use the ToS (coming into and going out of the interface)
- Details mode: Charts of rate, volume, or utilization data in any combination of the following views, which are shown with or without baselines:
  - Last Hour (displayed by default)
  - Last 2 Hours (displayed by default)
  - Last 8 Hours (displayed by default)

  - Daily (displayed by default)
  - Weekly
  - Monthly
  - Yearly
- Protocols mode Trend Chart or Summary Table: Rate, volume, or utilization data
- Protocols mode Stacked Trend Chart or Pie Chart views:
  - In: Incoming data for the protocols that used the ToS (data coming into the interface)
  - Out: Outgoing data for the protocols that used the ToS (data going out of the interface)
  - Total: Data for all protocols that used the ToS (coming into and going out of the interface)
- Hosts mode Trend Chart: Rate, volume, or utilization data for the number of top hosts you specify
- Hosts mode Summary Table: Table of rate, volume, or utilization data for hosts who used the ToS on the selected interface
- Hosts mode summary Pie Chart views:
  - From: Outgoing data for the hosts that used the ToS (data going from the interface)
  - To: Incoming data for the hosts that used the ToS (data coming to the interface)
  - Total: Data for all hosts that used the ToS (coming to and going from the interface)
- Conversations mode Trend Chart: Rate, volume, or utilization data for the number of top conversations you specify
- Conversations mode Summary Table: Table of rate, volume, or utilization data for conversations that used the ToS on the selected interface
- Conversations mode Pie Chart: Data for all conversations that used the ToS on the selected interface

To return to the summary view, click the link that is named for the currently selected ToS and click Select Top N Hosts.

Find Comparable Views in CA Performance Center

You can display the following ToS views in the CA Performance Center console:

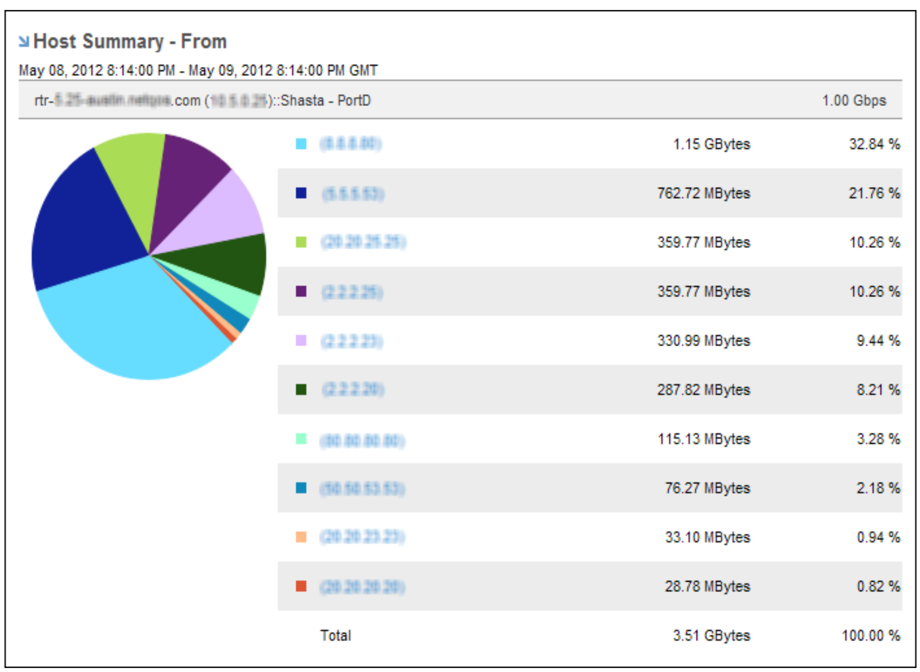
- Stacked ToS Trend: Look for the built-in views on the CBQoS tab of the Interfaces Pages. You also can add views of the following types to a custom dashboard: Rate, Bytes, Utilization, In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- ToS Summary (Pie): Look for the built-in view on the IP Performance tab of the Interfaces Pages. You also can add In, Out, and Total views to a custom dashboard, which show inbound data, outbound data, or all data.
- ToS Summary (Table): Add Rate, Volume, and Utilization views to a custom dashboard.

Also See:

Stacked ToS Trend (see page 165)
ToS Summary (Pie) (see page 168)
ToS Summary (Table) (see page 170)

Top N Hosts Report

A Top N Hosts report provides information about the hosts that generate the most traffic on the selected interface.



To display a Top N Hosts report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Hosts from the report type menu at the top-left corner of the page.
3. Make sure that the report scope is set to Top N Hosts. The Top N Hosts link should appear next to the report type setting.

   The report page is updated to show host summary pie charts by default. The report includes views for the following host data:
   - From: Top hosts who sent data to the interface.
   - To: Top hosts who received data from the interface.
   - Total: Top hosts who either sent data to the interface or received data from the interface.
4. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).
   - Trend Chart of Rate, Volume, or Utilization data: Show trend charts for data that travels to and from the hosts.

     Use the Show Top setting to specify the maximum number of conversations to include.
   - Pie Chart: Show a pie charts for data that travels to and from the hosts, with lists of hosts and their data volumes. (Default setting)
   - Summary Table of Rate, Volume, or Utilization data: Show a table of data that travels to and from the hosts.
5. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Display an Interface Report for a Single Host

To drill down to more detailed, host-specific data for the selected interface, click a host name in a Top N Host view. An overview report for the host on that interface opens. You can view the host details or the host protocols.

You can view this type of report in Details mode or Protocols mode, which have the following options:

- Details mode: Charts of rate, volume, or utilization data in any combination of the following views:
  - Last Hour (displayed by default).
  - Last 2 Hours (displayed by default).
  - Last 8 Hours (displayed by default).
  - Daily (displayed by default).
  - Weekly.
  - Monthly.
  - Yearly.
- Protocols mode Trend Chart or Summary Table: Rate, volume, or utilization for the protocols that the hosts used. You see the data coming into the interface and the data going out from the interface.
- Protocols mode Stacked Trend Chart: Data for all protocols that the hosts used (coming into and going out of the interface).

To return to the summary view, click the link that is named for the currently selected host and click Select Top N Hosts.

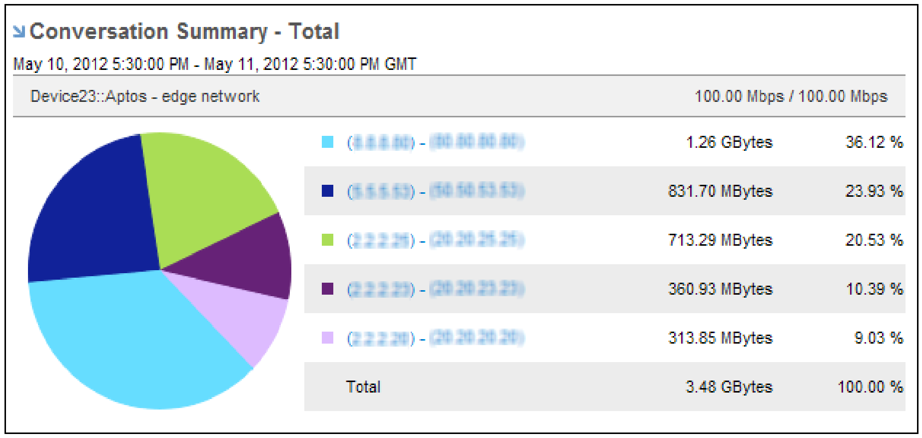
Find Comparable Views in CA Performance Center

You can display the following host views in the CA Performance Center console:

- Top Hosts (Bar): Look for the built-in view on the Management: Network Overview dashboard. You also can add views of the following types to a custom dashboard: In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- Top Hosts (Pie): Look for the built-in view on the IP Performance tab of the Interfaces Pages. You also can add views of the following types to a custom dashboard: In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- Top Hosts (Table): Add Rate, Volume, and Utilization views to a custom dashboard.

Top N Conversations Report

A Top N Conversations report provides information about the hosts that generate the most traffic on the selected interface. This report includes information about the total data in the conversations.



To display a Top N Conversations report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Conversations from the report type menu at the top-left corner of the page.
3. Make sure that the report scope is set to Top N Conversations. The Top N Conversations link should appear next to the report type setting.

   The report page is updated to show a conversation summary pie chart by default.
4. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).
   - Trend Chart of Rate, Volume, or Utilization data: Show a trend chart for data that travels to and from the source host in the conversations. (Default setting)

     Use the Show Top setting to specify the maximum number of conversations to include.
   - Pie Chart: Show a summary pie chart with a list of conversations and their data volumes.
   - Summary Table of Rate, Volume, or Utilization data: Show a table of data that travels to and from the source host in the conversations.

5. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Display an Interface Report for a Single Conversation

To drill down to details about a specific conversation, click one of the conversation links in the Top N Conversations view. A report opens, which you can configure to show any of the following data:

You can view this type of report in Details mode or Protocols mode, which have the following options:

- Details mode: Charts of rate, volume, or utilization data in any combination of the following views:
  - Last Hour (displayed by default).
  - Last 2 Hours (displayed by default).
  - Last 8 Hours (displayed by default).
  - Daily (displayed by default).
  - Weekly.
  - Monthly.
  - Yearly.
- Protocols mode Trend Chart or Summary Table: Rate, volume, or utilization for the protocols that the conversations used. You see the data coming into the interface and the data going out from the interface.
- Protocols mode Stacked Trend Chart: Data for all protocols that the conversations used (coming into and going out of the interface).

To return to the summary view of all conversations on the interface, click the link that is named for the currently selected conversation and click Select Top N Conversations.

Find Comparable Views in CA Performance Center

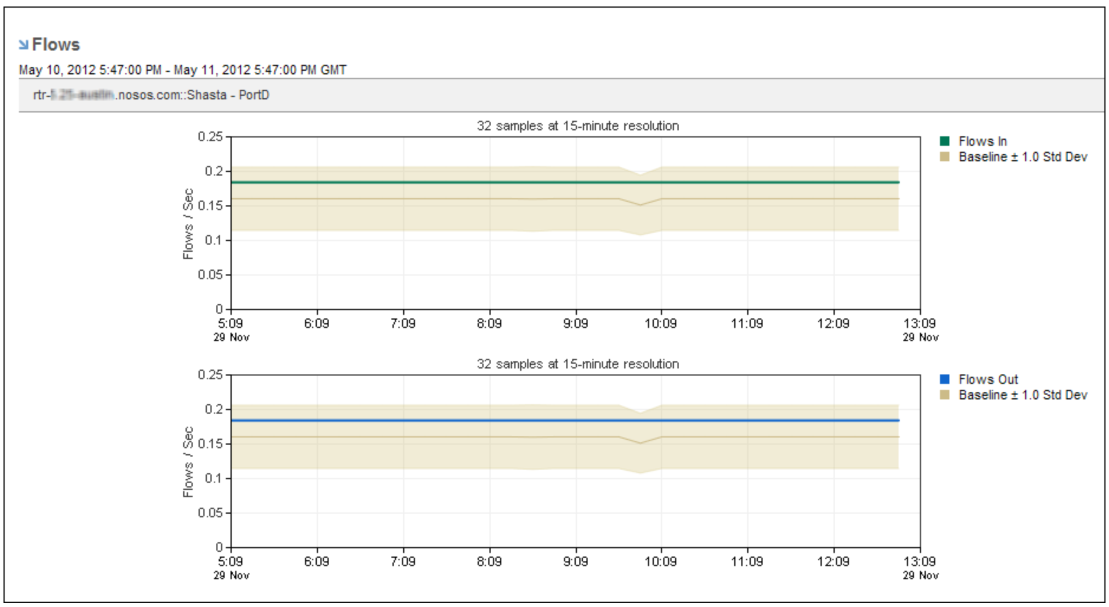
You can display the following conversation views in the CA Performance Center console:

- Top Conversations (Bar): Add views of the following types to a custom dashboard: In (inbound data), Out (outbound data), and Total (both inbound and outbound data).

- Top Conversations (Pie): Look for the built-in view on the IP Performance tab of the Interfaces Pages. You also can add views of the following types to a custom dashboard: In (inbound data), Out (outbound data), and Total (both inbound and outbound data).
- Top Conversations (Table): Add Rate, Volume, and Utilization views to a custom dashboard.

Flows Report

A Flows report presents a trend plot with information about all the flows that enter and leave the selected interface. A Flows report helps you find patterns or anomalies.



Flows do not always equate with traffic volume or traffic rate. A flow can represent a single packet, or it can represent a 1-MB flow of data that occurred during a 1-minute interval. Flow rate can indicate the load on the Harvester, however. Viruses typically generate large increases in flow counts.

To display a Flows report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.

2. Select Flows from the report type menu at the top-left corner of the page.

   The report page is updated to show flow trend charts.

3. (Optional) Change the data data measurement type by using the Presentation options (see page 66):

   Rate (default setting) or Volume

   Each option displays trend charts of data that is inbound and outbound with respect to the selected interface.

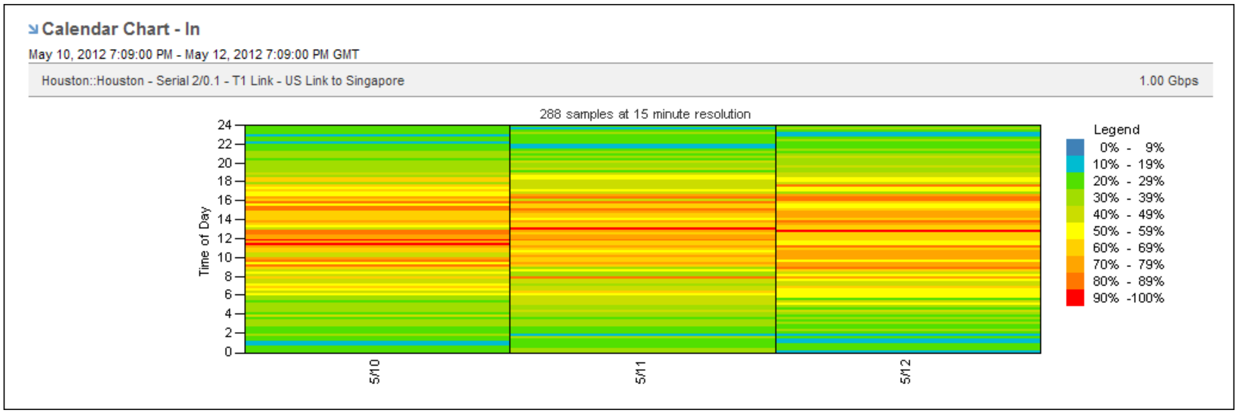
   You can also select Show Baselines to view +/- 1 Standard Deviation. The baseline is computed by calculating the average and standard deviation for a maximum of ten samples (the last six weeks and the last four days). This rolling baseline feature provides a visual representation of a current and historical trend overlay. When a current trend line is above or below the baseline, the performance is out of the norm. When the current trend is within the baseline, the performance is within the range of historical behavior.

4. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Utilization (Calendar Chart) Report

The Utilization (Calendar Chart) report provides information about the inbound or outbound utilization for the selected interface by mapping the utilization percentage on a calendar chart.



Excessive utilization of an interface is shown as a block of red that extends across the column for the day and across the rows for the time of day. Low utilization is shown in green. Varying shades of each color indicate the severity. Each severity range color corresponds to a range of utilization values, which are calculated as percentages of total capacity. The legend shows how the colors are used in the utilization calendar chart.

To display a Utilization report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Utilization from the report type menu at the top-left corner of the page.

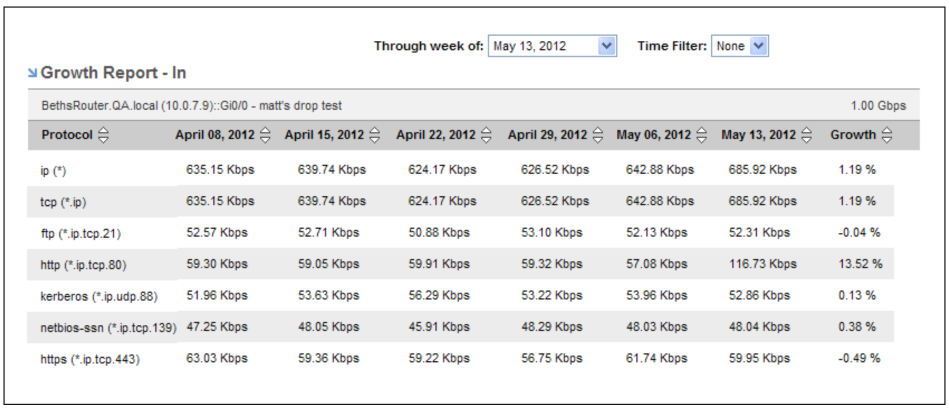
   The report page is updated to show utilization data as a calendar chart.
3. (Optional) Choose the direction of the traffic to display by using the Presentation options (see page 66).
   - Direction In: Show traffic that is inbound to the interface.
   - Direction Out: Show traffic that is outbound from the interface.

   The currently selected option is highlighted and is marked with a blue arrow.
4. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Growth Report

A Growth report provides historical growth statistics for the top protocols on the selected interface. This report helps you identify applications that consume increasing amounts of bandwidth over time and, in turn, determine whether the growth might ultimately require additional capacity.


Through week of: May 13, 2012 Time Filter: None

Growth Report - In

BethsRouter.QA.local (10.0.7.9)::Gi0/0 - matt's drop test 1.00 Gbps

Protocol	April 08, 2012	April 15, 2012	April 22, 2012	April 29, 2012	May 06, 2012	May 13, 2012	Growth
ip (*)	635.15 Kbps	639.74 Kbps	624.17 Kbps	626.52 Kbps	642.88 Kbps	685.92 Kbps	1.19 %
tcp (*.ip)	635.15 Kbps	639.74 Kbps	624.17 Kbps	626.52 Kbps	642.88 Kbps	685.92 Kbps	1.19 %
ftp (*.ip.tcp.21)	52.57 Kbps	52.71 Kbps	50.88 Kbps	53.10 Kbps	52.13 Kbps	52.31 Kbps	-0.04 %
http (*.ip.tcp.80)	59.30 Kbps	59.05 Kbps	59.91 Kbps	59.32 Kbps	57.08 Kbps	116.73 Kbps	13.52 %
kerberos (*.ip.udp.88)	51.96 Kbps	53.63 Kbps	56.29 Kbps	53.22 Kbps	53.96 Kbps	52.86 Kbps	0.13 %
netbios-ssn (*.ip.tcp.139)	47.25 Kbps	48.05 Kbps	45.91 Kbps	48.29 Kbps	48.03 Kbps	48.04 Kbps	0.38 %
https (*.ip.tcp.443)	63.03 Kbps	59.36 Kbps	59.22 Kbps	56.75 Kbps	61.74 Kbps	59.95 Kbps	-0.49 %

To display a Growth report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Growth Report from the report type menu at the top-left corner of the page.

   The report page is updated to show a Growth Report table.
3. (Optional) Choose the direction of the traffic to display by using the Presentation options (see page 66).
   - Direction In: Show traffic that is inbound to the interface.
   - Direction Out: Show traffic that is outbound from the interface.

   The currently selected option is highlighted and is marked with a blue arrow.
4. (Optional) Change the reporting time period:
   a. Select Last 6 Weeks (default setting) or Last 6 Months in the Presentation options (see page 66).
      - Last 6 Weeks: Sets the report to show six weeks of data. The six most recent weeks are selected by default.
      - Last 6 Months: Sets the report to show six months of data. The six most recent months are selected by default.

   b. (Optional) Use the ‘Through week of’ or the 'Through month of' option to select an alternative ending week or month for the six-week or six-month time period.

   c. (Optional) Restrict the reporting range by selecting a time filter from the Time Filter option list.

      Time filters are created by the Administrator for CA Network Flow Analysis. For example, the Administrator could create a time filter to restrict the report data to business hours and business days. If the Time Filter list is empty, your Administrator has not created any time filters.

   Also See: Change the time period for gathering report data (see page 63).

Capacity Planning Report

A Capacity Planning report displays estimated projections that are based on your network. This type of report helps determine whether changes are likely to require more or less capacity.

To display a Capacity Planning report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select Capacity Planning from the report type menu at the top-left corner of the page.
3. Select the scope for the Capacity Planning report:
   - IP Summary: Show IP summary data in a trend chart and table.
   - Protocols: Show information about inbound and outbound protocol data in stacked trend charts and tables.
   - ToS: Show information about inbound and outbound ToS data in stacked trend charts and tables.

   The report page is updated to show the selected data.
4. (Optional) Use the Trend Settings to change the reporting timeframe and calculation options.
5. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66):

   Rate (default setting), Volume, or Utilization

   Each option displays views of data that is inbound (In) and outbound (Out) with respect to the interface.

   The currently displayed metric is highlighted and marked with a blue arrow.

Data Types for Capacity Planning Reports

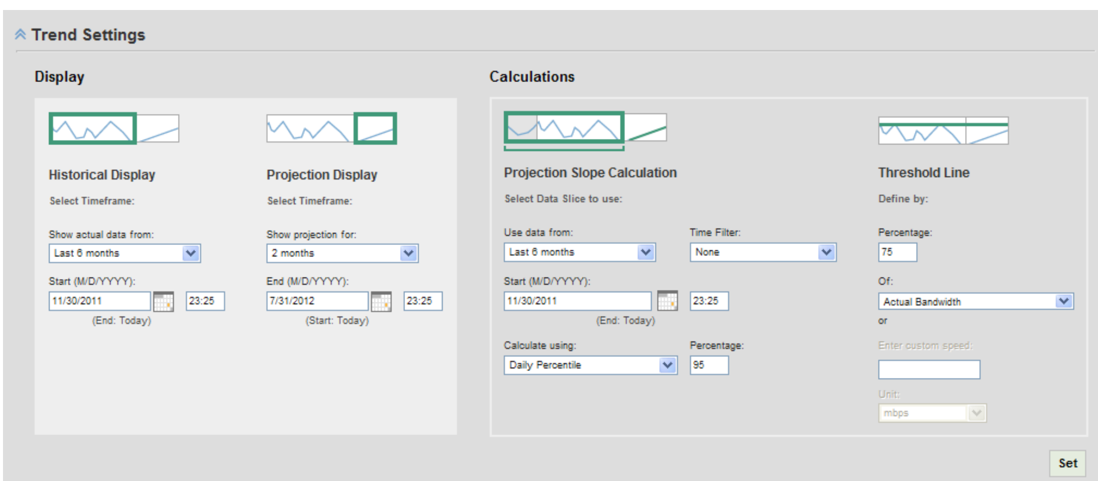
The views in the Capacity Planning report can display historical data and can make projection calculations for three types of interface data: IP Summary, Protocols, or ToS. IP Summary is the default data type. Use the secondary menu next to the report menu to change the data type.

The selected data type determines the views that are displayed in the report:

- IP Summary
  - IP Summary Trend - Total
  - IP Summary Table
- Protocols
  - Protocol Stacked Trend - In
  - Protocol Table - In
  - Protocol Stacked Trend - Out
  - Protocol Table - Out
- ToS
  - ToS Stacked Trend - In
  - ToS Table - In
  - ToS Stacked Trend - Out
  - ToS Table - Out

Trend Settings for Capacity Planning Reports

When you open a Capacity Planning report, the Trend Settings controls are at the top of the page. Display options are on the left and Calculations options are on the right. Use these settings to control the data display and projection calculations in the report.



Trend Settings Display Options

Use the Display options to specify the historical time period and the projection time period displayed in the report. This setting does not determine the data that is used to make projection calculations.

Follow these steps:

1. In the Historical Display section, select a time period from the ‘Show actual data from’ list.

   You can select a time period that is relative to today’s date, such as Last 7 days, Last 1 month, Last 2 months, and Last 3 months. Alternatively, you can select Custom to specify a specific date.

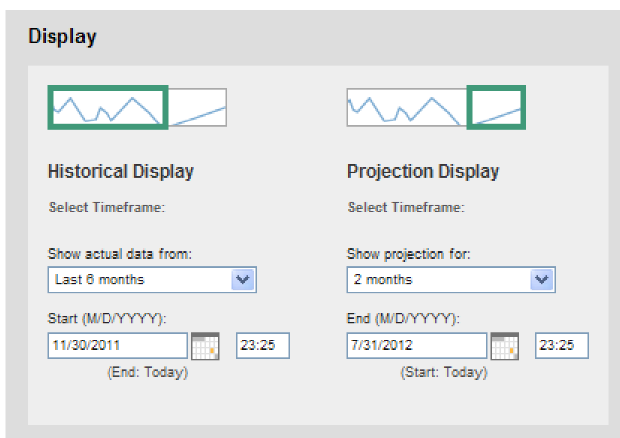
   Note: The report displays the data starting at this time but does not necessarily use this time as the starting point to calculate the projection. For example, if you want the projection to calculate from six months of historical data but want to display only seven days of that data. In this scenario, you would select Last 7 days in this menu.

2. Accept the default start date or specify a custom start date in any of the following ways:

   ■ Click the calendar icon and choose a date from the calendar pop-up.

   ■ Enter a date value in the Start box in the DD/MM/YYYY format.

   ■ Enter a custom start time in the box on the right. Use the 24-hour time format.



3. Accept the default time period or select a time period from the ‘Show projection for’ list in the Projection Display section.

   You can select a time period relative to the Historical Display end date (such as 1 month) or you can select Custom to specify a date.

4. Accept the default end date or specify a custom end date for the projection in any of the following ways:
   - Click the calendar icon and choose a date from the calendar pop-up.
   - Enter a date value in the End box in the DD/MM/YYYY format.
   - Enter a custom end time in the box on the right. Use the 24-hour time format.
5. Click Set to apply the display settings.

   The report views below the Trend Settings regenerate and reflect your changes.

   Note: If you make further changes, click Set to apply those settings to the report views.

Trend Settings Calculations Options

Use the Calculations options to specify the data, calculation method, and threshold for calculating the projection data. These time period settings do not affect the projection data displayed in the report.

Follow these steps:

1. In the Projection Slope Calculation section, use the 'Use data from' list to select the historical time period you want use to calculate the projection data.

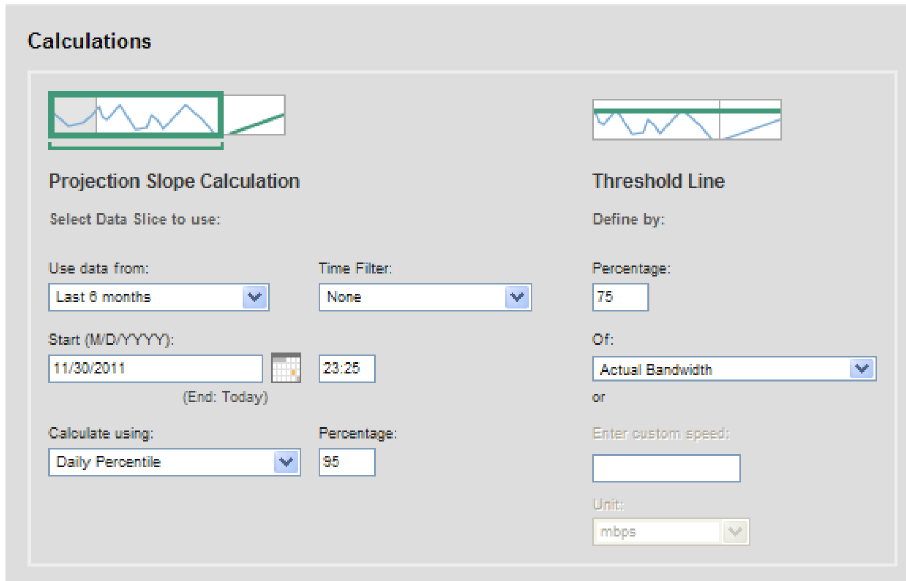
   You can select a time period that is relative to the current date, such as Last 7 days, Last 1 month, Last 2 months, or Last months. Alternatively, you can select Custom to select a specific start date.

   Note: The report uses this starting time for calculations but does not necessarily use this time to display historical data in the report. For example, if you want the projection to calculate from 6 months of historical data but want to display only seven days of that data. In this scenario, you would select 'Last 6 months' in this menu.

2. Use the Time Filters list to select a filter for restricting the data.

   Note: User accounts that are assigned the Power User or the Administrator role can create custom time filters. For information about creating time filters, see the *CA Network Flow Analysis Administrator Guide.*

3. Accept the default start date or specify a custom start date in any of the following ways:
   - Click the calendar icon and choose a date from the calendar pop-up.
   - Enter a date value in the Start box in the DD/MM/YYYY format.
   - Enter a custom start time in the box on the right. Use 24-hour time format.



4. Select a calculation method from the ‘Calculate using’ list and enter a value in the Percentage box.

   You can select Daily Percentile or Daily Average. To use the Daily Percentile method, enter a value in the Percentage field.

5. Enter a value in the Percentage box and select a measurement from the Of list in the Threshold Line section.

   The default measurement is Actual Bandwidth.

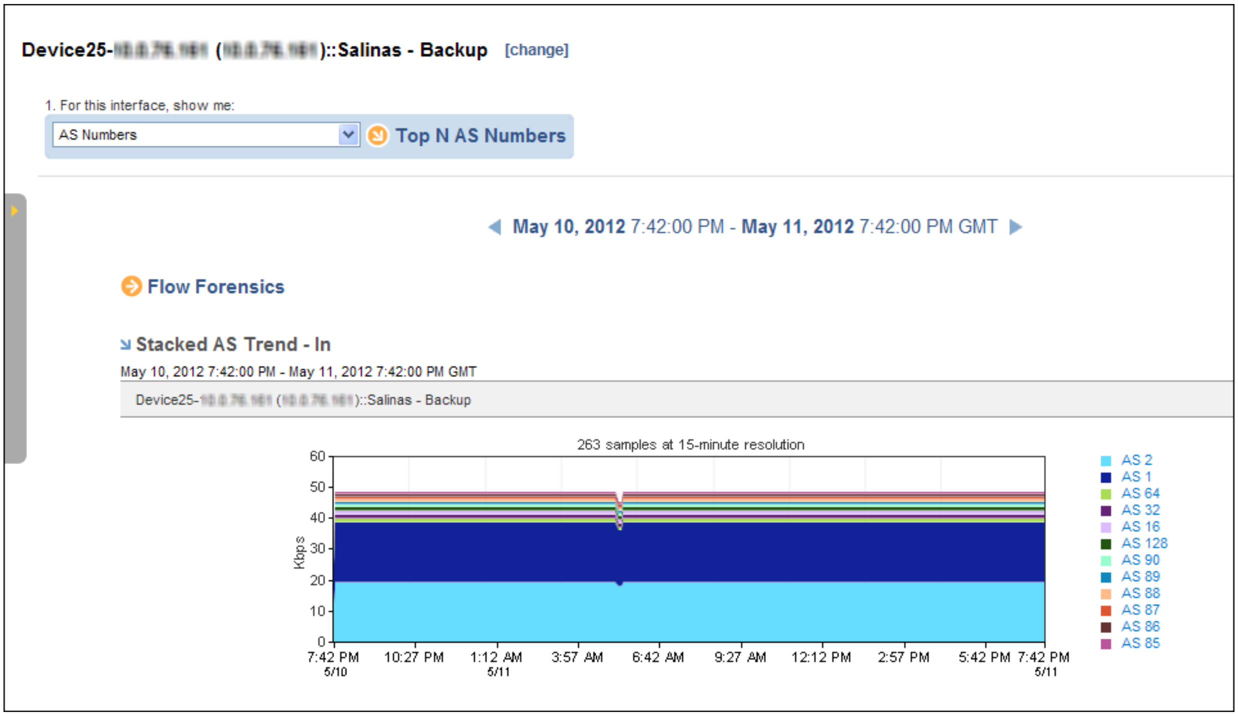
6. Click Set to apply the display settings.

   The Trend report views regenerate and reflect your changes.

   Note: If you make further changes, click Set to apply those settings to the report views.

Top N Autonomous System Numbers Report

A Top N AS report provides AS (Autonomous System) Next Hop data, which provides high-level summaries of total volume and rate statistics for each AS number on a particular interface. This type of reporting is not used primarily for troubleshooting, but it is valuable for managing network routes efficiently. This insight helps service providers control costs by comparing traffic usage through transit networks versus traffic through networks with peer agreements.



To display a Top N AS Numbers report, start from an interface report.

Follow these steps:

1. Display an interface report in either of the following ways:
   - Locate and click an interface on the Interfaces page.
   - Click an interface link in an existing view--for example, on the Enterprise Overview page.
2. Select AS Numbers from the report type menu at the top-left corner of the page.

3. Make sure that the Top N AS Numbers link appears next to the report type setting.

   The report page is updated to show AS trend charts by default. The report includes AS Numbers data views for each of the following metrics:

   - Inbound data
   - Outbound data
   - From data
   - To data

4. (Optional) Change the data presentation type and the data measurement type by using the Presentation options (see page 66).

   - Stacked Trend Chart (default setting) of Rate, Volume, or Utilization data
   - Trend Chart of Rate, Volume, or Utilization data
   - Pie Chart
   - Summary Table of Rate, Volume, or Utilization data

   Each option displays views of data that is inbound (In) and outbound (Out) with respect to the interface and data that is coming from (From) the previous hop and going to (To) the next hop.

5. (Optional) Change the reporting period: Open the Timeframe dialog by clicking the timeframe link (see page 63).

   The reporting period is the most recent 24-hour period by default.

Work with Interface Reports and Data Views

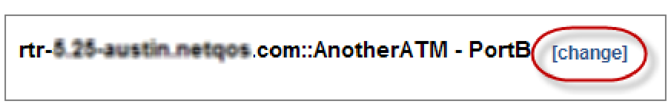
Each Interface report includes specific view types that display the data for the selected interface or group of interfaces. When you open an Interface report, the data is displayed in the report views uses the default Presentation options and settings.

Change the Interface for a Report

If you click an interface link on the Interface page, you drill down to an interface report. You can use the [change] link to view a report for a different interface.

Follow these steps:

1. Click the [change] option next to the interface name at the top of the report.



The Interface Index (see page 36) opens.

2. Locate the interface that interests you in either of the following ways:
   - Expand the parent router and select an interface from the list of details.
   - Use the Search field to locate an interface (see page 17).
3. Click the link in the Interface column.

   The Interface Index closes. You return to the Interfaces report page, which displays data for the selected interface.

Set the Time Period for a Report

The Enterprise Overview displays data for the previous 24-hour period. Interface reports also display data for the previous 24 hours by default. You can change the reporting period by using the time period controls at the top of the report page.

Note: The Capacity Planning report uses two different time periods for calculations and reporting data. Information about configuring time periods for capacity planning trends is in the topic Trend Settings for the Capacity Planning Report (see page 57).

When you view Interfaces report pages, you can change the time period for the displayed data. For example, if you notice an issue in a 1-day report, you might want to change the time period to be the last seven days. Expanding the time period can reveal whether the issue occurs daily.

The current time period is shown at the top of most Interfaces report pages. These interface reports reflect 1-minute resolution data. For a 24-hour time period, the report shows the data points in the previous 24 hours, including the final full 1-minute data point. For example, if you generate or refresh the report on May 11, 2012 at 16:11 GMT, the time period for the report is May 10, 2012 16:10:00 through May 11, 2012 16:10:00.

Note: Each user account has an assigned time zone, which determines how time is labeled in reports. For example, if a user who has a time zone of Central Standard Time (CST) views a report with data for 8:00 to 9:00 A.M., the data for 8:00 to 9:00 A.M. CST appears in the report. An Administrator can modify this setting for the user account. For more information about user account administration, see the *CA Network Flow Analysis Administrator Guide.*

The time period at the top of the report page is a link to the options you use to change the reporting time period.

Scroll the Time Period Interval

You can keep the current time span length for the interface report (such as 24 hours, one week, one month, or custom), but can shift the time period backward or forward. For example, you can scroll the time period back to show data for the week before the week now on display.

To scroll the time period back by one increment, click the Scroll Back icon .

To scroll the time period forward by one increment, click the Scroll Forward icon .

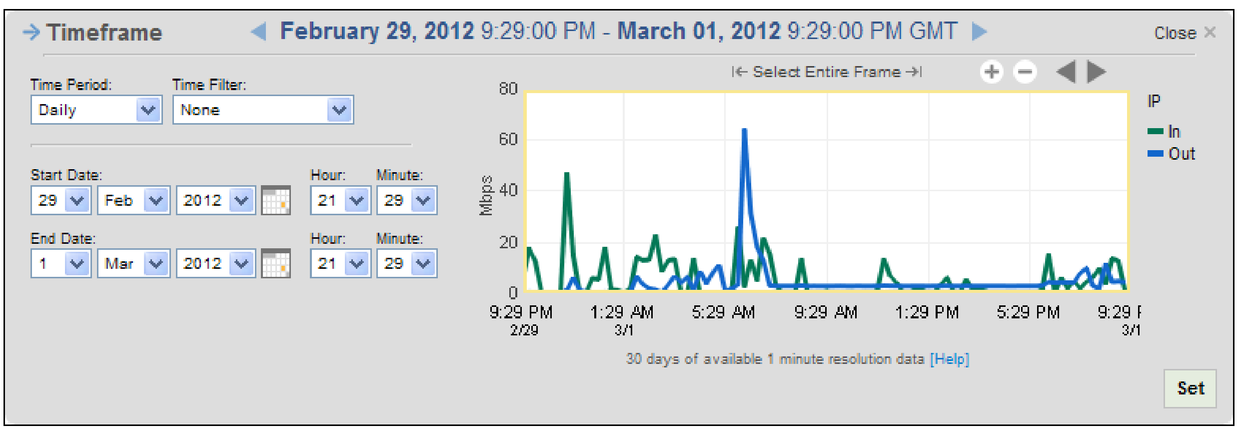
Specify a Built-In Time Period

You can specify a different time period for Interface reports by using one of the built-in options. The built-in time periods let you quickly expand or restrict the reporting time period relative to the current date and time. For example, you can extend the time period to find out if an observed event happens as part of a repeated pattern.

Follow these steps:

1. Click the time period link at the top of the Interfaces report page.

   The Timeframe options expand.



   Note: The time period link is on all top-level Interfaces report pages except Growth and Capacity Planning, which have other time options. In addition, if you drill down to a report page to investigate details, the drilldown report page does not include a time period link.

2. Select a time period for the report from the Time Period list.

   The time period is relative to the current date and time. A Daily time period produces a report about the 24 hours that precede the current date and time. A Weekly time period produces a report the week that precedes the current date and time.

3. Select a time filter from the Time Filter list.

   The available time filters are set up by the Administrator for CA Network Flow Analysis. Time filters limit the time span for reported data, for example to include only regular business hours.

4. Click Set.

   The active time period displayed in the Timeframe pane changes to give you a preview of the data that is included. The preview helps you verify that you are capturing any specific trends that are of interest.

5. Click Close at the top-right corner of the pane.

   The options are hidden.

Specify a Custom Start and End Time

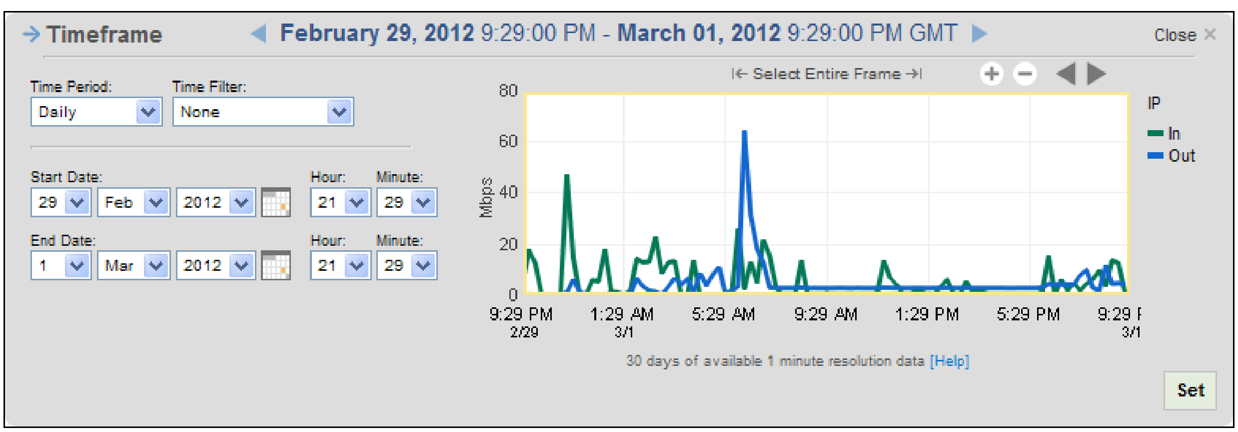
You can customize the time period for the current report. You can select a specific start date, end date, and time of day for collecting report data, such as the following times:

- Specific hour.
- Specific day.
- Unique week time period by specifying a day within the Saturday-to-Sunday 7-day time period that you want.
- Unique one-month time period by selecting the month start and end dates.
- Unique quarter-year time period by selecting the quarter start and end dates.
- Unique one-year time period by selecting the year start and end dates.

Follow these steps:

1. Click the time period at the top of the report page.

   The Timeframe pane expands to display the time period options.



2. Select Custom from the Time Period list. The end date and time are set to the current time by default.

3. Select the start date from the Start Date day, month, and year lists, or click the calendar icon to locate and select a date.
4. Select a start time from the Start Date Hour and Minute lists. The current time (hour:minutes) is selected by default. Hours are shown in 24-hour format.
5. Select an end date from the End Date day, month, and year lists, or click the calendar icon to locate and select a date.
6. Select an end time from the End Date Hour and Minute lists or click the calendar icon to locate and select a date. The current time (hour:minutes) is selected by default.
7. Click Set.

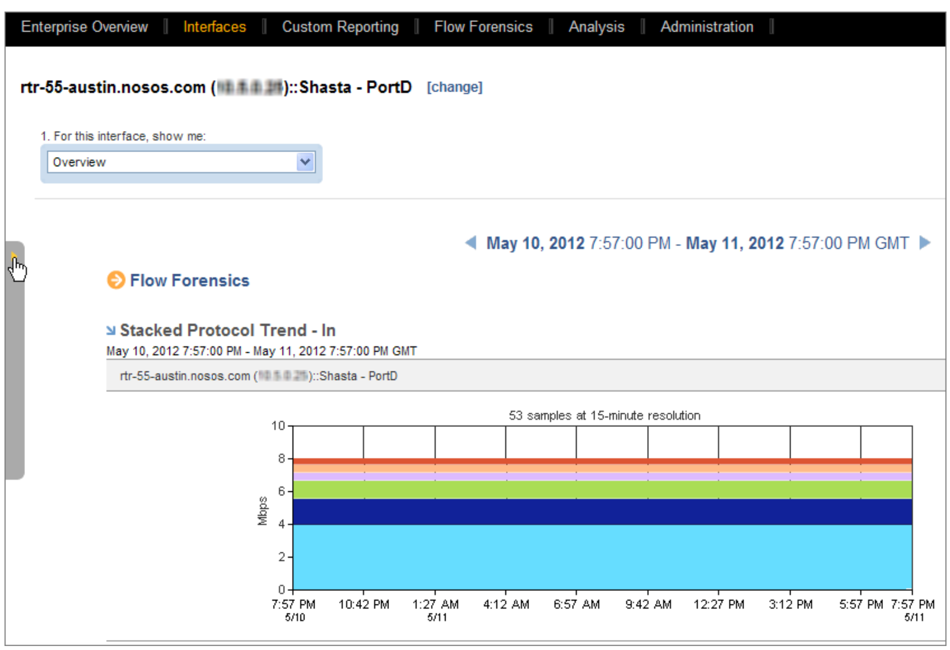
   The preview in the Timeframe pane updates to reflect your changes. This view helps you make sure you are capturing the needed data.
8. Click Close at the top-right corner of the pane.

   The options are hidden.

Set the Presentation Options

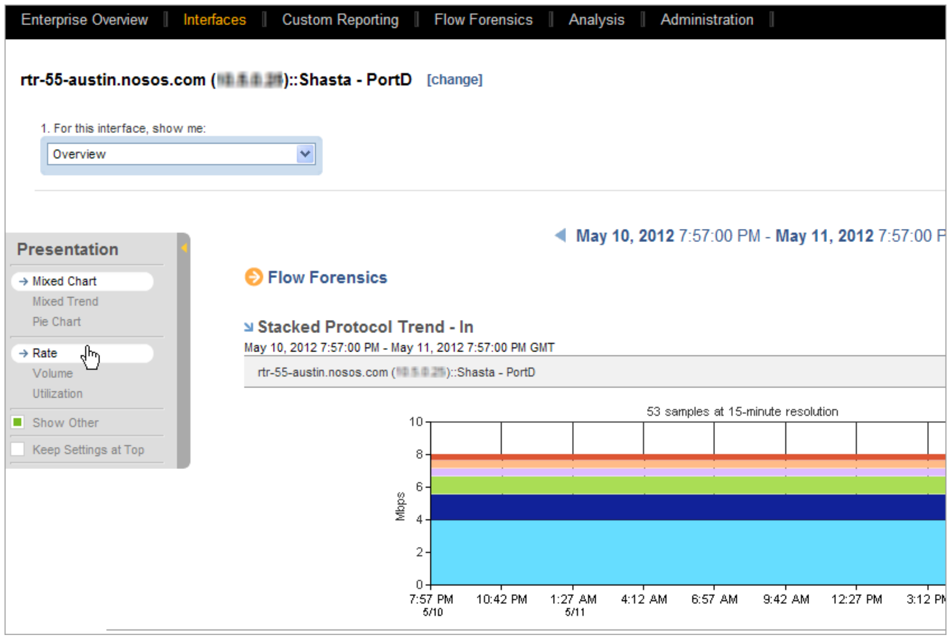
You can use the Presentation menu to choose the way data is presented in a drilldown Interface report.

To open the Presentation menu, click the gray bar on the left edge of the page, as illustrated in the following example.



The Presentation menu opens and gives you access to the options that are appropriate for the selected report type. The display options in the top part of the menu may include a one of the following report types:

- Trend Chart (see page 79)
- Pie Chart (see page 81)
- Summary Table (see page 82)



The selected presentation format determines which metric options are available. For example, if you choose a trend plot as the display type, you can choose rate, volume, or utilization for the metric.

Set the Display Option

Display options determine the presentation of the data in the report views. Each Interface report has a default display type, but you can use the Presentation options to change the display type. The display types that are available depend on the report.

- Stacked Trend Charts (see page 78)
  - Top N Protocols
  - Top N ToS
- Trend Charts (see page 79)
  - Top N Protocols
  - Top N ToS
  - Top N Hosts
  - Top N Conversations
  - Flows
- Mixed Chart (see page 84)
  - Overview
  - Capacity Planning
- Mixed Trend (see page 84)

  Overview
- Pie Charts (see page 81)
  - Overview
  - Top N Protocols
  - Top N ToS
  - Top N Hosts
  - Top N Conversations
- Summary Tables (see page 82)
  - Top N Protocols
  - Top N ToS
  - Top N Hosts
  - Top N Conversations
- Growth (see page 77)

  Growth Report
- Calendar Charts (see page 83)

  Utilization

Set the Rate, Volume, Utilization Option

Interface reports support the display of rate, volume, and utilization metrics. The metrics available for the report depend upon the type of data included in the report, and sometimes the selected display option.

Show Other Option

When you display a Top-N report for protocols, hosts, and conversations, you can include data for items other than the top ten. To include the other items, select the Show Other check box in the Presentation options. The data for the other protocols, hosts, or conversations is then rolled up and assigned a label of Other.

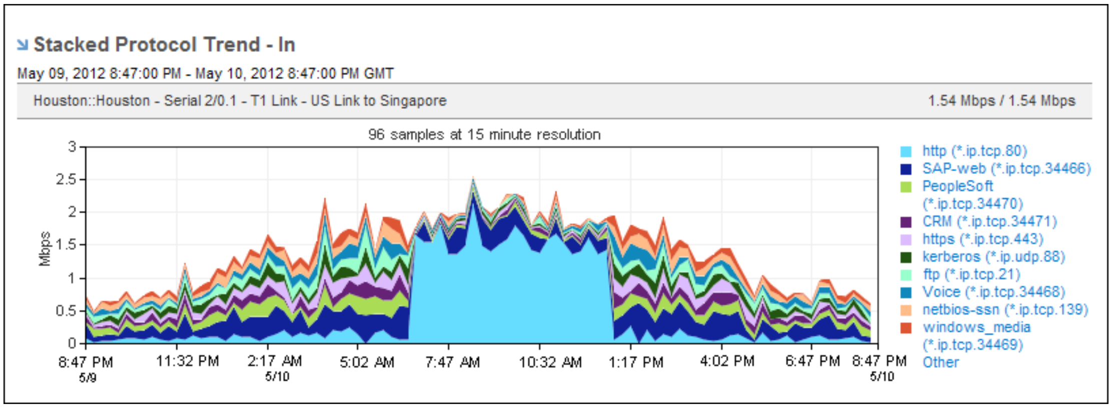
Analyze Interface Report Data

The Interface reports included in CA Network Flow Analysis include numerous view types that are designed to help you identify and analyze your network traffic. These real-time report views provide the last hours worth of performance data in a 1-minute granularity view by default. By using this data, operations center personnel can determine possible causes for new issues and can troubleshoot the issues quickly.

Protocol Trend Views

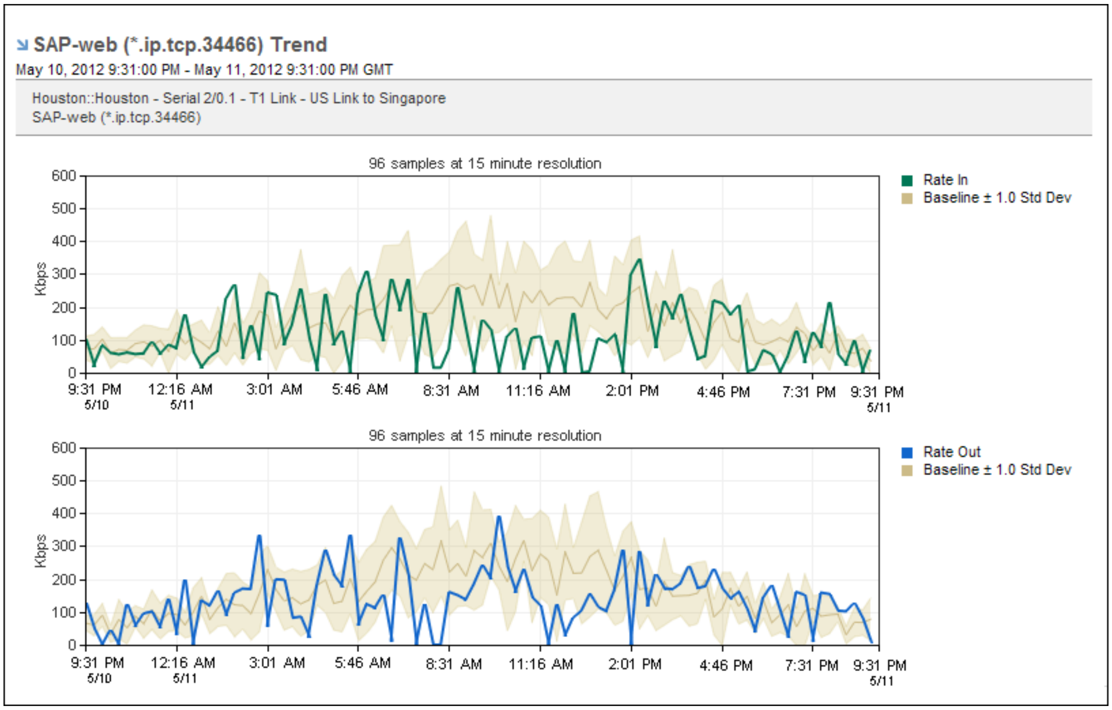
The data in Stacked Protocol Trend views helps you determine which type of traffic is consuming bandwidth on the interface. These views also show the way bandwidth consumption changed over the selected time period.

Click the name of a protocol in the legend to display a protocol report with interface data specific to that protocol.



The Stacked Protocol Trend views display data for the top ten protocols on the interface. To display data for protocols other than the top ten protocols, select Show Other in the Presentation menu. Data for protocols other than the top ten is rolled up and assigned a label of Other.

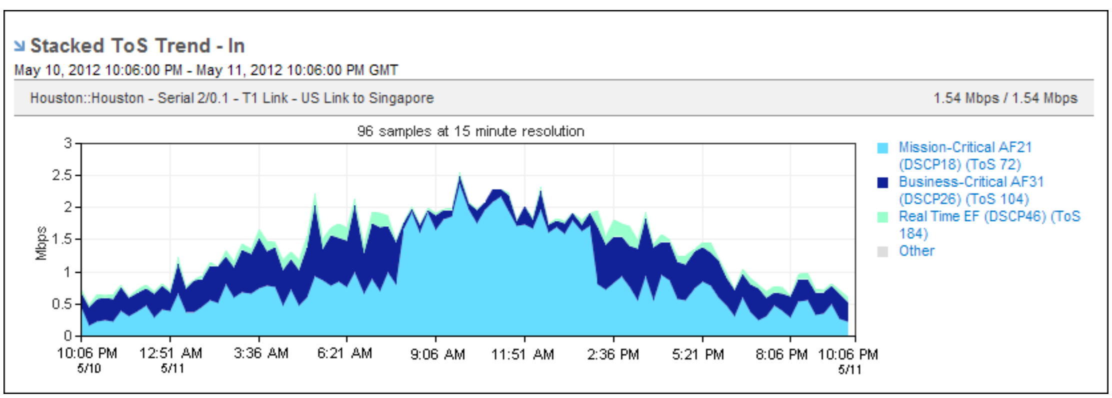
Change the presentation display to a trend chart to display each protocol as an individual trend plot. A trend chart is useful for comparing the protocol data patterns against a baseline.



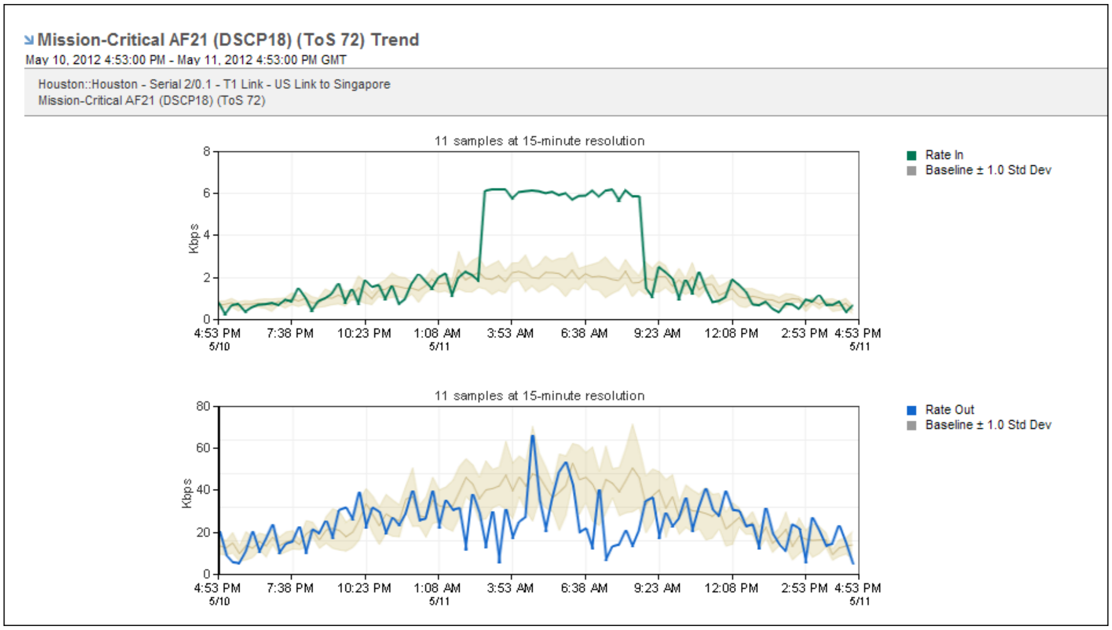
ToS Trend Views

The data in Stacked ToS Trend views helps you determine the amount of traffic on the interface by ToS designation and its change over the selected time period.

Click the name of a ToS in the legend to display the ToS report with interface data specific to that ToS.

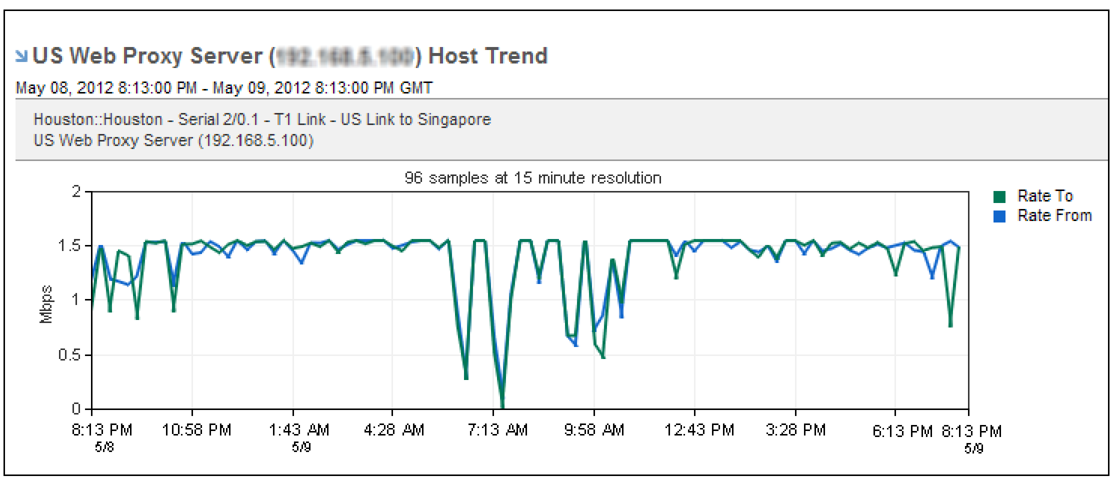


Change the presentation display to a trend chart to display each ToS as an individual trend plot. A trend chart is useful for comparing the ToS data patterns against a baseline.



Host Trend Views

Host data views are displayed as summary views (pie chart or summary table) by default. You can view individual trend plots for each of the hosts on the selected interface. To view individual trend plots, select the Trend Chart display type in the Presentation options for the Top-N Hosts report.

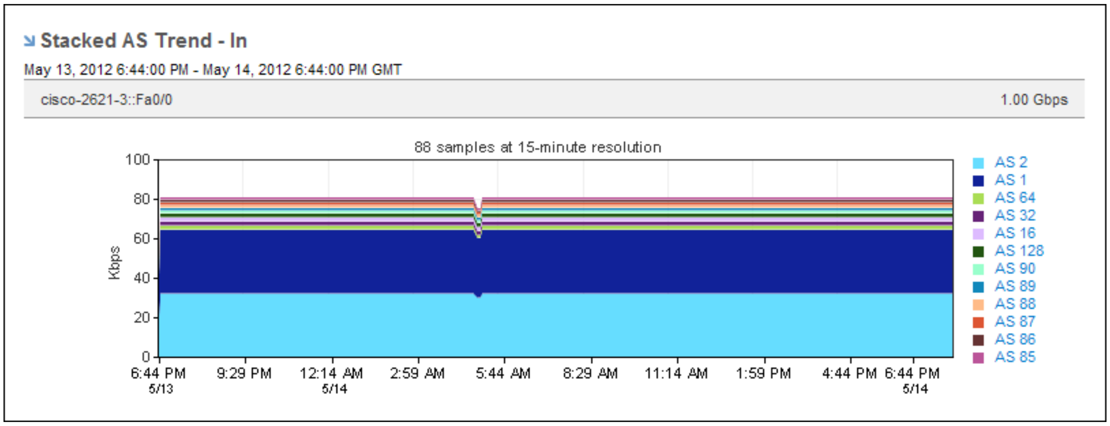


Host trend charts plot a line for each direction of the host traffic on the interface.

AS Number Trend Views

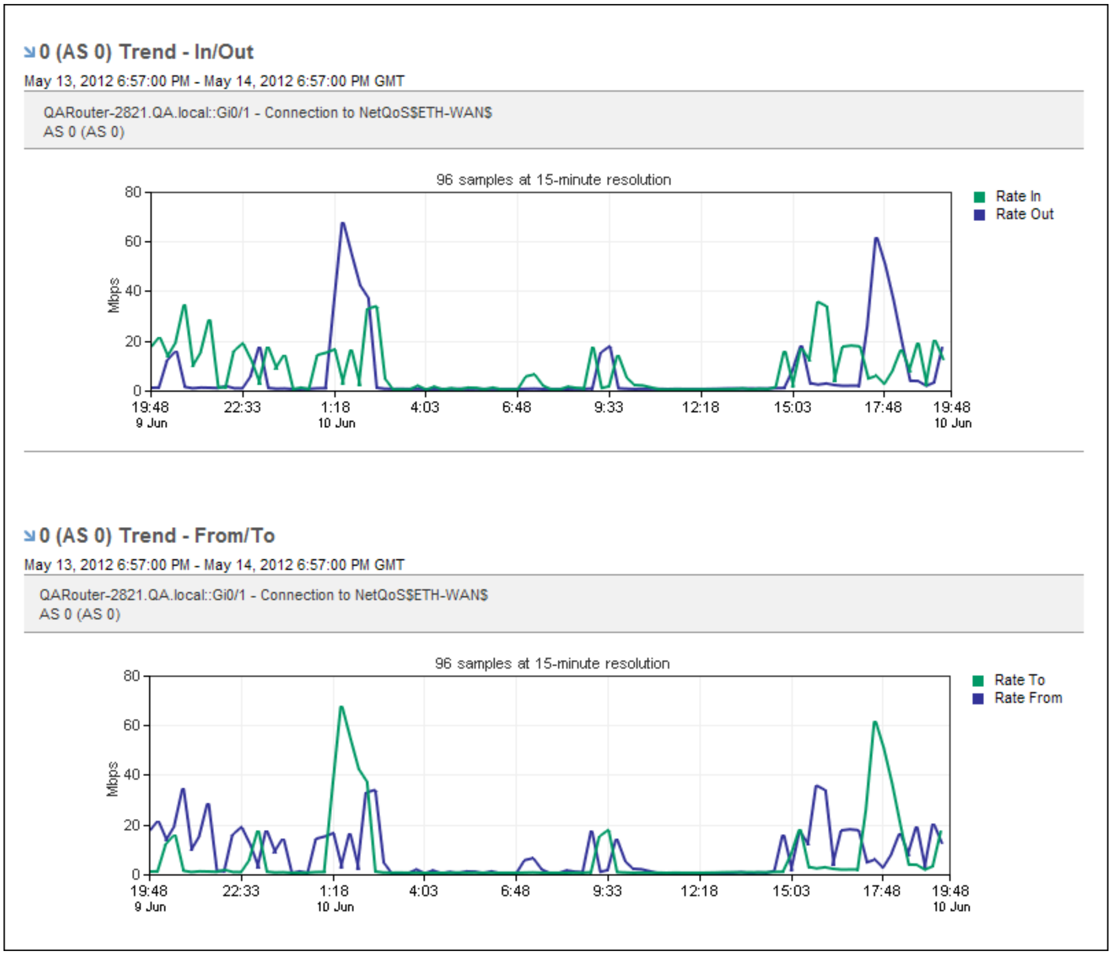
The data in the Stacked AS Trend views helps you determine the usage of numbered routes in a network. Use this AS (Autonomous System) Next Hop data to troubleshoot issues.

Click the name of an AS number in the legend to display an AS Next Hop Summary Table specific to that AS number.



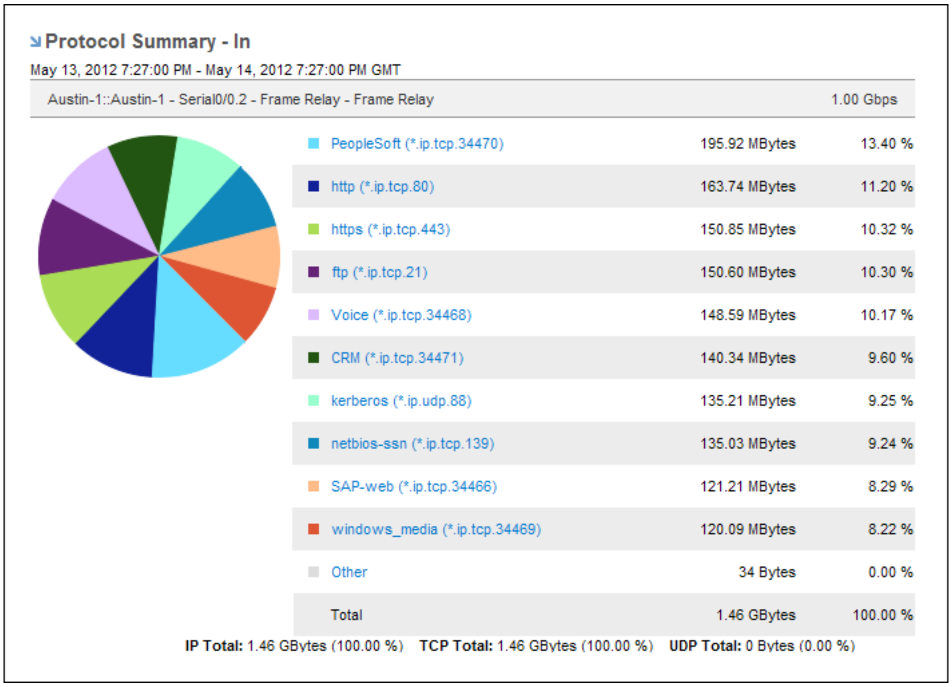
The Stacked AS Trend views display data for the top 10 AS numbers on the interface. To display data for AS numbers other than the top ten, select Show Other in the Presentation menu. Data for AS numbers other than the top ten is rolled up and assigned a label of Other.

Change the presentation display to a trend chart to display each AS number as an individual trend plot. A trend chart is useful for comparing the inbound and outbound AS number data patterns.



Protocol Summary Views

The Protocol Summary views can help you determine which protocols produce the most traffic over the interface during the selected time period. These views are an overview and provide a good starting point for troubleshooting issues.



Protocol Summary views are included on Interface pages for specific interfaces when the selected report type is Overview or Protocols, the protocol range is Top N Protocols, and the Presentation mode is Pie Chart.

You also can include Protocol Summary views in Custom Reports.

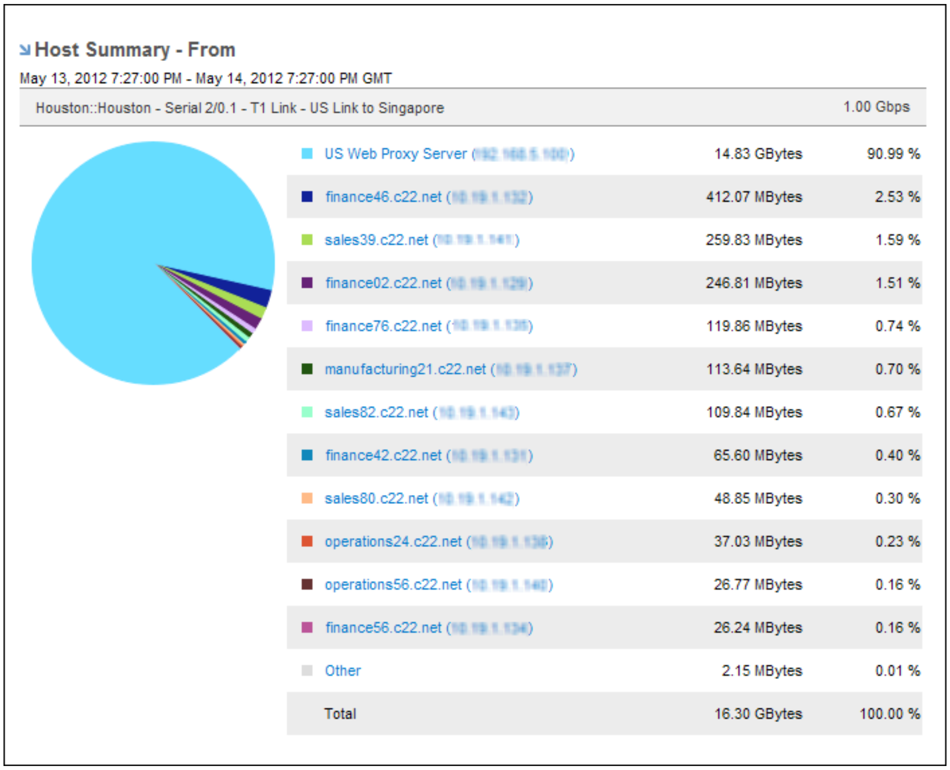
You can display Top N Protocols information on Interfaces pages in the following presentation modes:

- Pie charts of protocol summary data on Overview reports (inbound and outbound traffic) and Protocols report pages (inbound, outbound, and all traffic).
- Stacked trend charts of rate, volume, or utilization data on Overview and Protocols reports.
- Trend charts of rate, volume, or utilization data on Protocols reports.
- Summary tables of rate, volume, or utilization data on Protocols reports.

Host Summary Views

The Host Summary views can help determine which hosts have the highest traffic volume over the interface during a time period. Access to detailed host information helps pinpoint traffic sources and quickly determine whether traffic is normal. You may be able to resolve a problem quickly because you know which hosts are responsible.

Click the name of a host in a view to display the Hosts report with interface data that is specific to the host.



Host Summary views are included on Interface pages for specific interfaces when the selected report type is Overview or Hosts, the host range is Top N Hosts, and the Presentation mode is Pie Chart or Mixed Chart.

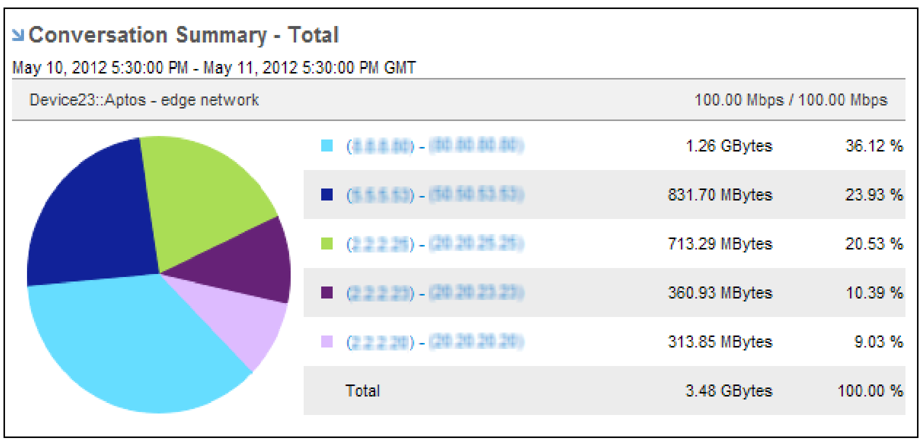
You also can include Host Summary views in Custom Reports.

You can display Top N Hosts information on Interfaces pages in the following presentation modes:

- Pie charts of host summary data on Overview reports (traffic from the host and to the host) and Hosts report pages (traffic from the host, traffic to the host, and all traffic).
- Trend charts of rate, volume, or utilization host data on Overview or Hosts reports.
- Summary tables of rate, volume, or utilization host data on Hosts reports. The data in a summary table provides additional data for the hosts, including Maximum To/From and Average To/From values.

Conversation Summary Views

The data displayed in the Conversation Summary views is designed to help you determine the conversations with the most volume of traffic over the interface during the selected time period. Use this information to troubleshoot issues and determine if there is a saturation issue or an area of poor performance.

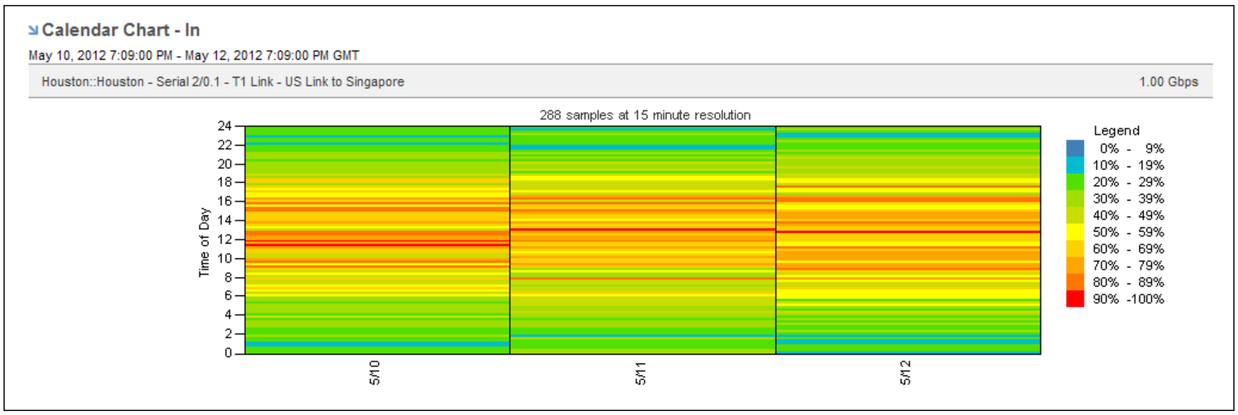


Click the name of a conversation in the view to display the Conversations report with interface data specific to that conversation.

These views display data for the top ten conversations on the interface by default. To display data for other conversations, select Show Other in the Presentation menu. Data for conversations other than the top ten is rolled up and assigned a label of Other.

Utilization Calendar Charts

The Calendar Chart helps you detect utilization issues on an interface, determine when the problem started, and pinpoint the time of day the problem occurs. In the example chart, you can see that the utilization level for this interface is often at or above 70 percent. The high utilization level means that the performance of the applications sending data over this link is likely to be degraded at those times. Calendar Charts can also reveal patterns from day to day and from week to week so that you can determine whether a problem regularly occurs at a particular time.



Growth Reports

The Growth Report includes a specialized summary table. The table helps to identify applications that consume increasing amounts of bandwidth over time. You also can use the table data to determine whether future growth requires additional capacity. Display data for the previous six weeks or the previous six months and apply any available time filters. You can choose the units to display (such as bits per second) and whether to include inbound traffic, outbound traffic, or all traffic.

Through week of: May 13, 2012 **Time Filter:** None

Growth Report - In

BethsRouter.QA.local (10.0.7.9)::Gi0/0 - matt's drop test 1.00 Gbps

Protocol	April 08, 2012	April 15, 2012	April 22, 2012	April 29, 2012	May 06, 2012	May 13, 2012	Growth
ip (*)	635.15 Kbps	639.74 Kbps	624.17 Kbps	626.52 Kbps	642.88 Kbps	685.92 Kbps	1.19 %
tcp (*.ip)	635.15 Kbps	639.74 Kbps	624.17 Kbps	626.52 Kbps	642.88 Kbps	685.92 Kbps	1.19 %
ftp (*.ip.tcp.21)	52.57 Kbps	52.71 Kbps	50.88 Kbps	53.10 Kbps	52.13 Kbps	52.31 Kbps	-0.04 %
http (*.ip.tcp.80)	59.30 Kbps	59.05 Kbps	59.91 Kbps	59.32 Kbps	57.08 Kbps	116.73 Kbps	13.52 %
kerberos (*.ip.udp.88)	51.96 Kbps	53.63 Kbps	56.29 Kbps	53.22 Kbps	53.96 Kbps	52.86 Kbps	0.13 %
netbios-ssn (*.ip.tcp.139)	47.25 Kbps	48.05 Kbps	45.91 Kbps	48.29 Kbps	48.03 Kbps	48.04 Kbps	0.38 %
https (*.ip.tcp.443)	63.03 Kbps	59.36 Kbps	59.22 Kbps	56.75 Kbps	61.74 Kbps	59.95 Kbps	-0.49 %

By default, the table is sorted by the total rate of the most recent week. You can sort according to any column by clicking a column heading. You also can change from descending to ascending order by clicking the triangle next to the column heading.

Display Charts and Graphs

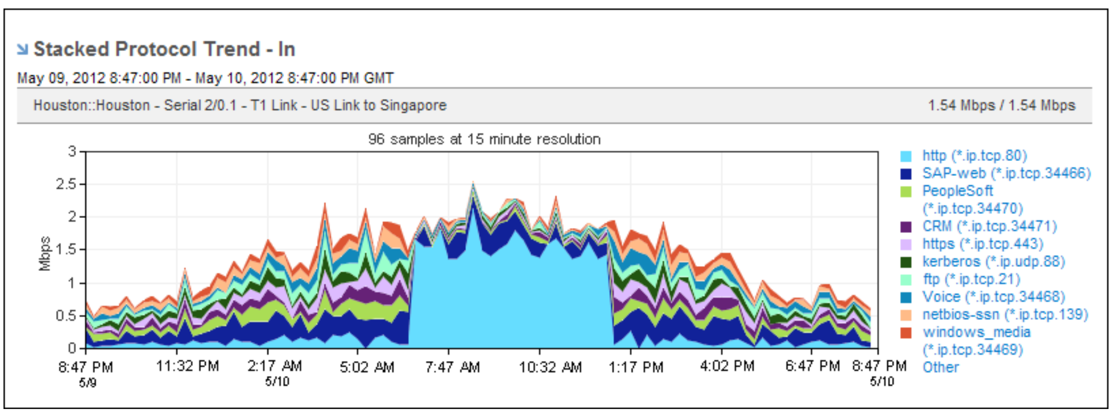
When you view information about a specific interface, host, conversation, or protocol, several types of report presentations are available for displaying the data such as charts, graphs, and tables. Each report type is suited to particular data types and situations.

This section contains the following topics:

Stacked Trend Charts

The stacked trend plots for Protocol and ToS summary data are excellent for establishing the types of applications that use the most bandwidth for a particular interface. Stacked trend plots also help you compare the use of each application with others.

The legend on the right of the stacked trend chart lists the protocols or ToS values so you can see the amount of data that is transferred for each category. In the example, notice the surge of inbound web (http) traffic.



The example report duration is daily. You might want to change the duration to monthly to determine whether the surge is a one-time occurrence or occurs regularly at a particular time. By default, views and reports show the most recent 24 hours of data. To change the time period or apply a time filter, use the Timeframe options.

See Also:

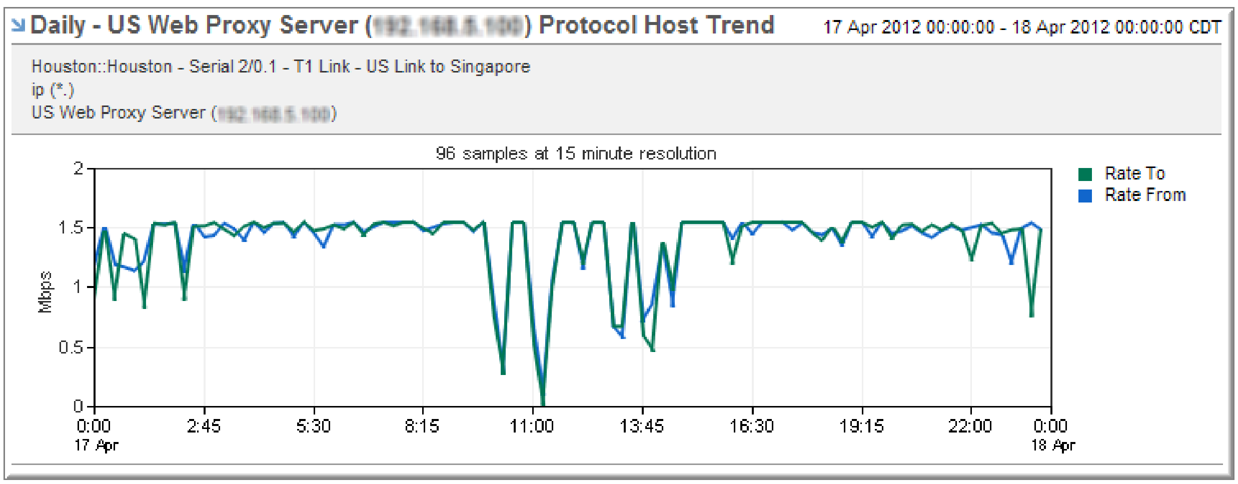
Set the Time Period for a Report (see page 63)

Trend Charts

The trend chart presentation format is available for interface data that is filtered by Protocol, ToS, Hosts, and Conversations. When you choose the trend chart presentation for a Protocol Summary, trend plots are shown for each of the top protocols.

Use trend charts to see traffic spikes and dips and to determine whether those patterns are consistent with your expectations for the interface. Click the name of a protocol, host, or conversation to view a more detailed trend chart.

By default, views and reports show the most recent 24 hours of data. To change the time period or apply a time filter, use the Timeframe options.



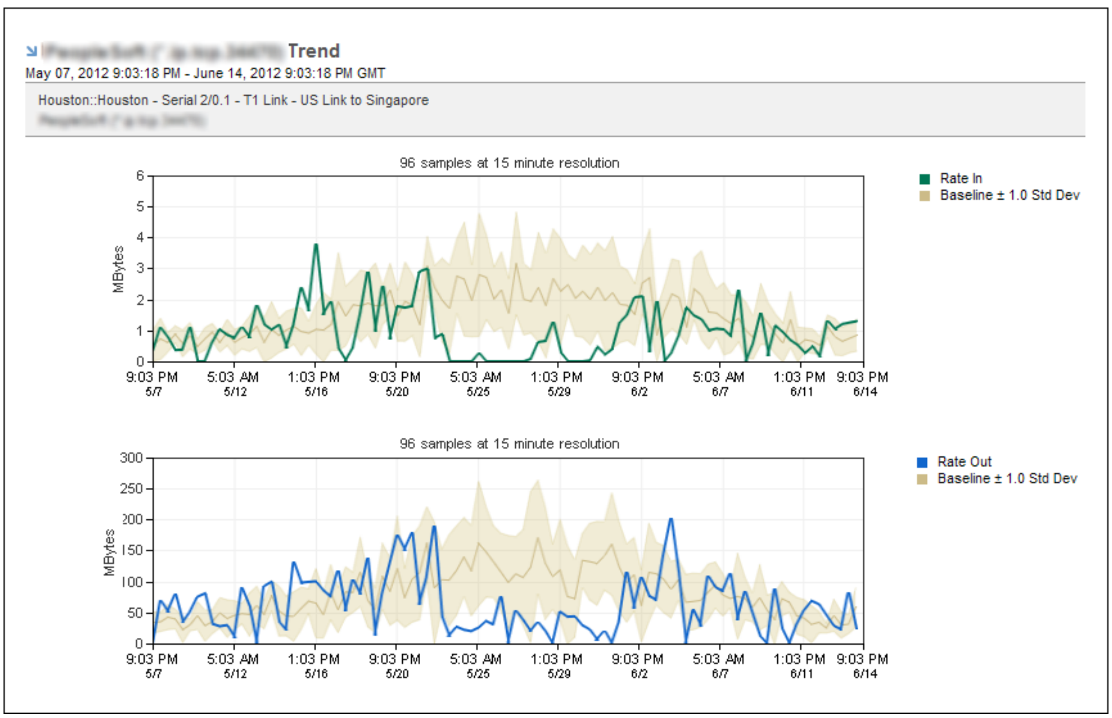
The preceding example shows a trend chart on the Interfaces page with the following settings:

- Report type: Protocols
- Protocol range: Specific protocol
- Report subtype: Hosts
- Hosts range: Top N Hosts
- Presentation type: Trend Chart
- Measurement type: Rate

Baselines

Protocol data views also support baselines for trend plots of some protocol, ToS and flow views. To display baselines, choose from the following settings:

- Protocols report type, Top N Protocols range, Trend Chart presentation type, Show Baselines option selected.
- ToS report type, Top N ToS range, Trend Chart presentation type, Show Baselines option selected.
- Flows report type, Show Baselines option selected.



The preceding example shows trend plots on the Interfaces page with the following settings:

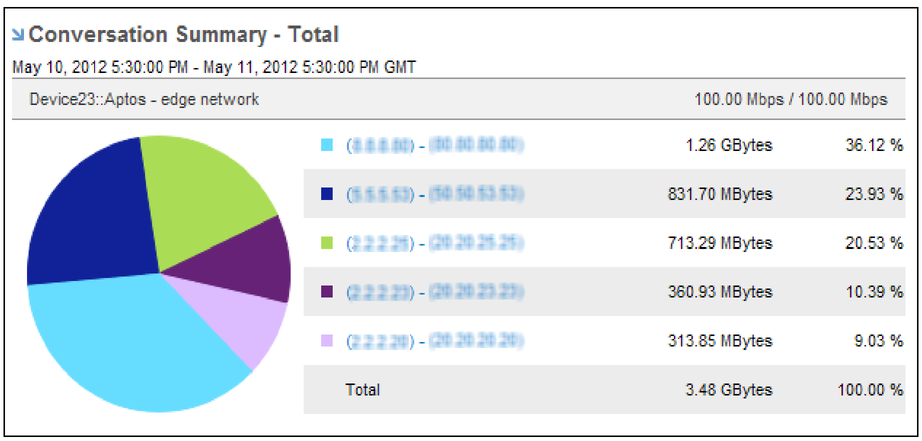
- Report type: Protocols
- Protocol range: Top N Protocols or a specific protocol with Overview as the report subtype
- Presentation type: Trend Chart or Mixed Chart
- Measurement type: Rate
- Show Baselines: Selected

See Also:

Set the Time Period for a Report (see page 63)

Pie Charts

Pie charts provide a visual comparison of the protocols, ToS, hosts, or conversations on the interface, making it easy to see which ones use the most or least amount of bandwidth. Pie charts also include a listing of numeric data.



By default, views and reports show the most recent 24 hours of data. To change the time period or apply a time filter, use the Timeframe options.

See Also:

Set the Time Period for a Report (see page 63)

Summary Tables

A summary table is a good presentation choice when you want Protocol or ToS summary data that can be easily sorted and saved to CSV format for use in Microsoft Excel. Summary tables are available for the following Top N report types on Interfaces pages: Protocols, ToS, Hosts, Conversations, and AS Numbers.

In the following example, the Protocol Summary Table lists protocols from the highest to lowest flow volume. You can change the sort order of the list by clicking a column name. Click again to change the order from ascending to descending. The sort column is marked with a blue arrow.

Protocol Summary Table

May 07, 2012 9:03:18 PM - June 14, 2012 9:03:18 PM GMT

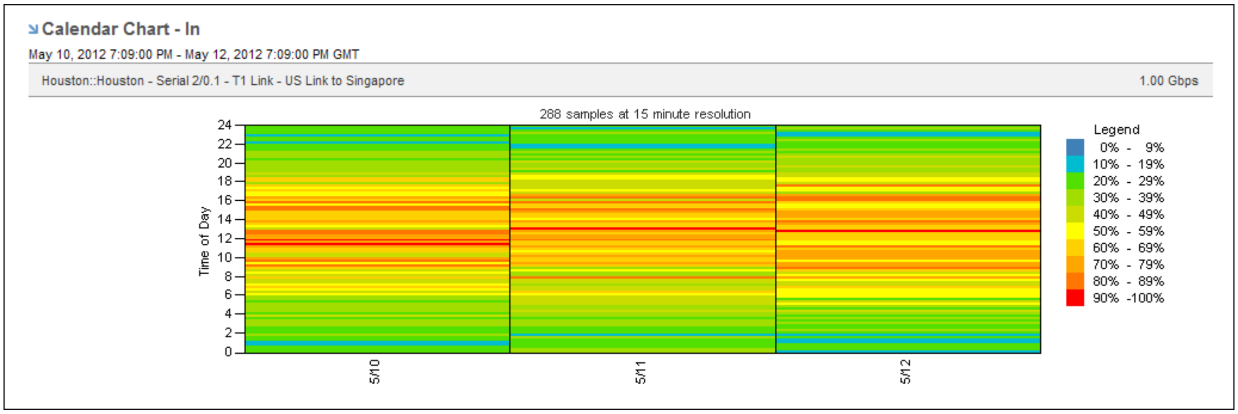
Austin-1::Austin-1 - Serial0/0.2 - Frame Relay - Frame Relay

Protocol Name	In	Out	Total ▼
ip (*)	14.97 MBytes	149.70 MBytes	164.67 MBytes
all (*)	14.97 MBytes	149.70 MBytes	164.67 MBytes
icmp (*.ip.1)	14.97 MBytes	149.70 MBytes	164.67 MBytes
tcp (*.ip)	0 Bytes	0 Bytes	0 Bytes
udp (*.ip)	0 Bytes	0 Bytes	0 Bytes
ipv6 (*)	0 Bytes	0 Bytes	0 Bytes

Calendar Charts

When you choose to view Utilization summary data for an interface, the data is displayed as a calendar chart. You can show inbound, outbound, or total traffic in the chart, choose the month to display, and apply any available time filters.

Excessive utilization of an interface is shown as a block of red extending across the column for the day and rows indicating the time of day. Low utilization is shown in green. Varying shades of each color show the severity degree. The color for each severity range corresponds to a range of utilization values (calculated as percentages of total capacity). The legend explains how the colors are used in the calendar chart.



The calendar chart helps you detect utilization problems with the selected interface, determine when the problem started, and pinpoint the time of day the problem occurs. In the example, the interface utilization level is often at or above 70 percent. The high utilization level means that the performance of the applications sending data over this link is likely to be degraded at those times. Calendar charts can also reveal patterns from day to day and week to week so that you can determine whether a problem occurs regularly at a particular time.

Mixed Display Options

The Interface Overview report has additional presentation display types to accommodate a wider array of data--protocol, ToS, host, and conversation data. By using one of the mixed presentation types, you can view the report with the most useful presentation for each report view.

Mixed Chart

When the Mixed Chart is selected in the Presentation options, the report page displays both stacked trend and pie charts. Protocol and ToS data is presented using stacked trend charts. Host and conversation data is presented using pie charts.

Mixed Trend

When the Mixed Trend is selected in the Presentation options, the report page displays both stacked trend and trend charts. Protocol and ToS data is presented using stacked trend charts. Host and conversation data is presented using standard trend charts.

Chapter 4: Custom Reports

Custom Reports can answer specific technical and business questions in your environment, such as the following questions:

- Which applications are used most heavily in the regional offices?
- What is the total volume of traffic for global operations?
- Does the new data center have the capacity to handle additional servers?

To get started, select Custom Reporting from the NFA console menu.

The Create New Report page opens, which lists the existing reports. If you have the required permissions, the page contains functions for creating, managing, and running Custom Reports. You can generate updated versions of reports, add new report definitions, and change report settings.

The Create New Report page includes the following functions:

Saved Report Folders:

- *New:* Create a report folder.
- *Rename:* Change the name of a report folder.

Reports:

- *New:* Create a Custom Report definition.
- *Run:* Regenerate the data for one or more Custom Reports.
- *Move to Folder:* Change the parent folder for one or more report definitions.
- *Cancel:* Stop one or more reports from running.

This section contains the following topics:

Report Types and Usage

Custom Reports can show a variety of data, including the following types of information:

- *Interface:* View the total volume of traffic that is generated across particular interfaces.
- *Protocol:* Discover which applications are used by various business groups.
- *ToS:* View the distribution of applications by type of service (ToS).
- *Host:* View the activity or usage levels for applications on a server.
- *Conversation:* View the top conversations across interfaces or for a particular protocol.

Report on Network Utilization

Create a custom interface report to select the included interfaces so that you can report on network traffic by:

- Location, such as global, regional, country, state, and individual offices
- Business unit or department, such as Accounting, Marketing, and Sales
- Specific interface groups, such as EMEA, WAN, ATM interfaces, and Ethernet interfaces

Report on Application Distribution

Create a custom protocol report to focus on the applications and protocols in use in your organization. You can generate protocol distribution reports to:

- Show the applications that are used in each region.
- Understand which applications are used the most frequently.
- Determine whether any applications can be removed from the network or de-prioritized.
- Verify that rogue applications are not active on the network.

Report on ToS Distribution

Create a custom ToS report to identify the ToS categories for the most heavily utilized applications in your environment. You can generate ToS reports to:

- Understand which ToS is most widely used in your environment.
- Show the ToS categories in use in each regional location.

Report on Server Activity

Create a custom host report to identify the amount of traffic sent to and from particular servers in your organization. You can generate host reports to:

- Verify that application servers are utilized properly.
- Determine whether a server is vulnerable to any security risks.
- Determine whether a specific data center can handle additional servers.

Set Up Custom Reports

Depending on your user account settings, you may be able to perform a number of actions for Custom Reports:

- View existing reports that have been run.
- Run existing report definitions on demand.
- Set up a schedule for running and sending reports by email (Typically for Administrators and Power Users only).
- Create a Custom Report by stepping through the Custom Report wizard.
- Create a Custom Report by using an existing report as a starting point.
- Make changes to the following parts of an existing report definition:
  - Report name, parent folder, and description
  - Report summary types: interface, ToS, protocol, host, and conversation
  - Presentation views used for the summary data
  - Reporting period, data resolution, and time filter
  - Report recurrence schedule and email recipients
- Set the following elements to be included or excluded as report data sources:
  - Interfaces or interface groups
  - Protocols and ToS values
  - A host and subnet
  - A conversation
  - A subnet mask for aggregating data

This section contains the following topics:

Create a Custom Report

Use the Custom Report wizard to create a Custom Report step by step. The wizard guides you to select many options, such as the specific items on which to report, the presentation views, the reporting period, and, optionally, a schedule for running the report automatically.

Follow these steps:

1. Select Custom Reporting from the NFA console menu.
2. Click Create New Report.

   The Custom Report wizard opens and shows the options 'Create a new custom report" and 'Copy an existing report.'
3. Click 'Create a new custom report,' then click Next.

   Note: Alternatively, you can select 'Copy an existing report option' and modify an existing report.

   The Select Interfaces page of the Custom Report wizard opens.
4. Click one of the following options to select interfaces or interface groups for the report:
   - Add Interface Filter: Select one or more individual interfaces from the Interface Index.
   - Add Interface Group Filter: Select one or more interface groups from the Interface Group Selection list.

   The selected interfaces are added to the interface list.

   See Also: Select Interfaces and Interface Groups (see page 93)
5. Accept the default value or set the Inclusion value for each interface or interface group: 'Include' sets the program to use report data from the interface or group. 'Exclude' sets the program to bypass data from the interface or group.
6. Click next when you have specified all the interfaces to use for report data.

   The Specify Filters & Rollup page opens.

7. (Optional) Specify the settings on the Specify Filters & Rollup page: Specify filters for gathering or excluding report data, then set the Inclusion value for each filter to Include or Exclude:

   - Add Protocol Filter: Select individual protocols from the Protocol Index.
   - Add Protocol Group Filter: Select protocol groups from the Protocol Group Index.
   - Add ToS Filter: Select individual ToS values from the ToS Index.
   - Add ToS Group Filter: Select ToS groups from the ToS Group Index.
   - Add Host Filter: Specify a host IP address and mask.
   - Add Conversation Filter: Identify the IP addresses and mask for each party in the conversation pair.

   See Also: Specify Custom Report Filters (see page 97)

8. Accept the default value or set the Inclusion value for each filter you specified:

   - Include: For each filter listed, use only the data of the listed type. For example, use data from the listed protocol group, but not from other protocol groups.
   - Exclude: For each filter listed, do not use the data of the listed type. For example, do not use data from the listed protocol group, but do use data from other protocol groups.

9. Select at least one type of summary data to make available for display in the report. Your selections make various report sections available in a later wizard page, but do not require you to include them. Select one or more check boxes in the Summary Types section:

   - Interface Summary: For example, view the volume of traffic for particular interfaces.
   - ToS Summary: For example, view the distribution of applications by type of service (ToS).
   - Protocol Summary: For example, view which applications are used by each business group.
   - Host Summary: For example, view the application activity or use levels for a server.
   - Conversation Summary: For example, view a list of the top conversations across interfaces for a particular protocol.

10. (Optional) Specify a mask for rolling up data by subnet, if you specified a host or conversation filter: Click the ‘Rollup data using this mask’ check box, then select a mask from the list.

11. Click Next when you have finished specifying options.

    The Configure Layout page opens.

12. (Optional) Add one or more report sections to the report page layout:
    - Select a value from the Summary Type list.

      Note: The list of available summary types is limited to the summary types you specified on the previous page.
    - Select a value from the Presentation list and the Measurements list (if you selected the presentation type as Table, Trend Chart, or Stacked Trend Chard).
    - Click Add.

    The new section is added at the end of the report.
13. (Optional) Delete one or more report sections from the report page layout by clicking the X icon next to the section name.
14. (Optional) Re-order the report sections in any of the following ways:
    - Drag and drop the section.
    - Click the Top icon to move the section to the beginning of the report.
    - Delete sections and add them again in the correct order.
15. Click Next when the report sections are listed correctly in the Added Reports list.

    The Specify Schedule page opens.
16. Select the type of reporting period from the Period list in the Specify Schedule page:
    - Duration: Limits the reporting period to an amount of time, ending at the time the report runs. Enter the number of time units in the Last box.

      Select a unit of time from the list (days, weeks, months, or years).

      You can set up a schedule for a Duration report or you can run the report on demand.
    - Start and end: Specify a Start date and End date either by using the calendar icons or by selecting hour and time values from the lists. Hour values are expressed in 24-hour format.
17. Enter the number of time units in the Resolution box. Select a value from the list for Start and End.

    A Start-and-End report runs on demand and cannot be set up to run on a schedule.
18. Accept the default setting or enter the number of time units in the Resolution box. Select a unit of time from the list (minutes, hours, days, weeks, months, or years).
19. (Optional) Select a time filter from the list, if your Administrator has created a time filter that is appropriate for your report.

20. (Optional) Select the Schedule check box and specify the following options:
    - Schedule: Select the type from the Schedule list (Daily, Weekly, Monthly, Quarterly, Yearly).
    - Daily: Select the day or days of the week, time of day, and time zone for report generation.
    - Weekly: Select the day of the week, time of day, and time zone for report generation.
    - Monthly: Select either the date or the week in the month and day of the week. Select the time of day, and time zone for report generation.
    - Quarterly: Select a month that ends the first reporting quarter, time of day, and time zone.
    - Yearly: Select a month that ends the first reporting year, time of day, and time zone.
21. (Optional) Enter the email addresses of all the report recipients in the format name@domain. Separate multiple addresses with a comma or semi-colon.

    The options in the Recurrence section are available only if you select 'duration' as the reporting period type.

    See Also: Define Custom Report Periods and Schedules (see page 105)
22. Click Next when the Specify Schedule page settings are complete.

    The Enter Name page opens.
23. Identify the report and its location, then click Next:
    - Folder: Accept the default folder or select a different folder to contain the new report.
    - Name: Give the new report a name, which appears in the Reports list.
    - Description: (Optional) Add a description to help identify the report. For example, use the description to identify scheduled reports and to indicate distinguishing features of Duration reports.

    The Summary & Submit page opens.
24. Review the information in the Report Definition Summary.
    - *Save:* Save the report definition and return to the Custom Reporting page.
    - *Save and Queue Report:* Queue the report to run and return to the Custom Reporting page.

Review Settings for Custom Reports

You can review the Report Definition Summary of a Custom Report to ensure that the report definitions are appropriate. From the Report Definition Summary page, you can access the Custom Report Wizard pages and can modify the report.

Follow these steps:

1. Click the name of the report you want to modify in the Reports list on the main Custom Reporting page.

   Note: Select a report that is not currently in execution--a report that does not have the status Running.

2. Display the Report Definition Summary page of the Custom Report wizard, if it is not already open. The steps for displaying the Report Definition Summary are dependent on the status of the report you select:

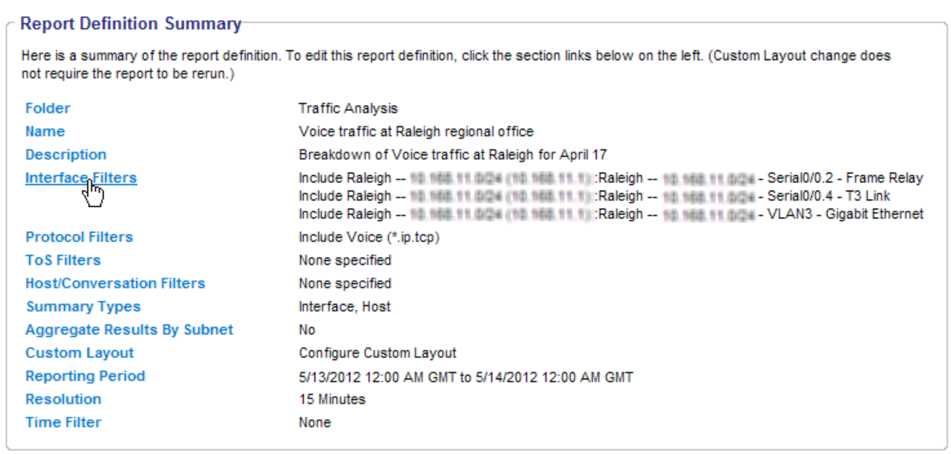
   - Complete: The report runs and opens. Click the Edit button on the left side of the Report Settings section to display the Report Definition Summary.
   - Defined: The Report Definition Summary opens automatically.

3. Review the current report settings and click the name of the section you want to modify.

   For example, click Interface Filters, Protocol Filters, or ToS Filters to add new filters or change existing filter settings.

4. The associated page opens, giving you access to the options that you can change.

   Also See: Set Up Custom Reports (see page 87)



5. When the changes are complete, click Queue Report to regenerate the report with the new settings.

   The Reports list opens and the modified report shows a status of Queued. When the report has been regenerated and is ready to be viewed, the status displays as Complete.

   When you modify a scheduled report, it is queued to be generated at the next scheduled runtime.

Add, Delete, and Exclude Interfaces for Custom Reports

To define a Custom Report, you must specify at least one interface or interface group to supply data for the report. In the Select Interfaces page of the Custom Report wizard, you can select interfaces from the Interface Index or you can select interfaces by group. When you select an interface group, all interfaces in the group and any child groups are included in the report.

You can save the Custom Report definitions you create and edit existing reports as your reporting needs change. You can delete interfaces or temporarily exclude interfaces from the report.

Select Interfaces and Interface Groups

Before you specify other settings for a new Custom Report, you must add at least one interface or interface group. The Select Interfaces page provides options for specifying individual interfaces and interface groups, which you can use to create useful reports quickly.

Note: Custom groups are defined and managed in CA Performance Center. If CA Network Flow Analysis is not registered as a data source for CA Performance Center, the only available interface groups are the default groups that are defined by type.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report that you want to change in editable mode: Click the name of the report. If the report has been run previously, it will run again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.

   Note: You can edit a report that appears in the Reports list as long as it has a status other than Running.

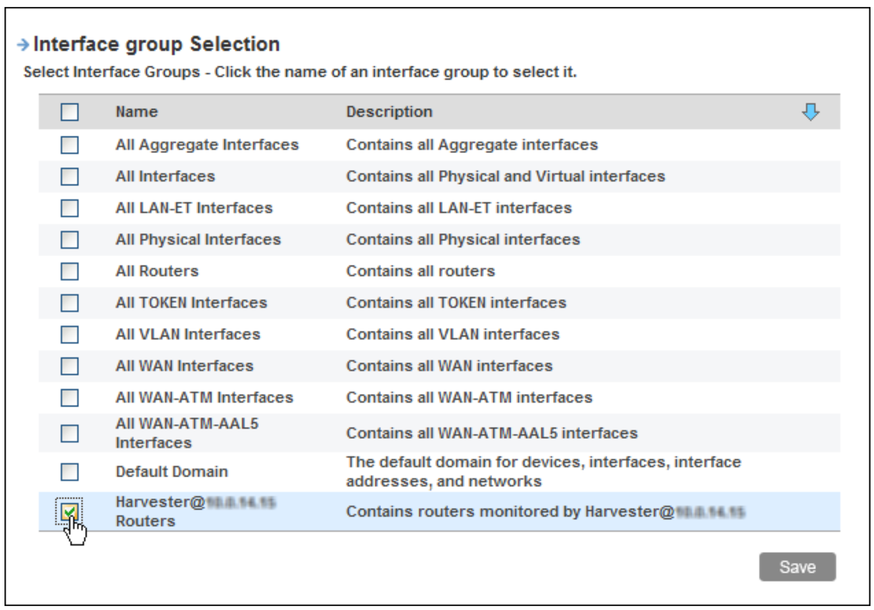
3. (Optional) Click Add Interface Filter and select one or more interfaces to include in the report. You can add individual interfaces, interface groups, or both. You must specify some kind of interface filter, however.

   The Select Interfaces page of the Custom Report wizard opens.

   - Expand the interface list for the desired router, then select the check box for each interface you want to include in the report.
   - Click Submit to add all selected interfaces to the list and close the Interface Index.

4. (Optional) Click Add Interface Group Filter and select one or more interface groups to include in the report. You can add individual interfaces, interface groups, or both. You must specify some kind of interface filter, however.

   The Interface Group Selection page opens.



   - Select check boxes for the groups to add from the Interface Group Selection list.
   - Click the blue arrow near the upper right corner to jump to the bottom of the list, then click Save.

   You return to the Select Interfaces page of the Custom Report wizard. The Select Interfaces list now includes the interfaces and interface groups you selected.

5. Check the list of interfaces and interface groups and their Inclusion values.

   Note: Items that have a value of Include are in the report. You can temporarily remove an interface or interface group from the report by setting the Inclusion value for that item to Exclude.

6. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

   Note: To save the report definition, you must have at least one interface set to be included.

7. (Optional) Return to the report list by clicking one of these buttons:

   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the current report to run and return to the Custom Reporting page.

Delete Interfaces and Interface Groups

You can delete filters from Custom Report definitions as needed. When you delete interfaces or interface groups from a report definition, those interfaces are not included in the report data.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.

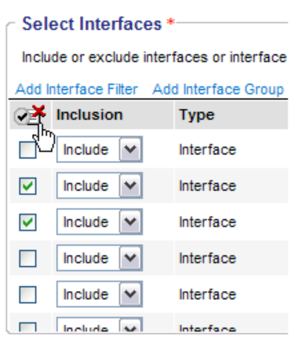
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.

3. Click Interface Filters to open the Select Interfaces page of the Custom Report wizard.

4. Select the check box in the interface list next to each interface you want to delete.

5. Click the Remove Selected Filters icon that is located above the check boxes.



6. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

   Note: If you select a scheduled Custom Report that uses a deleted interface or interface group, the "Unknown interface group" message is displayed. If all the associated interfaces or interface groups are deleted, the report will not run.

7. (Optional) Click one of the following buttons to return to the report list:

   - Return to Listing: Return to the report list on the Custom Reporting page.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Exclude Interfaces or Interface Groups Temporarily

To remove interfaces from a report temporarily, set the Include value for the interfaces to Exclude. For example, suppose that part of your network is temporarily offline and the offline interfaces distort the report data. You can exclude the interfaces, then change the value back to 'Include' when the interfaces are online again.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.

3. Click Interface Filters to open the Select Interfaces page of the Custom Report wizard.
4. In the Select Interfaces list, set the Inclusion option to Exclude.
5. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

6. (Optional) Check your changes in the summary, then click one of the following buttons to return to the report list:

   - Return to Listing: Return to the report list on the Custom Reporting page.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Specify Custom Report Filters

Use Custom Report filters to determine the type of data to include, such as protocol, ToS, host, and conversation data.

This section contains the following topics:

Available Report Summary Types for Selected Filters

You can use various filters to limit the data in a Custom Report, but not all filter combinations are valid. For example, you can filter report data to show either hosts or conversations, but not both.

Valid filter combinations are shown in the list that follows. The filter or combination of filters you apply to a report determine which summary types are available, which are also included in the list:

- *No filters:* Interface, ToS, Protocol, Host, and Conversation summaries
- *Protocol filters:* Interface, ToS, Protocol, Host, and Conversation summaries
- *ToS filters:* Interface, ToS, Protocol, Host, and Conversation summaries
- *Protocol and ToS filters:* Interface, ToS, and Protocol summaries
- *Protocol and host filters:* Interface, Protocol, Host, and Conversation summaries
- *Protocol and conversation filters:* Interface, Protocol, Host, and Conversation summaries
- *ToS and conversation filters:* Interface, ToS, Host, and Conversation summaries
- *ToS and host filters:* Interface, ToS, Host, and Conversation summaries
- *Conversation filters:* Interface, ToS, Protocol, Host, and Conversation summaries
- *Host filters:* Interface, ToS, Protocol, Host, and Conversation summaries

Rules for Utilization Measurements

The following rules apply to utilization measurements:

- Inbound and outbound interface speeds must be set.
- Utilization is applicable only for interface, ToS, and protocol views and for data that has no host or conversation filter applied.
- Protocol or ToS utilization is limited to a single interface.
- Total utilization is not available.

Add, Delete, or Change Protocol Filters

You can add a protocol filter to include report data for the protocols defined in your CA Network Flow Analysis installation.

You can add a protocol group filter to restrict reported data to one or more protocol groups. Protocol groups are useful for streamlining Custom Report definitions. For example, protocol groups can help users easily report on network traffic that custom applications generate. The Administrator can create a group for each of the applications that includes the range of ports that are used for the application. Users can also choose from the default protocol groups that are provided automatically.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click Protocol Filters to open the Specify Filters & Rollup page of the Custom Report wizard.
4. (Optional) Select one or more individual protocols to include: Click Add Protocol Filter

   The Protocol Index dialog opens.

- (Optional) Select the display mode for the protocols from the ‘Select by’ list:
  - Protocol Name: View the protocols groups by name, either divided into alphabetized lists or displayed together in the All list (Default setting).
  - Port Number: View the protocols in groups by port number. Click the arrows to expand the contents of individual port number groups or click Expand All to show the contents of all groups.
  - Show: Set the view to include TCP Ports, UDP Ports, or TCP & UDP Ports, when the ‘Select by’ is Port Number.
- Locate and select the protocols in the protocol lists.

  To use a protocol that is not listed, add the protocol to the list: Click Add Protocol, then use the Add Protocol dialog to specify the new protocol name, port, type, and description.

  For more information about adding protocols, see the *CA Network Flow Analysis Administrator Guide.*
- Click Submit. To locate the Submit button quickly, click the blue arrow to jump to the bottom of the page.

5. (Optional) Select one or more protocol groups to include: Click Add Protocol Group Filter

   The Protocol Group Index dialog opens.

   - Select check boxes for the protocol groups to add from the list.
   - Click Submit. To locate the Submit button quickly, click the blue arrow to jump to the bottom of the page.

   You return to the Select Filters & Rollup page of the Custom Report wizard.

6. Check the list of filters and their Inclusion values.

   Items that have a value of 'Include' are in the report. You can remove data for a protocol or protocol group temporarily by setting the Inclusion value for the item to 'Exclude.'

7. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

8. (Optional) Return to the report list by clicking one of these buttons:

   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Add or Modify ToS Filters

You can add ToS filters or ToS group filters to restrict report data. You can filter for individual ToS values, use any ToS groups your Administrator has created, or use the default ToS group, All ToS.

ToS groups are useful for creating Custom Reports for specific classes of applications. For example, suppose that you want to watch applications that your IT department has classified as Gold Class applications. To facilitate reports on Gold Class applications, the Administrator creates a ToS group that includes the ToS values for those applications.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click ToS Filters.
4. The Specify Filters & Rollup page of the Custom Report wizard opens.
5. (Optional) Select one or more individual ToS values to include: Click Add ToS Filter

   The Protocol Index dialog opens.

   - Select the check box for each ToS value you want to include.
   - Click Submit. To locate the Submit button quickly, click the blue arrow to jump to the bottom of the page.
6. (Optional) Select one or more ToS groups to include: Click Add ToS Group Filter

   The ToS Group Index dialog opens.

   - Select check boxes for the ToS groups you want to add.
   - Click Save.

   You return to the Select Filters & Rollup page of the Custom Report wizard.
7. Check the list of filters and their Inclusion values.

   Items that have a value of 'Include' are in the report. You can remove data for a ToS value or ToS group temporarily by setting the Inclusion value for that item to 'Exclude.'
8. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

9. (Optional) Return to the report list by clicking one of these buttons:
   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Add or Modify Host and Conversation Filters

You can add host or conversation filters to limit the report data to specific hosts or conversations, but you cannot add both host and conversation filters. You can apply a single type of filter or you can use one of the following valid filter combinations:

- Protocols/Protocol Groups + ToS/ToS Groups
- Protocols/Protocol Groups + Hosts
- Protocols/Protocol Groups + Conversations
- ToS/ToS Groups + Hosts
- ToS/ToS Groups + Conversations

Additional information about the presentation data you can produce with various filter combinations is in the topic Specify Custom Report Filters (see page 97).

Add or Modify Host Filters

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click Host/Conversation Filters to open the Specify Filters & Rollup page of the Custom Report wizard.
4. Click Add Host Filter.

   The Apply Host Filter dialog opens.

5. Specify the following values, then click Submit.

   - Host/Network IP: Enter the IP address of the host network whose data will be included.
   - Mask: Select a mask from the list.

   For example, enter 192.168.1.0 with a mask of 255.255.255.0 to include data from all hosts on the class C network 192.168.1.0. The report will not include any data from hosts at other network addresses.

   You return to the Select Filters & Rollup page of the Custom Report wizard.

6. Check the list of filters and their Inclusion values.

   If you specify a single host filter with a value of 'Include,' the report contains data only for that host. If you set a host filter to have a value of Exclude, the report contains data for all other hosts in the selected set of interfaces.

7. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

8. (Optional) Return to the report list by clicking one of these buttons:

   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Add or Modify Conversation Filters

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.

3. Click Host/Conversation Filters to open the Specify Filters & Rollup page of the Custom Report wizard.
4. Click Add Conversation Filter.

   The Apply Conversation Filter dialog opens.

5. Specify the following values for each host in the conversation pair, then click Submit.

   ■ Host/Network IP: Enter the IP address of each host network in the conversation pair in the Host/Network IP boxes.

   ■ Select a mask from the list to the right of the Host/Network IP value.

   For example, specify the two hosts in the conversation by entering 192.168.1.1 with a mask of 255.255.255.225 and 192.168.1.0 with a mask of 255.255.255.0. The report will include conversation data between all hosts on the 192.168.1.1 network and the 192.168.1.0 network.

   You return to the Select Filters & Rollup page of the Custom Report wizard.

6. Check the list of filters and their Inclusion values.

   If you specify a single conversation filter with a value of 'Include,' the report contains data only for that conversation. If you set the conversation filter to 'Exclude,' the report contains all data for other conversations in the selected set of interfaces.

7. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

8. (Optional) Return to the report list by clicking one of these buttons:

   ■ Return to Listing: Return to the Custom Reporting page without queuing the report to run.

   ■ Queue Report: Queue the report to run and return to the Custom Reporting page.

Delete Custom Report Filters

You can delete filters from Custom Reports to reflect the deletion of protocols, hosts, or TOS values from your network. Any filter you delete is no longer used to define the report data.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.

2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.

3. Click Host/Conversation Filters to open the Specify Filters & Rollup page of the Custom Report wizard.

4. Select the check box next to each filter that you want to delete.

5. Click the Remove Selected Filters icon at the top-left corner of the list.
6. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.
7. (Optional) Return to the report list by clicking one of these buttons:
   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Exclude Custom Report Filters

For each filter you define in a Custom Report, you can opt to include either:

- Only the data that matches the filter criteria
- All the data that does not match the filter criteria

To set the type of filtering action, you set the Inclusion value for each filter in the Specify Filters list. To display matching data, set the Inclusion value to Include (the default setting). To display data that does not match, set the Inclusion value to Exclude.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click Host/Conversation Filters to open the Specify Filters & Rollup page of the Custom Report wizard.
4. Locate the filter whose data you want to exclude and select Exclude from the Inclusion list.
5. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.
6. (Optional) Return to the report list by clicking one of these buttons:
   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Define Custom Report Periods and Schedules

When you define a Custom Report, you must specify the reporting time period and the resolution of the reporting data. You can define a specific, nonrecurring time period (for a start-and-end report) or you can choose a timespan that ends at the report runtime (for a duration report). You also have the option to set a duration report to regenerate on a recurring schedule and to have the automated reports sent out by email.

This section contains the following topics:

Specify a Reporting Period for Custom Reports

The Custom Report Wizard provides a Specify Schedule page that defines the report time period. For a manually generated report, you can simply select a time period, resolution, and optional time filter. If you want to generate the report automatically at scheduled intervals, you can also use the Schedule option.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click Reporting Period to open the Specify Schedule page of the Custom Report wizard.

   Note: Custom Reports always display data using the Greenwich Mean Time (GMT) time zone. If a user has set the time to a specific time zone, the reports display the data using GMT.
4. Select the type of reporting period from the Period list on the Specify Schedule page:
   - Duration: Include data from the block of time that immediately precedes the report runtime. Enter a number of days, weeks, months, or years.

     You can set up a schedule for a duration report or you can run the report on demand. To run a scheduled report on demand, you can make a copy of the report and can disable the schedule in the copy.

- Start and end: Include data from a specific, nonrecurring timespan. Use the calendars to specify a Start date and End date or select hour and time values from the lists.

  Hour values are expressed in 24-hour format.

  A start-and-end report runs on demand. You cannot set up a schedule for a start-and-end report.

5. Set the resolution (granularity for data collection) on the Specify Schedule page: Accept the default setting or enter the number of time units in the Resolution box. Select a unit of time from the list (minutes, hours, days, weeks, months, or years).

   The default resolution varies depending on the length of the reporting period. For example, if you specify a duration of one month for the period, the default resolution is 8 hours. If you specify a duration of one day, the default resolution is 15 minutes.

6. (Optional) Select a time filter from the list on the Specify Schedule page, if your Administrator has created an appropriate time filter.

7. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.

8. (Optional) Return to the report list by clicking one of these buttons:

   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

Specify Schedules for Auto-Generated Reports

Use the Schedule option to set the Custom Report to regenerate at specified times.

For example, suppose that you want to check network traffic during the monthly backups that occur on the last Sunday of each month. You schedule a report to be regenerated on the last Sunday of every month. Suppose that operating system updates occur on the 15th of every month. To check the network traffic during those updates, you schedule a report to be regenerated on the 15th of each month.

Note: The options in the Recurrence section are available only if you select ‘duration’ as the reporting period type.

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.
2. Put the report in editable mode: Click the name of the report. If the report has been run previously, it runs again. In this case, click Edit in the Report Settings section at the top of the report page.

   The Report Definition Summary page opens, which contains links to the Custom Report wizard pages.
3. Click Reporting Period to open the Specify Schedule page of the Custom Report wizard.
4. Click the Schedule check box and choose a recurrence interval from the list:
   - Daily: Select the day or days of the week the report will run.
   - Weekly: Select the day of the week the report will run.
   - Monthly: Select either a date or a week and day combination to specify the one day per month the report will run.
   - Quarterly: Select the month that ends the first quarter in which the report will run. Starting with the specified quarter, the report will run on the last day of each quarter.
   - Yearly: Select the month that ends the first year the report will run. The report runs on the last day of the year.

   For all schedule interval types, select the time of day and time zone for the report to run.
5. (Optional) Email Results To: Enter the email addresses of anyone who should receive the report by email. Use the format name@domain. Separate multiple addresses with a comma or semi-colon.
6. Click Save Changes.

   Your changes are saved and you return to the Report Definition Summary.
7. (Optional) Return to the report list by clicking one of these buttons:
   - Return to Listing: Return to the Custom Reporting page without queuing the report to run.
   - Queue Report: Queue the report to run and return to the Custom Reporting page.

View Custom Reports

When you have defined the Custom Reports that you need, you are ready to generate a new report and view it in the NFA console. You can run and view the following types of reports:

- Unscheduled duration reports on demand.
- The most recent versions of scheduled duration reports that have been generated automatically.
- The most recent versions of start-and-end reports

Follow these steps:

1. Select Custom Reporting from the NFA console menu if the Custom Reporting page is not already open.

   The Custom Reporting page contains two panes. The left pane lists the folders that store saved reports. The right pane lists the reports in the currently selected folder.

2. Click the name of the folder that contains the report you want to view.
3. Click the report name in the Reports list.

   The report runs. The results are displayed when report generation is complete.

4. (Optional) Change the type of presentation by selecting an option from the Report Type list.

   The default presentation type is Custom layout. The other available options are dependent on the filters that are defined for your report.

   When you select an option other than Custom Layout, a Presentation menu is added on the left side of the page. You can select from the presentation types and from the data types to modify your view. For example, you could change from a pie chart to a stacked trend chart that shows volume.

Also See:

Set the Presentation Options (see page 66)

Manage Custom Reports

Creating reports for your organization is key to fully exploiting the capabilities of CA Network Flow Analysis. The report definitions are saved so you can generate an updated report at any time or you can use the report as a template for another report. As the number of report definitions grows, use the folder management system to keep the reports organized and accessible.

The report folders are listed in the left pane. The Custom Reports folder is a built-in folder, which is already present when you install CA Network Flow Analysis. Create additional folders to provide more extended organization for your reports.

The right pane displays a list of the reports stored in the currently selected folder. Use the links at the top and bottom of the panel to delete, run, or move any selected reports, to create a report, or to cancel the ongoing regeneration of reports.

Create a Report Folder

Create your own report folders to group reports. For example, you can use folder names to identify the purpose for a set of reports.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. Click New at the bottom of the Saved Report Folders pane.

   A pop-up dialog opens.
3. Enter a name for the new folder in the pop-up dialog.
4. Click OK.

   The dialog closes and the new folder appears in the Saved Report Folders pane.

Rename a Report Folder

You can change the name of a report folder, including the name of the default report folder.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. In the Saved Report Folders pane, select the check box next to the report folder that you want to rename.

3. Click Rename.

   A pop-up dialog opens.

4. Enter a new name for the folder in the pop-up dialog.

5. Click OK.

   The dialog closes. The new report folder name appears in the Saved Report Folders pane.

Move a Report to Another Folder

You can add folders and move report definitions among the folders to make the report definitions easier to find or to help identify them.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.

2. In the Reports pane, select the check box next to all the reports that you want to move.

3. Click Move to Folder.

   A pop-up dialog opens.

4. Select a destination folder from the list.

5. Click OK.

   The dialog closes. The reports are now in their new location, and are visible when you click that folder name in the Saved Report Folders pane.

Delete Saved Report Definitions

When a saved report definition is no longer needed, you can delete it. You can delete one report definition at a time, or you can delete multiple definitions in a single folder simultaneously. Be sure that you do not delete a report definition that is useful as a template for creating other reports. Deleted report definitions cannot be restored.

Follow these steps:

1. In the Reports pane, select the check box next to all report definitions that you want to delete.

2. Click Delete.

   A confirmation box opens.

3. In the confirmation dialog box, click OK.

   The confirmation box closes. The list of saved report definitions is updated.

Delete Saved Report Definitions

You can delete unneeded report folders and their contents. Be sure that you do not delete useful report definitions or folders. Deleted folders and report definitions cannot be restored.

Follow these steps:

1. In the Saved Report Folders pane, select the check box next to all the report folders that you want to delete.
2. Click Delete.

   A confirmation box opens. If the folders contain report definitions, the confirmation box reminds you of the number of report definitions that will be deleted.
3. In the confirmation dialog box, click OK.

   The confirmation box closes. The list of saved report definitions is updated.

Chapter 5: Flow Forensics Reports

Flow Forensics reports let you drill down to raw data flows and see a level of detail that is not available in other reports. You can jump to detailed information about any of the fields in a data packet for any monitored interface.

You can run a Flow Forensics report to drill down and view raw flow data. The data is parsed into meaningful reports.

Use Flow Forensics to browse raw flow data for a specified time period. You can filter the results by using a number of fields. You can export the displayed data to a file in comma-separated value (CSV) format.

Flow Forensics reports let you report on all of the flow data that is collected in your environment. You can analyze every protocol, host, and conversation on your network. Other report types are designed to show the most active interfaces, protocols, hosts, and conversations or to show individual instances of these items.

Flow Forensics reports can provide a comprehensive analysis of all traffic for the following categories, for example:

- Protocols that are active for one or more specified hosts
- All protocols that are active on the network
- All hosts that access one or more specified hosts
- Volume of traffic to or from one or more specified hosts

This section contains the following topics:

Flow Forensics Report Types (see page 113)
Work with Flow Forensics Reports (see page 122)

Flow Forensics Report Types

The following topics describe the available Flow Forensics reports.

Address Report Group

Address Pairs Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of each source and destination address pair.

Destination Address Peer Count Report

Displays the following information about each traffic destination:

- Destination address.
- Number of unique source addresses that exchanged traffic with the destination host.
- Flow count.

Destination Addresses Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of each traffic destination.

Source Address Peer Count Report

Displays the following information about each traffic source:

- Source address.
- Number of destination addresses that received traffic from the source host.
- Flow count.

Source Address Peer Count with Destination Port Report

Displays the following information about each traffic source:

- Source address.
- Destination port.
- IP protocol.
- Number of destination addresses that received traffic from the source host.
- Flow count.

Source Addresses Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of each source address.

ICMP Report Group

Bad IP Headers Report

Displays the source address and flow count of each bad IP header--each IP header that failed the checksum.

Fragmentation Required and DF Flag Set Report

Displays the following information about packets that require fragmentation--packets that had unreachable hosts or that were flagged Fragmentation Needed and Don't Fragment:

- Destination address.
- Number of source addresses that sent this type of data to the destination addresss.
- Number of flows that contained packets of this type.

ICMP Traffic Summary Report

Summarizes the Internet Control Message Protocol (ICMP) types and codes that occurred. The report contains the following information:

- ICMP description, type, and code.
- Volume of inbound packets for each ICMP.
- Flow count for each ICMP.

Ping Conversation Pairs Report

Displays the following information about ping requests:

- Source address.
- Destination address.
- Volume of inbound packets.
- Flow count.

Ping Destinations Report

Displays the following information about ping request destinations:

- Destination address that received the request.
- Volume of inbound packets.
- Flow count.

Ping Sources Report

Displays the following information about ping request sources:

- Source address that generated the request.
- Volume of inbound packets.
- Flow count.

Traceroute Requests by Destination Report

Displays the following information about traceroute request destinations:

- Destination address of the traceroute request.
- Number of source addresses that sent traceroute requests to the destination.
- Flow count.

Traceroute Requests by Source Report

Displays the following information about traceroute request sources:

- Source address of each traceroute request.
- Number of destination addresses that received traceroute requests from the source.
- Flow count.

Traceroute Requests Pairs Report

Displays the following information about each traceroute address pair:

- Source address of the traceroute request.
- Destination address of the traceroute request.
- Flow count.

TTL Expired in Transit Report

Displays the following information about data that met or exceeded the Time To Live (TTL) threshold:

- Source address.
- Destination address.
- Flow count.

Unreachable Destination by Source Report

Displays the following information about sources that tried to connect with unreachable destinations:

- Source address.
- Volume of inbound packets.
- Flow count.

Unreachable Destination Networks Report

Displays the following information about unreachable destinations:

- Destination network and subnet mask.
- Number of inbound packets.
- Flow count.

Unreachable Destinations Report

Displays the following information about sources and unreachable destinations:

- Source address.
- Destination network and subnet mask.
- Volume of inbound packets.
- Flow count.

MAC Report Group

Destination MAC Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count on each destination Media Access Control (MAC) address.

MAC Pairs Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count on each pair of source and destination MAC addresses.

Source MAC Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count on each source MAC address.

MPLS Reports

MPLS Labels Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of traffic that had a unique combination of the following values:

- Router address.
- Multiprotocol Label Switching (MPLS) address.
- MPLS label type.
- MPLS top label.

Network Reports Group

Autonomous System Pairs Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic between a pair of source and destination autonomous systems.

Autonomous System Pairs (with Destination Network) Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic that had a unique combination of the following values:

- Source AS.
- Destination AS.
- Destination network and subnet mask.

Destination Autonomous Systems Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic on each destination autonomous system.

Destination Networks Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of traffic on each destination network and subnet.

Network Pairs Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic on each pair of source and destination network subnets.

Network Pairs (with ToS) Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic on each network pair that had a unique combination of the following values:

- Source network and subnet mask.
- Destination network and subnet mask.
- ToS.

Next Hops Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic for each next-hop address.

Source Autonomous Systems Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic on each source autonomous system.

Source Networks Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic on each source network and subnet.

TCP Resets Report

Displays the TCP reset count of traffic on each source and destination address pair.

QOS Report Group

Differentiated Services Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the traffic flow count for each DiffServ code point (DSCP) value.

Types of Service Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the traffic flow count for each Type of Service (ToS).

Session Report Group

Client-Server Sessions

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of each session that had a unique combination of the following values:

- Source and destination address.
- Destination port.
- IP protocol.

Conversation Sessions Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count and cumulative flow duration of each conversation session that had a unique combination of the following values:

- Router address.
- Inbound interface.
- Source address and port.
- Destination address and port.
- ToS.
- IP protocol.

Conversations Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic for each IPv4 address pair that had a unique combination of the following values:

- Source address and port.
- Destination address and port.
- IP protocol.

Conversations (IPv6) Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic for each IPv6 address pair that had a unique combination of the following values:

- Source address and port.
- Destination address and port.
- IP protocol.

Conversations (with Interfaces)

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of each conversation that had a unique combination of the following values:

- Router address.
- Inbound and outbound interface.
- Source address and port.
- Destination address and port.
- IP protocol.

Destination Applications Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic that had a unique combination of the following values:

- Destination port.
- IP protocol.

Destination Endpoints Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic that had a unique combination of the following values:

- Destination address.
- Destination port.
- IP protocol.

Protocols Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of traffic that had a unique IP protocol.

Server-Client Sessions Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of each traffic session that had a unique combination of the following values:

- Source address and port.
- Destination address and port.
- IP protocol.

Source Applications Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of each traffic session that had a unique combination of the following values:

- Source port.
- IP protocol.

Source Endpoints Report

Displays the volume, rate, and percent of total inbound bytes and packets. Also displays the flow count of each traffic session that had a unique combination of the following values:

- Source address.
- Source port.
- IP protocol.

TCP Reports

TCP Flags Report

Displays volume, rate, and percent of total inbound bytes/packets, as well as the flow count of traffic for each TCP flag.

VLAN Report Group

Destination VLANs Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of traffic on each destination VLAN.

Source VLANs Report

Displays the volume, rate, and percent of total inbound bytes/packets, as well as the flow count of traffic on each source VLAN.

VLAN Pairs Report

Displays the volume, rate, and percent of total bytes in/packets in, as well as the flow count of traffic on each source and destination VLAN pair.

Work with Flow Forensics Reports

Open the Flow Forensics page and create Flow Forensics reports to see details about raw data flows for troubleshooting. Use the saved report definitions to generate an updated report at any time. You can also use a report definition as a basis for another Flow Forensics report.

As the number of reports grows, use the folder management system to keep the reports organized and accessible.

This section contains the following topics:

Open the Flow Forensics Page

When you click the Flow Forensics tab, the Saved Report Folders pane is displayed on the left and the existing reports are displayed on the right.

You can perform the following tasks in the Saved Report Folders pane: create folders, rename folders, and delete custom folders. You cannot delete the default Flow Forensics Reports folder, which is built in to CA Network Flow Analysis. Create additional folders to provide more extended organization for your Flow Forensics reports.

The right pane displays the Flow Forensics report definitions in the currently selected folder. Use the links at the top and bottom of the pane to delete or run selected reports, as well as to create or move reports.

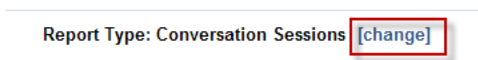
Create a Flow Forensics Report

Complete the following steps to create a Flow Forensics report.

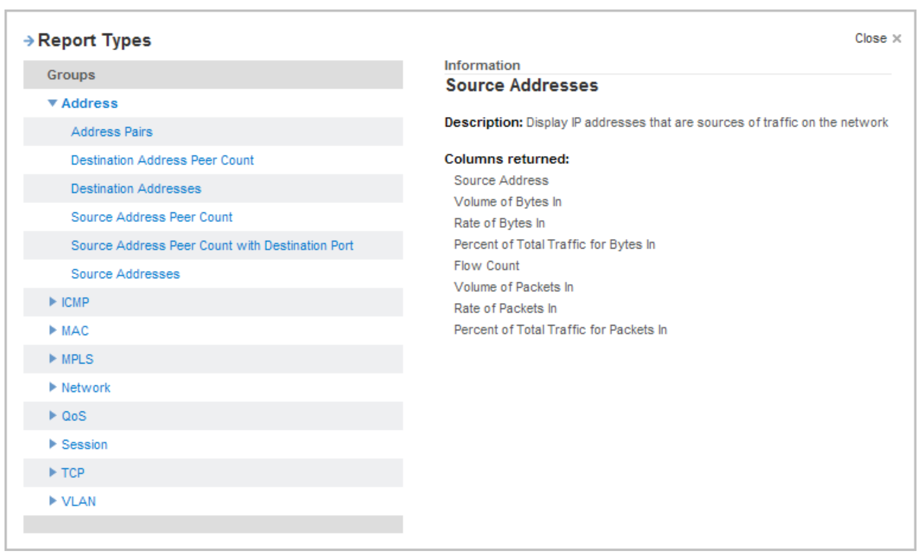
Follow these steps:

1. Select Flow Forensics from the NFA console menu if the Flow Forensics page is not already open.
2. Click Create New Report.

   The Report Settings page opens and displays options for the default report type, Conversation Sessions.
3. (Optional) Change the report type:
   - Click [change] next to the Report Type label to select a different report type.



The Report Types dialog opens.



   - Click the heading for the report group that interests you.

     The report list expands for the selected group.

- Select the report type from the expanded list.

  You return to the Report Settings page, which shows a name and label for the new report type.

Also See: Flow Forensics Report Types (see page 113)

4. (Optional) Identify the report and set the folder for saving it by entering values in the following fields:
   - Name: Report name that appears on
   - Description: Add a description for the report.
   - Folder: Select a parent folder for the report.
5. (Optional) Change the filters that are used in the report definition:
   - Remove Filters: Click the X next to the filter name in the Added Filters list to delete a filter from the report definition.
   - Add Filters: Use the Add Filters options to filter the displayed data.

   For example, to exclude the FTP protocol select RA: Protocol Filter, select NotEqual, and click Protocol Index to select the ftp protocol.

   The following list describes the available filters.

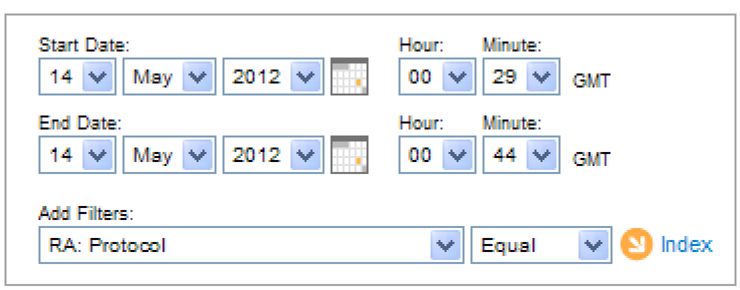
   Note: Certain filters may not be available for all reports.

   - *RA: Protocol:* Filters for the actual protocol, including Application mapping rules, as defined in CA Network Flow Analysis Administration (Flow Forensics report filter)
   - *RA: Interface:* Filters for the actual interface, excluding aggregate and custom virtual interfaces, as defined in CA Network Flow Analysis Administration (Flow Forensics report filter)
   - *RA Type-of-service:* Filters for the CA Network Flow Analysis type of service as defined in CA Network Flow Analysis Administration (Flow Forensics report filter)
   - *Destination Address:* Filters for the IP address of one or multiple destination hosts (Flow Forensics report filter)
   - *Destination Autonomous System:* Filters for the autonomous number for the destination network (Flow Forensics report filter)
   - *Destination MAC Address:* Filters for the destination MAC address (Flow Forensics report filter)
   - *Destination Mask:* Filters for the IP mask of a destination network (Flow Forensics report filter)
   - *Destination Port:* Filters for the destination port number (0 through 65,535) (Flow Forensics report filter)

- *Destination VLAN:* Filters for the destination address of the VLAN (Flow Forensics report filter)
- *Flow Count:* Filters for the number of flows (Flow Forensics report filter)
- *Flow Duration:* Filters for the duration of the flows (Flow Forensics report filter)
- *ICMP:* Filters for information about ICMP (Flow Forensics report filter)
- *MPLS Top Label:* Filters for the top label of MPLS (Flow Forensics report filter)
- *MPLS Top Label IP Address:* Filters for the IP address of the MPLS top label (Flow Forensics report filter)
- *MPLS Top Label Type:* Filters for the type of MPLS top label type (Flow Forensics report filter)
- *Next Hop:* Filters for the IP address of next destination hop (Flow Forensics report filter)
- *Percent of Total Traffic for Bytes In:* Filters for the percentage of bytes in total traffic (Flow Forensics report filter)
- *Percent of Total Traffic for Packets In:* Filters for the percentage if packets in total traffic (Flow Forensics report filter)
- *Protocol:* Filters for the actual IP Protocol Number (6=tcp,17=udp) (Flow Forensics report filter)
- *Protocol and Destination Port:* Filters for the actual IP Protocol Number (6=tcp,17=udp) and the Destination port number (0 through 65,535) (Flow Forensics report filter)
- *Protocol and Source or Destination Port:* Filters for the actual IP Protocol Number (6=tcp,17=udp) and the Source or Destination port number (0 through 65,535) (Flow Forensics report filter)
- *Protocol and Source Port:* Filters for the actual IP Protocol Number (6=tcp,17=udp) and the IP address of a source host (Flow Forensics report filter)
- *Router Address:* Filters for the IP address of the router (Flow Forensics report filter)
- *Router Address and Interface In:* Filters for the router address and router interface (in) index number (Flow Forensics report filter)
- *Router Address and Interface In or Out:* Filters for the router address and router interface (in or out) index number (Flow Forensics report filter)
- *Router Address and Interface Out:* Filters for the router address and router interface (out) index number (Flow Forensics report filter)
- *Source Address:* Filters for the IP address of one or multiple source hosts (Flow Forensics report filter)

- *Source Autonomous System:* Filters for the autonomous number for the source network (Flow Forensics report filter)
- *Source MAC Address:* Filters for the source MAC address (Flow Forensics report filter)
- *Source Mask:* Filters for the IP mask of a source network (Flow Forensics report filter)
- *Source or Destination Address:* Filters for the IP address of a source host or a destination host (Flow Forensics report filter)
- *Source or Destination MAC Address:* Filters for the source or destination of the MAC address (Flow Forensics report filter)
- *Source or Destination Mask:* Filters for the IP mask of a source network or a destination network (Flow Forensics report filter)
- *Source or Destination Port:* Filters for the source port number or the destination port number (Flow Forensics report filter)
- *Source or Destination VLAN:* Filters for the source or destination of the VLAN (Flow Forensics report filter)
- *Source Port:* Filters for the source port number (Flow Forensics report filter)
- *Source VLAN:* Filters for the source VLAN (Flow Forensics report filter)
- *TCP Flags:* Filters for the Transmission Control Protocol (TCP) flags (Flow Forensics report filter)
- *Type-of-service:* Filters for the IP type of service number (0 through 255) (Flow Forensics report filter)
- *Volume of Bytes In:* Filters for the volume of bytes in (Flow Forensics report filter)
- *Volume of Packets In:* Filters for the volume of packets in (Flow Forensics report filter)

6. (Optional) Change the timespan for collecting report data: Select Start Date and End Date values.



7. Run or save the report:

   - Save: Save the report so it is available for later use, but is not executed immediately.

     The report is saved and the Saved icon is added to the Report Settings page.

   - Run: Save, queue, and run the report.

     The Report Queued message appears. When the report finishes execution, the message closes and the report appears.

     Click Back to Folders to return to the Flow Forensic Reports folders before execution is complete.

View a Flow Forensics Report

Complete the following steps to view an existing Flow Forensics report.

Follow these steps:

1. Select Flow Forensics from the NFA console menu if the Flow Forensics page is not already open.
2. Click the parent folder that contains the report.

   The list of reports in the folder opens.

3. Click the check box next to the report that you want to view.
4. Click Run.

   A verification message opens.

5. Click OK.
6. Refresh the view until the report status is Complete.

   The report results are displayed.

Create a Report Folder

Create your own report folders to group reports. For example, you can use folder names to identify the purpose for a set of reports.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. Click New at the bottom of the Saved Report Folders pane.

   A pop-up dialog opens.

3. Enter a name for the new folder in the pop-up dialog.
4. Click OK.

   The dialog closes and the new folder appears in the Saved Report Folders pane.

Rename a Report Folder

You can change the name of a report folder, including the name of the default report folder.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. In the Saved Report Folders pane, select the check box next to the report folder that you want to rename.
3. Click Rename.

   A pop-up dialog opens.
4. Enter a new name for the folder in the pop-up dialog.
5. Click OK.

   The dialog closes. The new report folder name appears in the Saved Report Folders pane.

Move a Report to Another Folder

You can add folders and move report definitions among the folders to make the report definitions easier to find or to help identify them.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. In the Reports pane, select the check box next to all the reports that you want to move.
3. Click Move to Folder.

   A pop-up dialog opens.
4. Select a destination folder from the list.
5. Click OK.

   The dialog closes. The reports are now in their new location, and are visible when you click that folder name in the Saved Report Folders pane.

Chapter 6: Analysis Reports

You can troubleshoot problems as they occur by using Analysis reports to identify issues before users in your environment are adversely affected.

The troubleshooting capabilities of CA Network Flow Analysis are not limited to the features discussed in these topics.

This section contains the following topics:

Set Up Analyses

An Analysis report is designed to compare collected network data to a threshold so you can identify potential bottlenecks, anomalies, and viruses. Analysis reports help you identify potential problems before they become serious issues. You can schedule these reports to run regularly, which means you can continually analyze your network traffic for potential issues.

To open the Analysis page, click Analysis in the NFA console menu.

The Analysis page includes the following options:

New

Create an Analysis report.

Run

Execute one or more reports at the same time.

Move to Folder

Transfer one or more reports to a different directory.

Cancel

Immediately stop the execution of one or more reports that are running.

When you create Analyses, you specify protocol, ToS, host, and conversation filters to use. The following list shows the valid filters and combinations of filters:

- No filters
- Protocol filters
- ToS filters
- Protocol and ToS filters

- Protocol and host filters
- Protocol and conversation filters
- ToS and conversation filters
- ToS and host filters
- Conversation filters
- Host filters

Create an Analysis Report

No Analysis reports are installed by default. A report folder named Analyses exists by default, which you cannot delete. You can store your saved Analysis reports in this folder or you can create other folders to organize your Analysis reports.

Follow these steps:

1. Select Analysis from the NFA console menu if the Analysis page is not already open.
2. Select Create New Report.

   The Analysis Wizard opens and displays options for creating an analysis definition or modifying a copy of an existing analysis definition.

3. Select one of the options, then click Next.

   Create a new analysis

   Define an entirely new Analysis report.

   Copy an existing analysis

   Select an existing report to copy and use as a basis for the new report.

   If you select "Create a new analysis," the Select Interfaces page of the Analysis wizard opens.

4. Select interfaces or interface groups for the report.

   a. Click one of the following options:

      Add Interface Filter

      Select one or more individual interfaces from the Interface Index.

      Add Interface Group Filter

      Select one or more interface groups from the Interface Group Selection list.

      The selected interfaces are added to the interface list.

a. Accept the default value or set the Inclusion value for each interface or interface group:

   – ‘Include’ sets the program to use report data from the interface or group.

   – ‘Exclude’ sets the program to eliminate data from the interface or group.

b. Click Next when you have specified all the interfaces to use for report data.

   The Specify Filters & Threshold page opens.

5. Specify the settings on the Specify Filters & Threshold page:

   a. (Optional) Specify filters for gathering or excluding report data, then set the Inclusion value for each filter to Include or Exclude:

   Add Protocol Filter

   Select individual protocols from the Protocol Index.

   Add Protocol Group Filter

   Select protocol groups from the Protocol Group Index.

   Add ToS Filter

   Select individual ToS values from the ToS Index.

   Add ToS Group Filter

   Select ToS groups from the ToS Group Index.

   Add Host Filter

   Specify a host IP address and mask.

   Add Conversation Filter

   Identify the IP addresses and mask for each party in the conversation pair.

   a. Accept the default value or set the Inclusion value for each filter you specified:

   Include

   For each filter listed, use only the data of the listed type. For example, use data from the listed protocol group, but not from other protocol groups.

   Exclude

   For each filter listed, do not use the data of the listed type. For example, do not use data from the listed protocol group, but do use data from other protocol groups.

   a. Set the Threshold Settings values to specify the threshold that is used for the Analysis report.

   b. Click Next.

   For example, to report on overutilized interfaces you might specify a threshold to examine total traffic that goes above 70 percent utilization.

6. Click Next when the report sections are listed correctly in the Added Reports list.

   The Specify Schedule page opens.

7. Select the type of reporting period from the Period list on the Specify Schedule page:

   Duration

   Limits the reporting period to an amount of time, ending at the time the report runs. Enter the number of time units in the Last box. Select a unit of time from the list (days, weeks, months, or years).

   You can set up a schedule for a Duration report or you can run the report on demand.

   Start and end

   a. Use one of the following methods to specify a Start date and End date:

      – Select the calendar icons and click dates to specify the Start and End of the report period.

      – Select hour and time values from the lists. Hour values are expressed in 24-hour format.

   b. Enter the number of time units in the Resolution box. Select a value from the list for Start and End.

      A Start-and-End report runs on demand. You cannot set up a schedule for a Start-and-End report.

8. Accept the default Resolution setting on the Specify Schedule page or enter the number of time units in the Resolution box. Select a unit of time from the list (minutes, hours, days, weeks, months, or years).

9. (Optional) Select a time filter from the list on the Specify Schedule page, if your Administrator has created a time filter that is appropriate for your report.

10. (Optional) Select the Schedule check box on the Specify Schedule page and specify the following options:

    a. Schedule: Select the type from the Schedule list (Daily, Weekly, Monthly, Quarterly, Yearly).

       – Daily: Select the day or days of the week, time of day, and time zone for report generation.

       – Weekly: Select the day of the week, time of day, and time zone for report generation.

       – Monthly: Select either the date or the week in the month and day of the week. Select the time of day, and time zone for report generation.

       – Quarterly: Select a month that ends the first reporting quarter, time of day, and time zone.

       – Yearly: Select a month that ends the first reporting year, time of day, and time zone.

    b. (Optional) Email Results To: Enter the email addresses of all the report recipients in the format name@domain. Separate multiple addresses with a comma or semi-colon.

    Note: The options in the Recurrence section are available only if you select ‘duration’ as the reporting period type.

11. Click Next when the Specify Schedule page settings are complete.

    The Enter Name page opens.

12. Identify the report and its location, then click Next:

    Folder

    Accept the default folder or select a different folder to contain the new report.

    Name

    Give the new report a name that will appear in the Reports list.

    Description

    (Optional) Add a description to help identify the report. For example, you may to use the description to identify scheduled reports and to indicate distinguishing features of Duration reports.

    Additional information about managing Analysis reports is in the topic Manage Analysis Reports (see page 137).

    The Summary & Submit page opens.

13. Review the information in the Report Definition Summary.

    Save

    Save the report definition and return to the Custom Reporting page.

    Save and Queue Report

    Queue the report to run and return to the Custom Reporting page.

    Back

    Return to previous pages in the wizard to redefine the report.

View an Analysis Report

When you have defined the Analysis reports that you need, you are ready to generate a new report and to view it in the NFA console. You can run and view the following types of reports:

- Unscheduled duration reports on demand.
- The most recent versions of scheduled duration reports that have been generated automatically.
- The most recent versions of start-and-end reports.

Follow these steps:

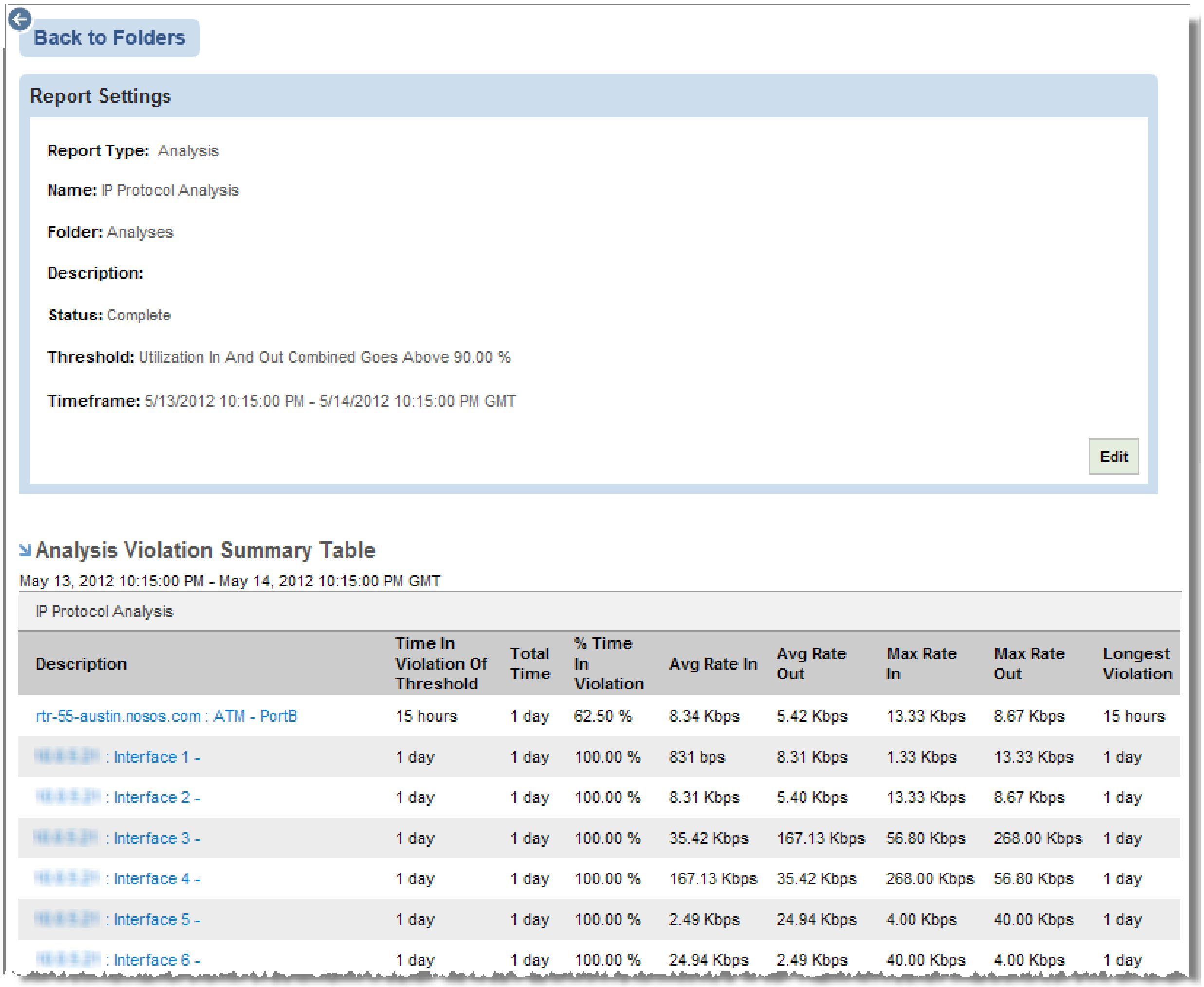
1. Select Analysis from the NFA console menu if the Analysis page is not already open.

   The Analysis page contains two panes. The left pane lists the folders that are used to store saved report definitions. The right pane lists the reports in the currently selected folder.

2. Click the name of the folder that contains the report you want to view.

3. Click the report name in the Reports list.

   The report runs. The results are displayed when report generation is complete.



Back to Folders

Report Settings

Report Type: Analysis

Name: IP Protocol Analysis

Folder: Analyses

Description:

Status: Complete

Threshold: Utilization In And Out Combined Goes Above 90.00 %

Timeframe: 5/13/2012 10:15:00 PM - 5/14/2012 10:15:00 PM GMT

Edit

Analysis Violation Summary Table

May 13, 2012 10:15:00 PM - May 14, 2012 10:15:00 PM GMT

IP Protocol Analysis

Description	Time In Violation Of Threshold	Total Time	% Time In Violation	Avg Rate In	Avg Rate Out	Max Rate In	Max Rate Out	Longest Violation
rtr-55-austin.nosos.com : ATM - PortB	15 hours	1 day	62.50 %	8.34 Kbps	5.42 Kbps	13.33 Kbps	8.67 Kbps	15 hours
[illegible] : Interface 1 -	1 day	1 day	100.00 %	831 bps	8.31 Kbps	1.33 Kbps	13.33 Kbps	1 day
[illegible] : Interface 2 -	1 day	1 day	100.00 %	8.31 Kbps	5.40 Kbps	13.33 Kbps	8.67 Kbps	1 day
[illegible] : Interface 3 -	1 day	1 day	100.00 %	35.42 Kbps	167.13 Kbps	56.80 Kbps	268.00 Kbps	1 day
[illegible] : Interface 4 -	1 day	1 day	100.00 %	167.13 Kbps	35.42 Kbps	268.00 Kbps	56.80 Kbps	1 day
[illegible] : Interface 5 -	1 day	1 day	100.00 %	2.49 Kbps	24.94 Kbps	4.00 Kbps	40.00 Kbps	1 day
[illegible] : Interface 6 -	1 day	1 day	100.00 %	24.94 Kbps	2.49 Kbps	40.00 Kbps	4.00 Kbps	1 day

You can click an interface name to display more information about that interface. For example, you may be able to view a calendar chart that shows the time and duration of a violation.

Edit an Analysis Report

When you view an Analysis report, you may want to review the Report Definition Summary to ensure that the report definitions are correct. This summary provides access to the Analysis wizard pages in case you want to change any settings.

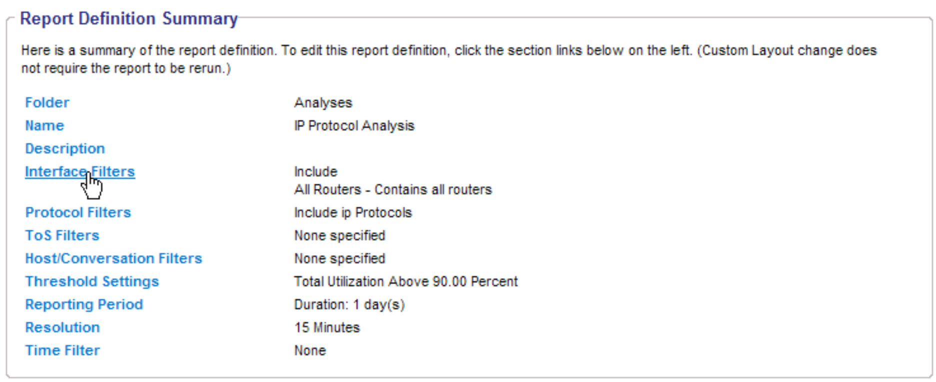
Follow these steps:

1. In the Report Settings section at the top of the report page, click Edit.

   The Report Definition Summary is displayed.

2. Review the current settings for the Analysis report.

3. Click the name of a category to open the associated page for making changes.



4. When you have made all the desired changes, click Queue Report to regenerate the report with the new settings.

   You return to the Reports list, which shows the modified report with a status of Queued. When the report has been regenerated and is ready to be viewed, the status displays as Complete.

   A scheduled report will be queued and will be generated at the next scheduled runtime.

Also See:

Create an Analysis Report (see page 130)

Manage Analysis Reports

Creating Analysis reports for your organization helps to troubleshoot various issues. Analysis report definitions are saved so you can generate an updated report at any time or can use the report definition as a template to create another report. As the number of reports grows, use the folder management system to keep the report definitions easy to find.

The report folders are listed on the left. The Analysis Reports folder is a built-in folder, which you can rename, but cannot delete. Create additional folders to provide more extended organization for your Analysis reports.

The right pane displays the names of the Analysis reports in the currently selected folder. Use the links at the top and bottom of the pane to delete or run selected reports, and to create or move report definitions.

This section contains the following topics:

Create a Report Folder

Create your own report folders to group reports. For example, you can use folder names to identify the purpose for a set of reports.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. Click New at the bottom of the Saved Report Folders pane.

   A pop-up dialog opens.
3. Enter a name for the new folder in the pop-up dialog.
4. Click OK.

   The dialog closes and the new folder appears in the Saved Report Folders pane.

Rename a Report Folder

You can change the name of a report folder, including the name of the default report folder.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. In the Saved Report Folders pane, select the check box next to the report folder that you want to rename.
3. Click Rename.

   A pop-up dialog opens.
4. Enter a new name for the folder in the pop-up dialog.
5. Click OK.

   The dialog closes. The new report folder name appears in the Saved Report Folders pane.

Move a Report to Another Folder

You can add folders and move report definitions among the folders to make the report definitions easier to find or to help identify them.

Follow these steps:

1. Navigate to the page for the report type: Custom Reporting, Flow Forensics, or Analysis.
2. In the Reports pane, select the check box next to all the reports that you want to move.
3. Click Move to Folder.

   A pop-up dialog opens.
4. Select a destination folder from the list.
5. Click OK.

   The dialog closes. The reports are now in their new location, and are visible when you click that folder name in the Saved Report Folders pane.

Chapter 7: Views in CA Performance Center

You can view data from CA Network Flow Analysis and from other sources in CA Performance Center dashboards and on CA Performance Center interface pages. Many of the CA Performance Center views contain data that is similar to some of the views in CA Network Flow Analysis. Views in CA Performance Center, however, are formatted differently and have different options available.

The topics in this section cover the basics of working with CA Performance Center views, describe the CA Network Flow Analysis views in CA Performance Center, and explain how to display the views.

This section contains the following topics:

Dashboards in CA Performance Center

Dashboard pages in CA Performance Center display views of data from registered data sources such as CA Network Flow Analysis. *Views*, or *data views*, present statistical data, usually in a graph or table format. Each view represents a discrete set of collected data. Depending on your user account role rights, you can add and edit individual views or remove them from a dashboard page. In some cases, you can export the data to a file in CSV format.

View placement on dashboard pages is flexible. Users with the required role rights can customize (see page 144) dashboards. They can, for example, place views of application performance data beside views of volume data to help troubleshoot issues from a single page.

The predefined (factory) dashboards are organized into workflows. You can drill down from Top N views to more detailed metrics from a narrow context, such as an individual device. Workflows let you see data that may be related to the metric you are reviewing. For example, you can see a view of discards when you drill down from a view of interface utilization.

Administrators can create custom groups to display data for a specific set of sites, devices, or interfaces. You can apply groups to dashboards by using the group selector (the 'change' link at the top left). You can change the “context” of the dashboard to analyze data for specific groupings at the summary, device, or item level.

Views that show data for a group are CA Performance Center-generated views that contain rollups of data from data sources. Views that show data for a server or device, or detailed metrics from a narrow context, often provide a drilldown path directly to the data source. The Single Sign-On feature lets you navigate seamlessly from a dashboard to a data source interface.

Context Page Navigation

You can frequently access more information about individual managed items from dashboards. Most dashboards are composed of views of summary data, such as hourly rollups or averages from a group of items. If additional data is available from the data source, you can click linked items on the dashboard page to drill down into *context pages*.

The views on context pages show filtered data from a narrow context, such as a view of data from a single managed item. Use the links to drill down into specific data and home in on the source of a performance problem.

In data views from some data sources, you can also right-click the name of an item in a table view to access a menu. For example, right-click the link that corresponds to an item name in the Inventory section. A menu lets you select a related context page, containing more granular data.

Finally, some context pages include tabs to additional pages of detailed data. Click a tab to see data that has been filtered by a selected managed item or type of item.

Dashboards and Reports

Dashboards are report-building pages within the CA Performance Center user interface. They appear as menu items that are accessible from the Dashboards tab. Each dashboard is a collection of views that present data from registered data sources on a single web page. The layout, views, time interval, and group context of each dashboard can be customized.

Note: Your user account role rights determine the dashboards that you can see.

Reports describe the output from an exported dashboard page. Reports contain the same data and information as the associated dashboards, but they are formatted to meet the requirements of the export destination. You can print reports, send them by email, or export them in PDF format.

Dashboards are organized in menus. *Menus* are segments of the Dashboards tab that are used to organize dashboards by their content. By default, Administrators and Designers can customize menus and assign them to user account roles.

CA Performance Center offers a set of factory dashboards and menus, which are available for use immediately after registering data sources. Users with the required role rights can also extensively customize dashboards, menus, and views to create a custom system for individual operators.

The menus and dashboards that are available to you are displayed when you hover over or click the Dashboards tab.

Types of Report Pages

Two categories of report pages are generated from dashboards or linked to dashboards:

- *Summary pages* provide high-level information, such as averages from groups of managed items. Summary dashboards often provide a drilldown path to more detailed, related pages from a selected context.
- *Context pages* provide specific, focused performance or status data from a narrow context, such as a single router or server. These pages are available as drill-down links or tabs from Summary dashboards.

To drill in to a detailed view from a Summary dashboard, take one of the following steps:

- Right-click the item to select the context page that you want to see.
- Click the item to open the default context page.

Note: Your role rights must include the ability to Drill into Views.

Default sets of context pages are available for individual devices, interfaces, and servers. These pages include an extra set of tabs that let you access more specific context data for a selected managed item. For example, you can click tabs for Performance or Error data. The tab corresponding to the current page is highlighted.

Custom Dashboards

Custom dashboards are useful for displaying data from a particular item or group of items. With a custom dashboard, you can select the item context for individual views and can make other modifications to meet the requirements of a selected operator.

Custom dashboards are often used on a temporary basis to troubleshoot an issue. However, they are also deployed on a long-term basis to monitor categories of items. For example, an operator who is responsible for a region requires a dashboard that shows only items in that region. Or an operator might require a dashboard to monitor all ESX servers.

To create a custom dashboard quickly, you can edit an existing dashboard and save it with a new title. Your user account must have the Edit Dashboards role right.

Create a Custom Dashboard

If you have the necessary role rights, you can create custom dashboards. You can select views for the dashboard and set their location on the page. You also can select the menus that list the dashboard so that it can be shared with other operators.

The views in a custom dashboard can also be customized. For example, you can select a group context, or you can specify a custom view title.

You can customize the predefined CA Performance Center dashboard pages, or you can add new dashboards. You can select the views and data context for custom dashboards.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Click the Dashboards tab.

   The Available Dashboards page opens. Each view on the page corresponds to a menu.
3. Click Add Dashboard next to the menu in which the new dashboard will appear.

   The Add Dashboard page opens.
4. Complete the following fields:

   Dashboard Menu

      Is the menu where you want the dashboard to appear.

   Menu Item

      Is the name of the dashboard as you want it to appear in the menu.

   Dashboard Title

      Is the name that you want to appear at the top of the new dashboard.

5. (Optional) Select a layout template for the dashboard.

   Each layout treats the page as a table with rows and columns for views. The Layout buttons indicate the number of views in each column and row on the page.

   Note: We recommend selecting a layout before adding views.

6. Expand the categories of views shown in the left pane.

7. Select a view that you want to add to the page from one of the expanded lists.

   Note: The maximum number of views per dashboard is 25.

8. Click and drag the view to the page layout, and drop it where you want it to appear.

   Note: By default, the context is Summary. With the *Summary context* setting, the available views display summary data for the current group context of the dashboard. The Summary setting does not require you to select a specific group or item. Summary views dynamically update the context when you change the context of the page.

9. (Optional) Apply a group or context filter to the views. You can select a group, device, or interface by taking the following steps:

   a. Click Filter by: Summary.

   b. Select a Context Type, such as a type of managed item. Select Group to see the Groups tree.

   c. Select a specific context item or a group context.

   d. Click OK to save the new context filter.

10. (Optional) Click Clear Filter on the main Edit Dashboard Layout page to revert to the Summary filter.

11. Click Save to save the dashboard and add it to the selected menu.

    To discard the changes you made, click Clear.

Also See:

Build a Custom View (see page 193)
Build a Custom View for a Single Interface (see page 195)

Edit a Dashboard

You can customize dashboard pages if your user account has the 'Administer Shared Dashboards' or the 'Create a Dashboard' role right. You can add or remove data views, rearrange views, or select a different context filter for a dashboard. You can then export the new dashboard as a report.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Use the Dashboards tab to access the dashboard that you want to edit.
3. Click the More menu, and select Edit Dashboard.

   The Edit Dashboard Layout page opens.

4. Change the following menu and dashboard options, as needed:

   Menu for Dashboard

   Is the menu where you want the dashboard to appear. The default is the menu that you used to open this dashboard page.

   Menu Item

   Is the name of the dashboard as you want it to appear in the menu.

   Dashboard Title

   Is the name that you want to appear at the top of the new dashboard.

5. Select a layout template for the dashboard from the Layout buttons.
6. Remove unwanted views from the dashboard page if desired. In the Layout pane, click:
   - Clear Layout to change the positioning of all views on the page.
   - An [X] to remove an individual view from the page.

Note: By default, the context is Summary. With the *Summary context* setting, the available views display summary data for the current group context of the dashboard. The Summary setting does not require you to select a specific group or item. Summary views dynamically update the context when you change the context of the page.

7. (Optional) Apply a group or context filter to the views. You can select a group, device, or interface by taking the following steps:

   a. Click Filter by: Summary.

   b. Select a Context Type, such as a type of managed item. Select Group to see the Groups tree.

      By default, the Context Type list is filtered to show only items and item types to which you have access. For example, if you are not monitoring any servers, the Context Type list does not include the Servers option. Select 'Show All Context Types' to see all context options.

   c. Select a specific context item or a group context.

   d. Click OK to save the new context filter.

   The views that are available to be added to the page are shown in categorized lists. The lists are filtered by the selected group or item context.

   All registered data sources are represented.

8. Click to expand the categories of views.

9. Select a view, drag it to the Layout pane, and drop it where you want it to appear.

   Note: The maximum number of views per dashboard is 25.

10. Click Save.

    The dashboard page refreshes to reflect your changes.

Change the Context for a Dashboard

You can customize a dashboard by selecting a different data context for the data. The default group setting for the views that are shown on all dashboards is 'All Groups'. When you select another group for a standard dashboard, you apply a new filter to all views on the page. From a context page, such as details about a single router, you can select another managed item as the view context.

You can also view dashboards in multiple windows and apply a different data context to each dashboard.

Follow these steps:

1. Navigate to the dashboard that you want to modify.

2. (Optional) Change the time frame, if necessary.

3. Click the [change] link above the time period selectors.

   [change] link

   Lets you select another group or managed item context for reporting.

   A dialog opens with filtering options.

4. Click to select another managed item. Or expand nodes in the Groups tree to select a group context.

   Data from the new item or group will be shown in the view.

5. Click OK.

   A message indicates that the change has been saved.

   All views on the page are refreshed to reflect the new data context.

6. (Optional) Open another browser instance, log in, and open the same dashboard.

   You can now compare the same views with two different item context settings.

Change the Time Frame for a Dashboard

You can change the time frame for a dashboard you are viewing. Change the time frame to see performance data from an earlier time of day or from another date.

Changing the time frame is useful for troubleshooting performance issues. For example, if data from the past day contains an anomaly, you can change the time frame to show data from the last seven days. The time frame helps you determine whether the same issue is occurring regularly.

When you change the time frame for a dashboard, it is applied to all views on the page, and to all dashboards in that window. However, you can view dashboards in multiple windows and can apply a different time frame to each dashboard.

Follow these steps:

1. Select a dashboard from the Dashboards tab.
2. Click to select some of the following time and date options on the toolbar:

   Time period drop-down list

   Lets you select a predefined time frame for the data.

   Default: Last Hour.

   Back button

   Shifts the time frame for the data back by one increment of the present interval (such as Last Day or Last Hour).

   Date and Calendar drop-down lists

   Let you select a start and end date for the data from a calendar view.

Time of Day drop-down lists

Let you select a start and end time from a list of 15-minute time intervals in the 24-hour format.

Forward button

Shifts the time frame for the data forward by one increment of the present interval (such as Last Day or Last Hour).

3. To define a custom time frame, take one or more of the following steps:
   - Click the start date and select a new start date from the calendar that appears.
   - Click the end date and select a new end date from the calendar that appears.
   - Click the start hour or minute and select a new hour or minute from the drop-down menu.
   - Click the end hour or minute and select a new hour or minute from the drop-down menu.
4. Click Set.

   The page is refreshed, and the data displayed in the views reflects the new time frame.
5. (Optional) Scroll backward or forward in time. Use the Back and Forward buttons on either side of the timestamp to shift the time frame by one increment of the present interval.

   If you are viewing data for the last day, click the left arrow to scroll back in time by one day. Or click Latest to see the most recently collected data.

CA Network Flow Analysis Views in CA Performance Center

You can display CA Network Flow Analysis data in CA Performance Center in several ways:

Built-in Dashboards with Enterprise-Wide CA Network Flow Analysis Data:

- **Infrastructure Overview dashboard**:
  - Interfaces Over Threshold (see page 149)
  - Routers with the Most Flow Traffic (see page 152)
  - Top Enterprise Hosts by Volume (see page 153)
  - Top Enterprise Protocols by Volume (see page 154)
  - Top Flows by Interface (see page 156)
  - Top IP Interface Utilization (Flow) (see page 158)

- **Management: Management Overview dashboard**:
  - Top IP Interface Utilization (Flow) (see page 158)
  - Top Flows by Interface (see page 156)
- **Management: Network Overview dashboard**:
  - Top Enterprise Hosts by Volume (see page 153)
  - Top Enterprise Protocols by Volume (see page 154)
- **Capacity Planning: Router/Switch Capacity Watch Lists dashboard**:
  - Routers with the Most Flow Traffic (see page 152)

Custom Dashboard Views with Interface-Specific CA Network Flow Analysis Data: Display interface-specific CA Network Flow Analysis data by adding the following views (see page 195):

- Calendar Heat Chart (Flow) (see page 159)
- Stacked Protocol Trend (see page 162)
- Stacked ToS Trend (see page 165)
- ToS Summary (Pie) (see page 168)
- ToS Summary (Table) (see page 170)
- Top Conversations (Bar) (see page 172)
- Top Conversations (Pie) (see page 173)
- Top Conversations (Table) (see page 175)
- Top Hosts (Bar) (see page 177)
- Top Hosts (Pie) (see page 179)
- Top Hosts (Table) (see page 181)
- Top Protocols (Bar) (see page 183)
- Top Protocols (Pie) (see page 184)
- Top Protocols (Table) (see page 186)

Built-In Interface Page Views with CA Network Flow Analysis Data:

- **IP Performance tab**:
  - Stacked Protocol Trend (see page 162)
  - ToS Summary (Pie) (see page 168)
  - Top Conversations (Pie) (see page 173)
  - Top Hosts (Pie) (see page 179)

- **CBQoS tab**:
  - Stacked Protocol Trend (see page 162)
  - Stacked ToS Trend (see page 165)

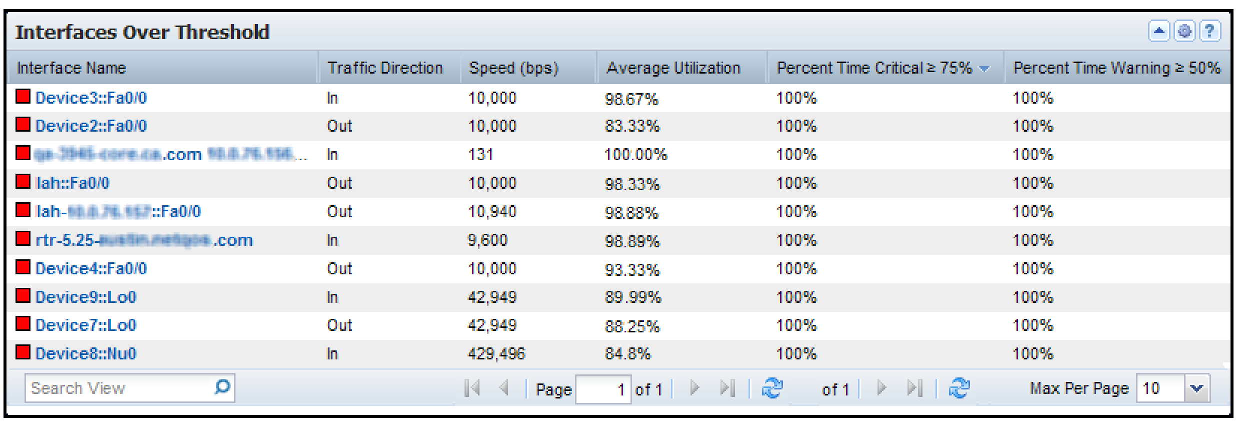
Enterprise-Level Views

You can view enterprise-wide CA Network Flow Analysis data in several CA Performance Center dashboard views, which are described in the topics that follow.

This section contains the following topics:

Top Interfaces Over Threshold

The Interfaces Over Threshold view in CA Performance Center lists the most heavily used interfaces throughout the enterprise. A table summary shows the interfaces whose utilization exceeds the configured thresholds, as reported in CA Network Flow Analysis.



Interfaces Over Threshold

Interface Name	Traffic Direction	Speed (bps)	Average Utilization	Percent Time Critical ≥ 75%	Percent Time Warning ≥ 50%
Device3::Fa0/0	In	10,000	98.67%	100%	100%
Device2::Fa0/0	Out	10,000	83.33%	100%	100%
[redacted].com [redacted]...	In	131	100.00%	100%	100%
lah::Fa0/0	Out	10,000	98.33%	100%	100%
lah-[redacted]::Fa0/0	Out	10,940	98.88%	100%	100%
rtr-5.25-[redacted].com	In	9,600	98.89%	100%	100%
Device4::Fa0/0	Out	10,000	93.33%	100%	100%
Device9::Lo0	In	42,949	89.99%	100%	100%
Device7::Lo0	Out	42,949	88.25%	100%	100%
Device8::Nu0	In	429,496	84.8%	100%	100%

The Interfaces Over Threshold view shows the interfaces whose traffic exceeded the configured thresholds during the reporting period. The view includes the following information for up to ten top interfaces:

Interface Name

Identifies the interface by its name. (Depending on the application setting for the name format, the name may be prefixed by the device name.)

Traffic Direction

Shows whether the data was inbound or outbound with respect to the interface.

Speed

Records the data speed that is defined for the interface.

Average Utilization

Measures the average percentage of interface capacity that was used.

Percent Time Critical

Shows the percentage of the reporting period time that the interface met or exceeded the user-defined Critical threshold.

Percent Time Warning

Shows the percentage of the reporting period time that the interface met or exceeded the user-defined Warning threshold.

By default, views and reports show the most recent 24 hours of data.

To see the Interfaces Over Threshold view in CA Performance Center, go to one of the following locations:

- Infrastructure Overview dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the thresholds, the view name, and the context (the interfaces that can be used in the view) by editing the view settings as described in this topic.
- Re-sort the table data by clicking a column heading. Click again to toggle between descending and ascending order.
- Change the Max Per Page value to show more or fewer items on each table page.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Click an interface name to open the Interface context pages in CA Performance Center and review details or additional views.

How to Change the View Settings

Follow these steps:

1. Click the Edit icon  in the view title bar and click Edit.

   The View Settings dialog opens.

2. (Optional) Edit the text in the Title field to change the text that appears in the view title bar.

3. (Optional) Edit the thresholds by changing any of the following values in the Interfaces Over Threshold Settings section:

   - Critical - % Utilization: Specify the utilization percentage that is used to flag interfaces with a status of Critical, the highest level of concern. If the utilization for an interface has met or exceeded this percentage, it is marked with a red (Critical) status symbol.

   - Warning - % Utilization: Specify the utilization percentage that is used to flag interfaces with a status of Warning. If the utilization for an interface has met or exceeded this percentage, but has not met the Critical threshold, the interface is marked with an orange (Warning) status symbol.

   - Affected % of reporting period: Specify the percentage of the reporting period that a utilization percentage must be violated in order for the threshold to be met.

     For example, if the 'Affected % of reporting period' value is 25, the threshold is met for the interfaces that have a utilization level at or above the threshold level during 25% of the reporting period. With the default reporting period of 24 hours, the list includes interfaces at or above the threshold value for six hours or more during the previous 24 hours.

4. (Optional) Define a new context to filter the interfaces that can appear in the view: Select a group in the Context Settings tree.

   Interfaces that are not in the selected group do not appear in the view, even if they violate a threshold. If you select a group, the defined context appears in the field under the Context Settings label.

5. (Optional) Specify which users are affected by the settings: Select a value from the Apply Changes list:

   - For All Tenant Users: Saves the changes so that they are only available to users associated with your tenant (possibly the Default Tenant).

   - My User Account: Saves the changes to your user account as a default for this view.

   - My Current Session: Reverts the changes when you log out.

6. Click Save to save your changes, Cancel to exit without saving changes, or Use Defaults to restore the default values.

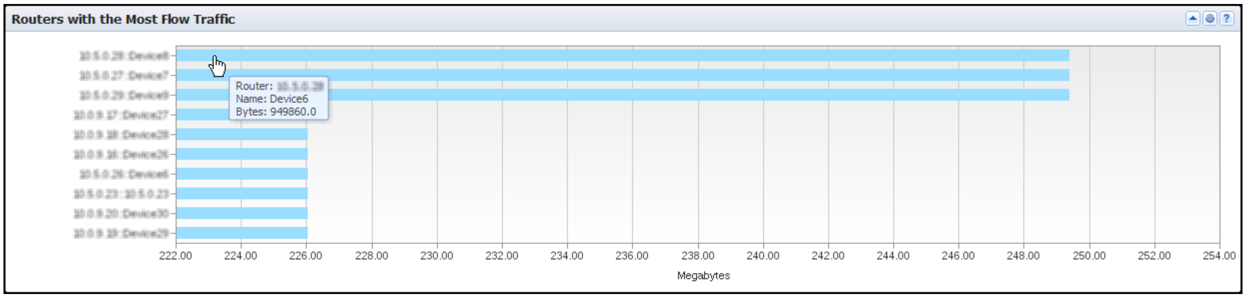
   The View Settings dialog closes. The view refreshes to reflect your updates.

Find the Comparable View in the NFA Console

The Interfaces Over Threshold view in CA Performance Center is similar to the Interface Utilization view on the Enterprise Overview page in CA Network Flow Analysis.

Routers with the Most Flow Traffic

The Routers with the Most Flow Traffic view in CA Performance Center displays the interfaces and parent routers in your network that are most heavily used for both inbound and outbound traffic, as reported by CA Network Flow Analysis.



The Routers with the Most Flow Traffic view shows the routers that generated the greatest flow volume during the reporting period. The view includes the following information for up to 10 routers:

Name

Consists of the router IP address and device name (Y-Axis).

Volume

Measures the total amount of data that was exchanged with the router (for example, in number of megabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see the Routers with the Most Flow Traffic view in CA Performance Center, go to one of the following locations:

- Infrastructure Overview dashboard
- Capacity Planning: Router/Switch Capacity Watch Lists dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

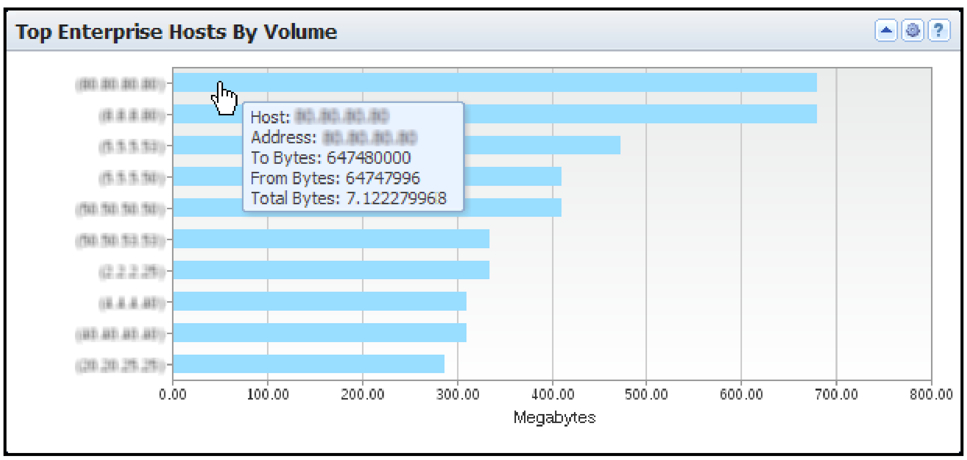
- Change the view name and the context (the routers that can be used in the view) by editing the view settings (see page 189).
- Display additional Tooltip details by holding your cursor over a router bar.
- Click a router bar to view router details in the CA Performance Center Router pages.

Find the Comparable View in the NFA Console

The Routers with the Most Flow Traffic view in CA Performance Center is similar to the Top Interfaces views on the Enterprise Overview page in CA Network Flow Analysis.

Top Enterprise Hosts by Volume

The Top Enterprise Hosts by Volume view in CA Performance Center is a graph summary of the enterprise hosts with the highest volume of network traffic, as reported by CA Network Flow Analysis.



The view shows a bar for each of a maximum of ten hosts who generated the highest traffic volume. The bar chart includes the following information:

Host

Identifies the host server by its name or IP address (Y-Axis).

Volume

Measures the total amount of data that was exchanged with the host (for example, in number of megabytes or gigabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see the Top Enterprise Hosts by Volume view in CA Performance Center, go to one of the following locations:

- Infrastructure Overview dashboard
- Management: Network Overview dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

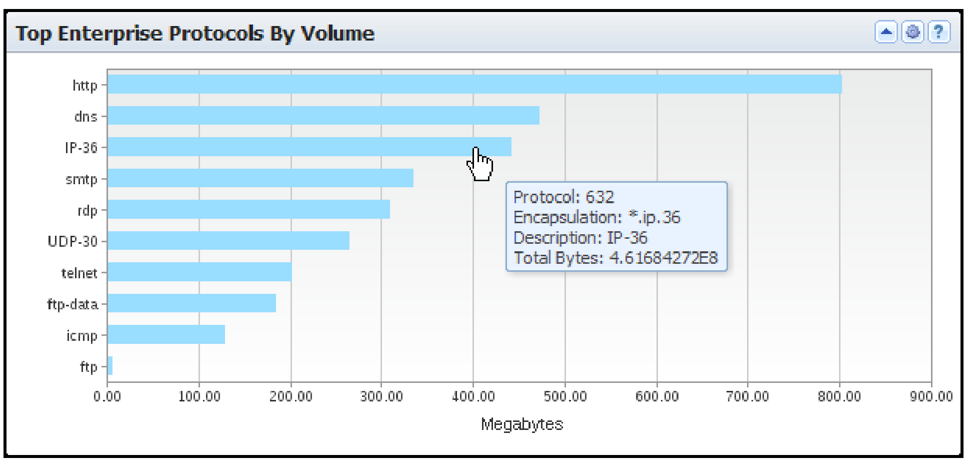
- Change the view name and the context (the hosts that can be used in the view) by editing the view settings (see page 189).
- Display additional Tooltip details by holding your cursor over a host bar: Host, address, volume of data going to the host (To Bytes) and volume of data coming from the host (From Bytes).
- Click a host name or bar to open related views in CA Network Flow Analysis.

Find the Comparable View in the NFA Console

The Top Enterprise Hosts by Volume view in CA Performance Center is similar to the Top Hosts view on the Enterprise Overview page in CA Network Flow Analysis.

Top Enterprise Protocols by Volume

The Top Enterprise Protocols by Volume view in CA Performance Center is a graph summary of the protocols with the highest volume of network traffic across the enterprise.



The view includes the following information for up to 10 top protocols that were used during the reporting period:

Protocol

Identifies the protocol by its keyword (Y-Axis).

Volume

Measures the total amount of data associated with the protocol (for example, in number of megabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see the Top Enterprise Protocols by Volume view in CA Performance Center,go to one of the following locations:

- Infrastructure Overview dashboard
- Management: Network Overview dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

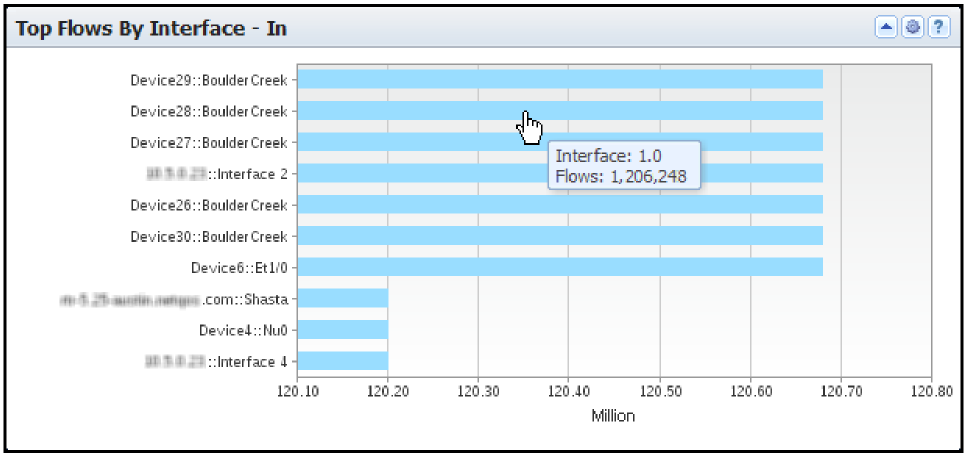
- Change the view name and the context (the protocols that can be used in the view) by editing the view settings (see page 189).
- Display additional Tooltip details by holding your cursor over a host bar: Protocol name, encapsulation name, description, and volume.
- Click a protocol name or bar to open related views in CA Network Flow Analysis.

Find the Comparable View in the NFA Console

The Top Enterprise Protocols by Volume view in CA Performance Center is similar to the Top Protocols view on the Enterprise Overview page in CA Network Flow Analysis.

Top Flows by Interface

The Top Flows by Interface views in CA Performance Center are graphical summaries of high-flow interfaces across the enterprise.



The view includes the following information for up to 10 top interfaces that transmitted flows during the reporting period:

Name

Identifies the interface by its device name/interface name (Y-Axis).

Volume

Measures the number of flows that the interface transmitted (for example, in millions of flows) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see the Top Flows by Interface views in CA Performance Center, go to one of the following locations:

- Infrastructure Overview dashboard
- Management: Management Overview dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the data direction, the view name, and the context (the interfaces that can be used in the view) by editing the view settings (see page 189).
- Display a Tooltip to see the number of flows for an interface by holding your cursor over the interface bar.
- Click an interface name or bar to open related information on the Interface context pages in CA Performance Center.

Find Flow Count Data in NFA Console Views and Reports

To see the flow count for high-volume interfaces in the NFA console, drill into the Flows view for an interface or run a Flow Forensics report:

1. Click an interface name or bar in one of the Top Interfaces views on the Enterprise Overview page.

   The Interfaces page opens and shows the Flows view for the selected interface. The trend charts include lines that indicate the number of inbound and outbound flows.

2. (Optional) Run a Flow Forensics report to show the exact flow count for one or more interfaces:

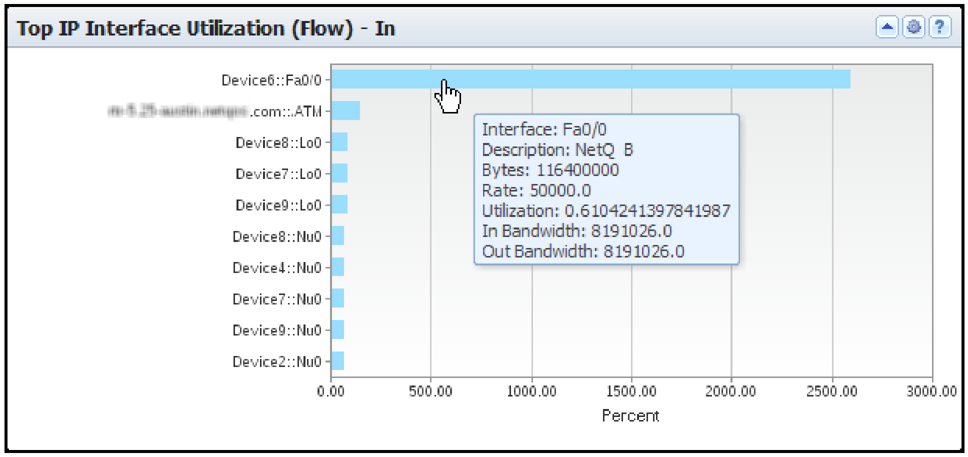
   a. Click Flow Forensics and configure a Flow Forensics report: For example, accept Conversation Sessions as the report type. To include multiple interfaces, add a filter such as "RA: Interface."

   b. Run the Flow Forensics report

      The Flow Forensic table opens and shows interface flow counts and extensive information about each flow.

Top IP Interface Utilization (Flow)

The Top IP Interface Utilization (Flow) views in CA Performance Center are graphical summaries of high-utilization interfaces across the enterprise.



The view includes the following information for up to 10 top interfaces that transmitted flows during the reporting period:

Name

Identifies the interface by its device name/interface name (Y-Axis).

Utilization

Measures the percentage of total interface capacity that the flows used (X-Axis). The view shows either the utilization of flows that were inbound to the interface or outbound from the interface.

By default, views and reports show the most recent 24 hours of data.

To see the Top IP Interface Utilization (Flows) views in CA Performance Center, go to one of the following locations:

- Infrastructure Overview dashboard
- Management: Management Overview dashboard
- Summary-type view in a custom dashboard (see page 193)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

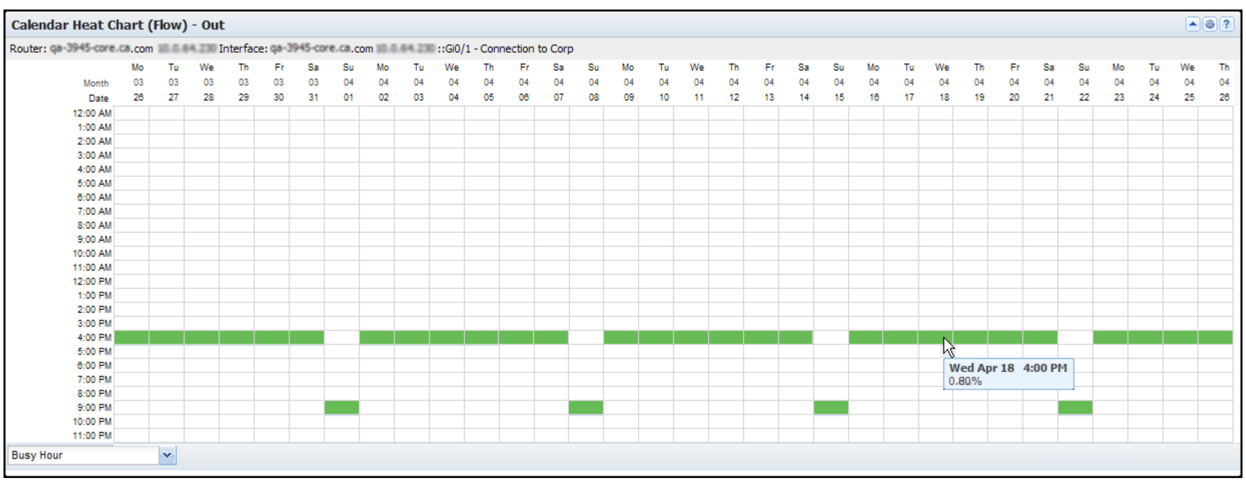
- Change the data direction, the view name, and the context (the interfaces that can be used in the view) by editing the view settings (see page 189).
- Display Tooltip details by holding your cursor over an interface bar: Interface name, description, volume, rate, utilization, and inbound/outbound bandwidths.
- Click an interface name or bar to open related information on the Interface context pages in CA Performance Center.

Find the Comparable View in the NFA Console

The Top IP Interface Utilization (Flows) view in CA Performance Center is similar to the Interface Utilization view on the Enterprise Overview page in CA Network Flow Analysis.

Calendar Chart (Flow)

The Calendar Heat Chart (Flow) view shows the recurrence of flows on an interface. Finding a recurring flow pattern can help you to identify the source of performance issues that otherwise might appear to be intermittent. For example, the view can show the hour of each day when flows are highest.



The view includes the following information:

Identifier

Consists of the router name, interface name, and interface description (under the view title).

Month, Date, and Day of the Week

Denote the day that the flows occurred (X-Axis columns).

Hour

Denotes the hour of the day that the flows occurred (Y-Axis).

To see the Calendar Heat Chart view in CA Performance Center, go to the Interface Pages (with an interface selected) and select the Calendar Heat Chart tab.

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the data direction, the view name, and the context (the interfaces that can be used in the view) by editing the view settings (as described in this topic).
- Display Tooltip details by holding your cursor over a cell: Date, time, and utilization percentage.
- Click Show All and choose a pattern-matching filter. For example, select Busy Hour to show only the data for the busiest hour of each day.

How to Change the View Settings

Follow these steps:

1. Click the Edit icon  in the view title bar and click Edit.

   The View Settings dialog opens.

2. (Optional) Edit any of the following settings in the Calendar Heat Chart (Flow) Settings section:

   - Title: Change the text that appears in the view title bar.
   - Time Display Format: Select the time format for the chart, either 12 hours or 24 hours.
   - Zone Start: Set the starting value of each heat zone. The defaults are based on IT industry standards for performance. For example, the default Red Zone Start value is 70 percent utilization.

     Defaults: Green Zone Start = 0, Yellow Zone Start = 50, Orange Zone Start = 60, Red Zone Start = 70.

- Business Week Start: Select the day that starts the business week.

  Default: Monday.

- Direction Settings: Select the direction of traffic on the selected interface to include in the report:
  - Out: Outbound traffic from the interface.
  - In: Inbound traffic from the interface.
  - Total: Inbound and outbound traffic combined.

3. (Optional) Change the context for the view data: Select a different interface from the Context Settings table.
4. (Optional) Specify which users are affected by the setting changes: Select a value from the Apply Changes list:
   - Default for All Users: Saves the changes to all user accounts as a default for this view.
   - For All Tenant Users: Saves the changes so that they are only available to users associated with your tenant.
   - My User Account: Saves the changes to your user account as a default for this view.
   - My Current Session: Reverts the changes when you log out.
5. Click Save to save your changes.

   The settings dialog closes. The view refreshes to reflect your updates.

Find Calendar Charts in the NFA Console

You can select an interface on the Interfaces page of the NFA console and display its utilization data in a calendar chart:

- *Utilization* -- Report type: Utilization. Presentation menu option: Direction In or Direction Out.

  View: Calendar Chart (In or Out) for the selected interface.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

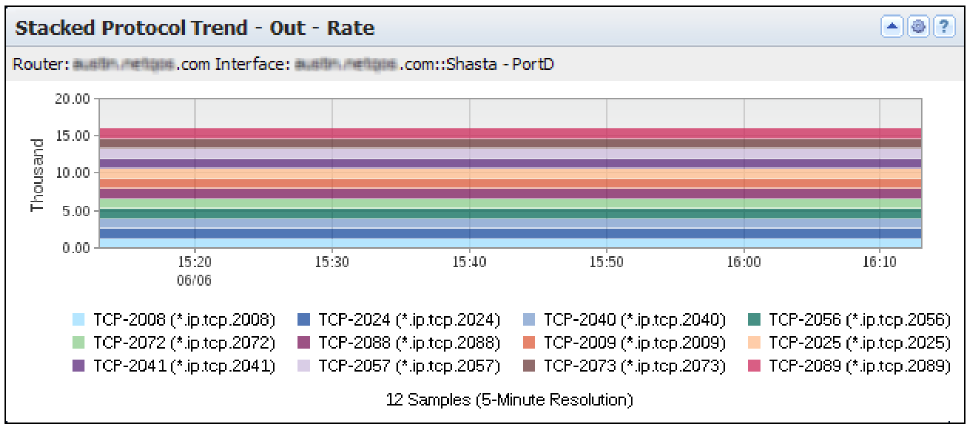
Interface: Stacked Trend Charts

The Stacked Trend views show the top protocol or ToS values that are used for traffic on the currently selected interface. The views are described in the topics that follow.

This section contains the following topics:

Stacked Protocol Trend

The Stacked Protocol Trend views in CA Performance Center show the top protocols that are used the most heavily for traffic on the selected interface. The views also show when the traffic occurred.



The view shows a timeline of the data rate, interface capacity utilization, or data volume for the top protocols in use during the reporting period--up to a maximum of ten protocols. The view includes the following information:

Identifier

Consists of the router name, interface name, and interface description (under the view title).

Protocol Bands

Show the data rate, data volume, or interface capacity utilization for each Top N Protocol that is associated with traffic on the interface.

Time (All Views)

Point in time during data transmission--expressed in hours and minutes (X-Axis).

Volume (Rate or Bytes)

Data volume at each point in time--for example, expressed in thousands of flows in a Rate view or kilobytes in a Bytes view (Y-Axis). Depending on the data direction, the data volume is inbound to the interface, outbound from the interface, or both inbound and outbound. Rate is calculated by dividing the number of flows by the elapsed transmission time.

Percent (Utilization)

Percentage of the total interface capacity that the protocol uses (Y-Axis). The utilization percentage is calculated by dividing the data rate by the data speed, as measured on inbound traffic, outbound traffic, or all traffic.

Legend

Identifies the protocol for each color band by protocol keyword and tcp/udp port (bottom of the view).

By default, views and reports show the most recent 24 hours of data.

To see the Stacked Protocol Trend views in CA Performance Center, go to one of the following locations:

- Interface Pages (with an interface selected): IP Performance tab
- Interface Pages (with an interface selected): CBQoS tab
- Custom dashboard (see page 195)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the type of measurement and the view name by editing the view settings (see page 189). If the view is located on a custom dashboard, you also can change the interface for the report.
- Zoom in to narrow the time frame (see page 192).
- Display only the data for a single protocol: Right-click a protocol in the legend at the bottom of the view and click Focus. This menu is available for a view that has multiple protocols.
- Hide data for a protocol: Right-click a protocol in the legend at the bottom of the view and click Hide.
- Position your cursor over the legend at the bottom of the view to display a Tooltip that has information about the graph. For example, a Tooltip might read "Outbound Rate in Bits per second."
- Jump to details on a CA Network Flow Analysis Interfaces page by double-clicking a protocol in the legend at the bottom of the view.

Find Protocol Trend Data in NFA Console Views and Reports

You can display protocol volume in the NFA console in trend charts or stacked trend charts for any interface you have selected:

- *Overview* -- Report type: Overview. Presentation menu options: Mixed Chart; Volume.

  Views: Stacked Protocol Trend (In and Out) for the Top N Protocols, plus other overview views.

- *Top N Protocols, Stacked Trends* -- Report type: Protocols. Filter: Top N Protocols. Presentation menu options: Stacked Trend Chart; Volume.

  Views: Stacked Trend for the Top N Protocols (In, Out, and Total).

- *Top N Protocols, Trends* -- Report type: Protocols. Filter: Top N ToS. Presentation menu options: Trend Chart; Volume.

  Views: Trend (In, Out, and Total) for each of the Top N Protocols.

- *Single Protocol* -- Report type: Protocols. Filter: Single protocol.

  Views: (Depending on the selected report subtype): trends, stacked trends, trend summaries, and multi-trend summaries for protocols, protocol hosts, and protocols in conversations.

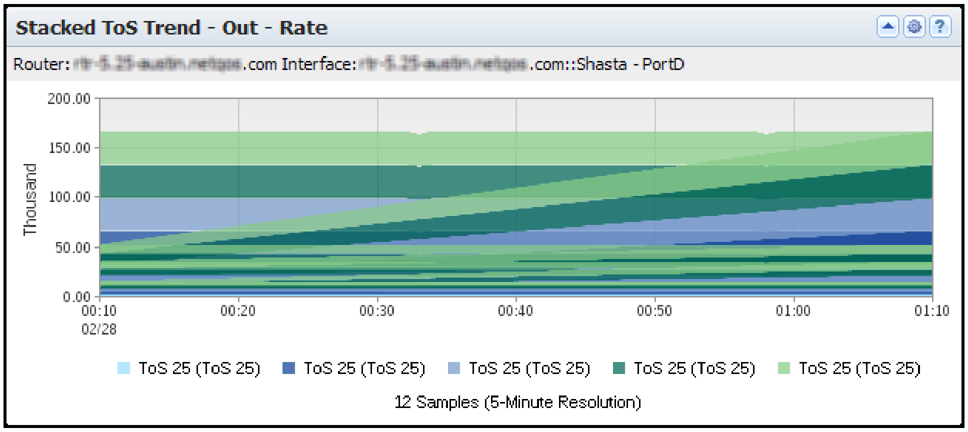
To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Also See:

Top Protocols (Bar) (see page 183)
Top Protocols (Pie) (see page 184)
Top Protocols (Table) (see page 186)

Stacked ToS Trend

The Stacked ToS Trend views show the interface traffic for the top ToS, including the time the traffic occurred.



The view shows a timeline of the data rate, interface capacity utilization, or data volume for the top ToS values in use during the reporting period--up to a maximum of ten ToS. The view includes the following information:

Identifier

Consists of the router name, interface name, and interface description (under the view title).

ToS Bands

Show the data rate, data volume, or interface capacity utilization for each Top N ToS that is associated with traffic on the interface.

Time (All Views)

Point in time during data transmission--expressed in hours and minutes (X-Axis).

Volume (Rate or Bytes)

Data volume at each point in time--for example, expressed in thousands of flows in a Rate view or kilobytes in a Bytes view (Y-Axis). Depending on the data direction, the data volume is inbound to the interface, outbound from the interface, or both inbound and outbound. Rate is calculated by dividing the number of flows by the elapsed transmission time.

Percent (Utilization)

Percentage of the total interface capacity that the ToS uses (Y-Axis). The utilization percentage is calculated by dividing the data rate by the data speed, as measured on inbound traffic, outbound traffic, or all traffic.

Legend

Identifies the ToS for each color band by ToS number and label (bottom of the view).

By default, views and reports show the most recent 24 hours of data.

To see the Stacked ToS Trend views in CA Performance Center, go to one of the following locations:

- Interface Pages (with an interface selected): CBQoS tab
- Custom dashboard (see page 195)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the type of measurement and the view name by editing the view settings (see page 189). If the view is located on a custom dashboard, you also can change the interface for the report.
- Zoom in to narrow the time frame (see page 192).
- Display only the data for a single ToS: Right-click a ToS in the legend at the bottom of the view and click Focus. This menu is available for a view that has multiple ToS values.
- Hide data for a ToS: Right-click a ToS in the legend at the bottom of the view and click Hide.
- Position your cursor over the legend at the bottom of the view to display a Tooltip that has information about the graph.
- Jump to details on a CA Network Flow Analysis Interfaces page by double-clicking a ToS in the legend at the bottom of the view.

Find ToS Trend Data in NFA Console Views and Reports

You can display ToS volume in trend charts or stacked trend charts in the NFA console for any interface you have selected:

- *Overview* -- Report type: Overview. Presentation menu options: Mixed Chart or Mixed Trend; Volume.

  Views: Stacked ToS Trend (In and Out) for the Top N ToS, plus other overview views.

- *Top N ToS, Stacked Trends* -- Report type: ToS. Filter: Top N ToS. Presentation menu options: Stacked Trend Chart; Volume.

  Views: Stacked Trend for the Top N ToS (In, Out, and Total).

- *Top N ToS, Trends* -- Report type: ToS. Filter: Top N ToS. Presentation menu options: Trend Chart; Volume.

  Views: Trend (In, Out, and Total) for each of the Top N ToS.

- *Single ToS, Stacked Trends/Trends* -- Report type: ToS. Filter: Single ToS value. Presentation menu options: Mixed Trend; Volume.

  Views: Trend (In and Out with baselines), Stacked ToS Trend (In and Out).

- *Single ToS, Trends* -- Report type: ToS. Filter: Single ToS value. Presentation menu options: Mixed Chart; Volume.

  Views: Stacked ToS Trend (In and Out).

- *Conversation* -- Report type: Conversations. Filter: Single conversation source and destination. Report subtype: Protocols. Presentation menu options: Volume.

  Views: Conversation Trend (maximum of 7 views for different timespans).

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

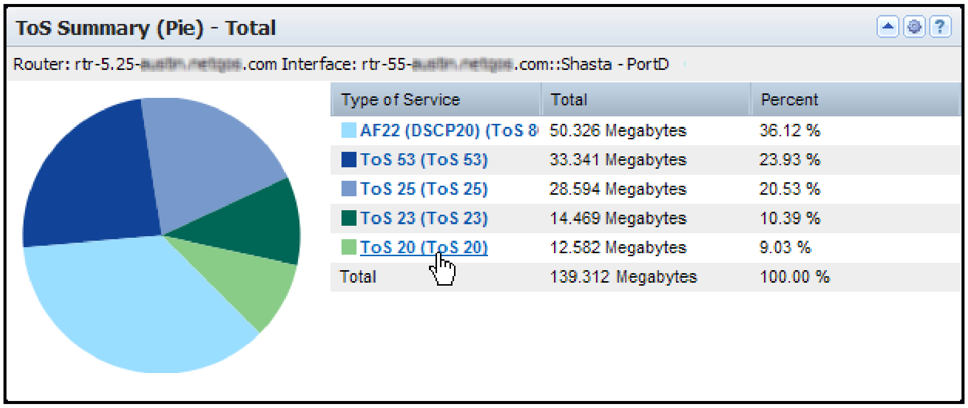
Interface: ToS Summaries

The ToS Summary views show the Type of Service (ToS) values for traffic on the selected interface. The views are described in the topics that follow.

This section contains the following topics:

ToS Summary (Pie)

The ToS Summary (Pie) view shows an overview of the Type of Service (ToS) values for traffic on the selected interface. The ToS data is shown as a pie chart and is listed in a table of numeric values.



The view includes a pie chart and table of information about the high-volume ToS values in use on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The table includes the following information by default:

Identifier

Identifies the interface that is used for the report. The identifier string consists of the router name, interface name, and interface description (under the view title).

Type of Service

Name of the ToS values associated with high-volume traffic, identified by number and label.

Total

Shows the total data volume for the reporting period.

Percent

Lists the percentage of the total data volume for the Top N ToS.

By default, views and reports show the most recent 24 hours of data.

To see a ToS Summary (Pie) views in CA Performance Center, go to one of the following locations:

- Interface Pages (with an interface selected): IP Performance tab
- Custom dashboard (see page 195)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the type of measurement, and the view name by editing the view settings (see page 189). If the view is located on a custom dashboard, you also can change the interface for the report.
- Jump to details on a CA Network Flow Analysis Interfaces page by double-clicking a ToS name.

Find ToS Summary Pie Charts in the NFA Console

You can display pie charts of ToS summary data in the NFA console for any interface you have selected:

- *Overview* -- Report type: Overview. Presentation menu option: Pie Chart.

  View: ToS Summary (In and Out) for the Top N ToS.
- *Top N ToS Summary* -- Report type: ToS. Filter: Top N ToS. Presentation menu option: Pie Chart.

  View: ToS Summary (In, Out, and Total) for the Top N ToS.
- *Single ToS Summaries* -- Report type: ToS. Filter: Single ToS. Report subtype: Overview. Presentation menu option: Pie Chart.

  Views: ToS Protocol Summary (In and Out) for the single ToS; ToS Hosts Summary (From and To) for the single ToS; ToS Conversations Summary (Total) for the single ToS.

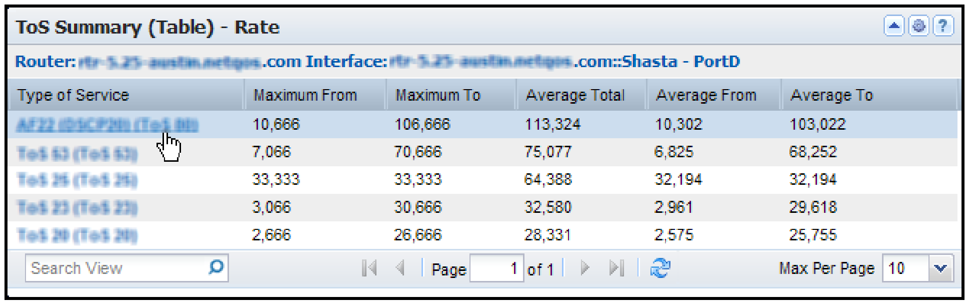
  Note: You also can view additional versions of these summary pie charts by selecting Protocols, Hosts, or Conversations as the report subtype.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

ToS Summary (Table)

The ToS Summary (Table) views show rate, volume, or utilization for the top ToS values of the traffic on a particular interface. You can use this information to compare traffic for each of the top ToS values.

The example graphic is a ToS Summary (Table) view that shows the rate for each listed ToS value. You can configure the view to display ToS rate, utilization, or volume information.



The view contains an interface identification string and a table. The table contains a row for each ToS with the Type of Service identifier (EF/AF, DSCP, and ToS values) and the following rate, volume, or utilization information (by default):

- Rate: Maximum rate of outbound data (Maximum From) and inbound data (Maximum To) for each ToS; average rates of total data (Average Total), outbound data (Average From), and inbound data (Average To) for each ToS.
- Volume: Number of bytes/megabytes of outbound data (From), inbound data (To), and all data (Total) for each ToS.
- Utilization: Maximum percentage of interface capacity that is utilized by the outbound data (Maximum From) and inbound data (Maximum To) for each ToS; and the average utilization by inbound data (Average From), outbound data (Average To), and total data (Average Total) for each ToS.

By default, views and reports show the most recent 24 hours of data.

To see a ToS Summary (Table) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the type of measurement, the view name, and the interface for the report by editing the view settings (see page 189).
- Re-sort the table data by clicking a column heading. Click again to toggle between descending and ascending order.

- Change the Max Per Page value to show more or fewer items on each table page.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Click a Type of Service link to display more information about the ToS on Interfaces pages in CA Network Flow Analysis.

Find ToS Summary Tables in the NFA Console

You can display ToS summary tables in the NFA console for any interface you have selected:

- *Top N ToS Summary* -- Report type: ToS. Filter: Top N ToS. Presentation menu options: Summary Table; Volume.

  View: ToS Summary Table for the Top N ToS.

- *Protocol Summary for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Protocols. Subtype filter: Top N Protocols. Presentation menu options: Summary Table; Volume.

  Views: ToS Protocol Summary Table for the single ToS.

- *Host Summary for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Hosts. Subtype filter: Top N Hosts. Presentation menu options: Summary Table; Volume.

  Views: ToS Hosts Summary Table for the single ToS.

- *Conversation Summary for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Conversations. Subtype filter: Top N Conversations. Presentation menu options: Summary Table; Volume.

  Views: ToS Conversations Summary Table for the single ToS.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Interface: Top Conversations

The Top Conversations views show the conversations that generate the highest traffic on the currently selected interface. The views are described in the topics that follow.

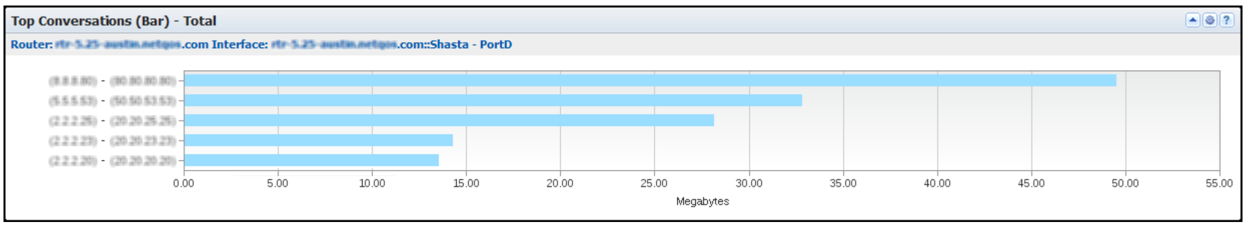
This section contains the following topics:

Top Conversations (Bar)

The Top Conversations (Bar) views show the top 10 conversations that consume bandwidth for an interface. A bar graph shows the bandwidth consumption for each conversation.

For example, use conversation information to determine the IP addresses of high-volume hosts. Contact the host owners or users to investigate the nature and purpose of the traffic.

You can view the conversations for incoming data, outgoing data, or all data--as shown in the example graphic.



The view includes a bar for each high-volume conversation on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The bar chart includes the following information:

Conversation Pair

Identifies the conversation source and destination servers by their names or IP addresses (Y-Axis).

Volume

Measures the total amount of data that was exchanged in the conversation (for example, in number of megabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see a Top Conversations (Bar) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the view name, and the interface for the report by editing the view settings (see page 189).
- Position your cursor over a conversation bar to display Tooltip details, such as the hosts in the conversation pair and their data volumes.
- Jump to details for a specific conversation on a CA Network Flow Analysis Interfaces page by clicking a conversation bar or name.

Find Conversation Trend Data in NFA Console Views and Reports

You can display conversation volume trend charts in the NFA console for any interface you have selected:

- *Overview Multi-Trend* -- Report type: Overview. Presentation menu options: Mixed Trend; Volume.

  View: Conversations Multi Trend Summary (Total) for the Top N Conversations, plus other views.

- *Top N Conversations Trend* -- Report type: Conversations. Filter: Top N Conversations. Presentation menu options: Trend Chart; Volume.

  View: Conversations Trend for the Top N Conversations.

- *Conversations for a Single Protocol* -- Report type: Protocols. Filter: Single protocol. Report subtype: Conversations. Conversation Filter: Top N Conversations. Presentation menu option: Trend Chart.

  View: Protocol Conversations Summary (Total) for a single protocol.

- *Conversations for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype Conversations. Conversation Filter: Top N Conversations. Presentation menu options: Trend Chart; Volume.

  View: ToS Trend view for each conversation that uses the single ToS.

Note: To see trend charts for a single conversation, click Top N Conversations and select a single conversation as the filter.

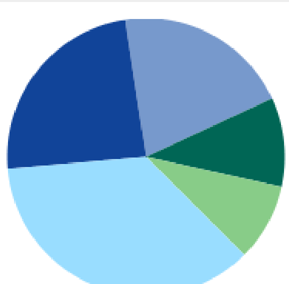
To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Top Conversations (Pie)

The Top Conversations (Pie) view includes a pie chart representation of the conversations that account for the most traffic on the selected interface.

Top Conversations (Pie) - Total

Router: rtr[illegible].com Interface: rtr-[illegible].com::Shasta - PortD



Source - Destination Name	Total	Percent
[illegible]	50.326 Megabytes	36.12 %
[illegible]	33.341 Megabytes	23.93 %
[illegible]	28.594 Megabytes	20.53 %
[illegible]	14.469 Megabytes	10.39 %
[illegible]	12.582 Megabytes	9.03 %
Total	139.312 Megabytes	100.00 %

The view includes a pie chart and table of information about the high-volume conversations on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The table includes the following information by default:

Source - Destination Name

Identifies the host servers that initiated and received the conversation data by their names or IP addresses.

Total

Records the total amount of data that was exchanged in the conversation (for example, in number of megabytes).

Percent

Measures the percentage of the total data that was generated by the conversation.

By default, views and reports show the most recent 24 hours of data.

To see the Top Conversations (Pie) views in CA Performance Center, go to one of the following locations:

- Interface Pages (with an interface selected): IP Performance tab
- Custom dashboard (see page 195)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the type of measurement, and the view name by editing the view settings (see page 189). If the view is located on a custom dashboard, you also can change the interface for the report.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Jump to details on a CA Network Flow Analysis Interfaces page by clicking a conversation link in the view.

Find Conversation Pie Charts in the NFA Console

You can display conversation pie charts in the NFA console for any interface you have selected:

- *Overview* -- Report type: Overview. Presentation menu option: Pie Chart.

  View: Conversations Summary (Total) for the Top N Conversations, plus other overview views.

- *Top N Conversations* -- Report type: Conversations. Filter: Top N Conversations. Presentation menu option: Pie Chart.

  View: Conversations Summary (Total) for the Top N Conversations.

- *Conversations for a Single Protocol* -- Report type: Protocols. Filter: Single protocol. Report subtype: Conversations or Overview. Conversations Filter: Top N Conversations. Presentation menu option: Pie Chart or Mixed Chart.

  View: Protocol Conversations Summary (Total) for a single protocol.

- *Conversations for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Conversations. Conversation Filter: Top N Conversations. Presentation menu option: Pie Chart.

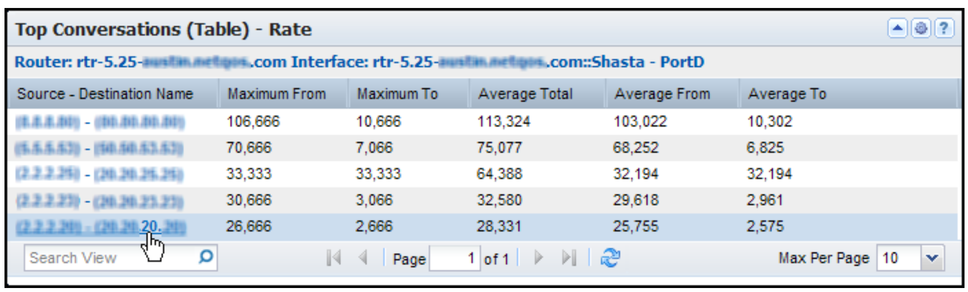
  View: ToS Conversations Summary (Total) for a single ToS.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Top Conversations (Table)

The Top Conversations (Table) views show rate, volume, or utilization for the top 10 highest-volume conversations on a particular interface.

The example graphic shows a Top Conversation (Table) view that is set to show the rate for each listed conversation. You can configure the view to display conversation rate, utilization, or volume information.


Top Conversations (Table) - Rate

Router: rtr-5.25-[illegible].com Interface: rtr-5.25-[illegible].com::Shasta - PortD

Source - Destination Name	Maximum From	Maximum To	Average Total	Average From	Average To
[illegible]	106,666	10,666	113,324	103,022	10,302
[illegible]	70,666	7,066	75,077	68,252	6,825
[illegible]	33,333	33,333	64,388	32,194	32,194
[illegible]	30,666	3,066	32,580	29,618	2,961
[illegible]	26,666	2,666	28,331	25,755	2,575

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The view contains an interface identification string and a table. The table contains a row for each conversation. The Source - Destination Name shows the IP address or host name of the server that initiated and the server that received the conversation data. The table also contains the following rate, volume, or utilization information (by default):

- Rate: Maximum rate of outbound data (Maximum From) and inbound data (Maximum To) for each conversation; average rates of total data (Average Total), outbound data (Average From), and inbound data (Average To) for each conversation.

- Volume: Number of bytes/megabytes of outbound data (From), inbound data (To), and all data (Total) for each conversation.

- Utilization: Maximum percentage of interface capacity that is utilized by the outbound data (Maximum From) and inbound data (Maximum To) for each conversation; and the average utilization by inbound data (Average From), outbound data (Average To), and total data (Average Total) for each conversation.

By default, views and reports show the most recent 24 hours of data.

To see a Top Conversations (Table) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the type of measurement, the view name, and the interface for the report by editing the view settings (see page 189).
- Re-sort the table data by clicking a column heading. Click again to toggle between descending and ascending order.
- Change the Max Per Page value to show more or fewer items on each table page.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Click one of the conversation links to jump to a pre-filtered Interfaces report in CA Network Flow Analysis.

Find Conversation Tables in the NFA Console

You can display tables with conversation volumes in the NFA console for any interface you have selected:

- *Top N Conversations* -- Report type: Conversations. Filter: Top N Conversations. Presentation menu option: Summary Table; Volume.

  View: Conversation Summary Table for the Top N Conversations.
- *Conversations for a Single Protocol* -- Report type: Protocols. Filter: Single protocol. Report subtype: Conversations. Subtype filter: Top N Conversations. Presentation menu option: Summary Table; Volume.

  View: Protocol Conversation Summary Table for a single protocol.
- *Conversations for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Conversations. Subtype filter: Top N Conversations. Presentation menu options: Summary Table; Volume.

  View: ToS Conversations Summary Table for a single ToS.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Interface: Top Hosts

The Top Hosts views show the hosts that generate the highest traffic on the currently selected interface. The views are described in the topics that follow.

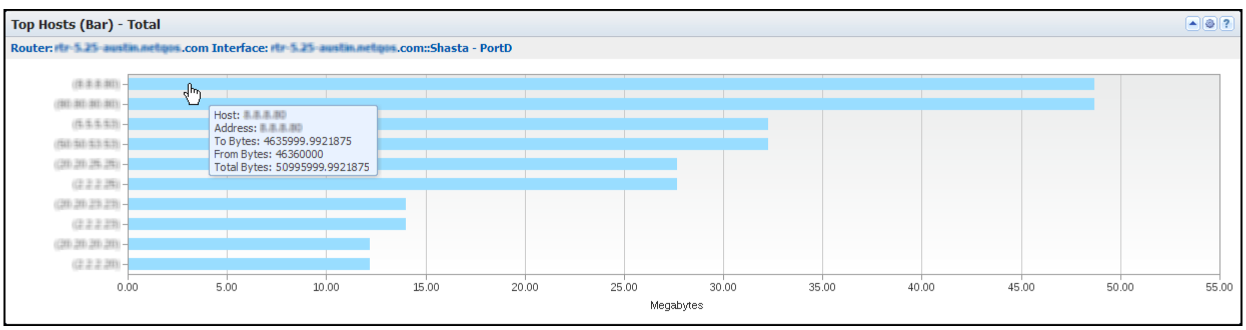
This section contains the following topics:

Top Hosts (Bar)

The Top Hosts (Bar) views show the top 10 hosts that consume bandwidth for a particular interface. A bar graph shows the bandwidth consumption for each host.

You can use this information in troubleshooting to determine the IP addresses of hosts that are responsible for high volumes of traffic. You can then contact the owner or user of each host to investigate the nature and purpose of the traffic.

You can view the hosts for incoming flows, for outgoing flows, or for all flows--as shown in the example graphic.



The view includes a bar for each high-volume host on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The bar chart includes the following information:

Host Name

Identifies the host server by its name or IP address (Y-Axis).

Volume

Measures the total amount of data that was exchanged between the host and the interface (for example, in number of megabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see a Top Hosts (Bar) views in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the view name, and the interface for the report by editing the view settings (see page 189).
- Position your cursor over a host bar in the view to display Tooltip details, such as the host, address, and data volumes.
- Jump to details for a specific host on a CA Network Flow Analysis Interfaces page by clicking a bar in the view.

Find Host Trend Views in the NFA Console

The Enterprise Overview page in the NFA console displays traffic volume for the top hosts in a bar chart.

You also can display host volume in trend charts for any interface that you have selected:

- *Overview* -- Report type: Overview. Presentation menu options: Mixed Trend; Volume.

  View: Hosts Multi Trend Summary (From and To) for the Top N Hosts, plus other overview views.

- *Top N Host Trend* -- Report type: Hosts. Filter: Top N Hosts. Presentation menu options: Trend Chart; Volume.

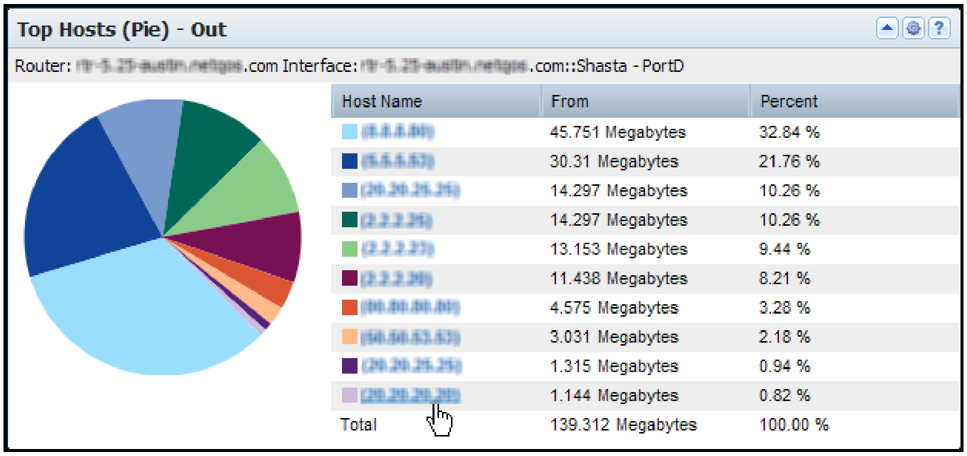
  View: Host Trend for each of the Top N Hosts.

Note: To see trend charts for a single host, click Top N Hosts and select a single host as the filter.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Top Hosts - Pie

The Top Hosts (Pie) views include pie charts that show the Top IP hosts that account for the highest volumes of IP traffic on the selected interface.



The view includes a pie chart and table of information about the high-volume hosts on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The table includes the following information by default:

Host Name

Identifies the host server by its name or IP address.

Total

Records the total amount of data that was exchanged between the host and the interface (for example, in number of megabytes).

Percent

Records the percentage of the total network traffic for the displayed hosts that is associated with the particular host.

By default, views and reports show the most recent 24 hours of data.

To see a Top Hosts (Pie) views in CA Performance Center, go to one of the following locations:

- Interface Pages (with an interface selected): IP Performance tab
- Custom dashboard (see page 195)

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction and the view name by editing the view settings (see page 189). If the view is located on a custom dashboard, you also can change the interface for the report.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Jump to details on a CA Network Flow Analysis Interfaces page by clicking a host link in the view.

Find Host Pie Charts in the NFA Console

You can display pie charts with host volumes in the NFA console for any interface that you have selected:

- *Overview* -- Report type: Overview. Presentation menu option: Pie Chart.

  View: Host Summary (From and To) for the Top N Hosts, plus other overview views.
- *Top N Hosts Summary* -- Report type: Hosts. Filter: Top N Hosts. Presentation menu option: Pie Chart.

  View: Host Summary (From, To, and Total) for the Top N Hosts.
- *Hosts for a Single Protocol* -- Report type: Protocols. Filter: Single protocol. Report subtype: Overview. Presentation menu option: Pie Chart.

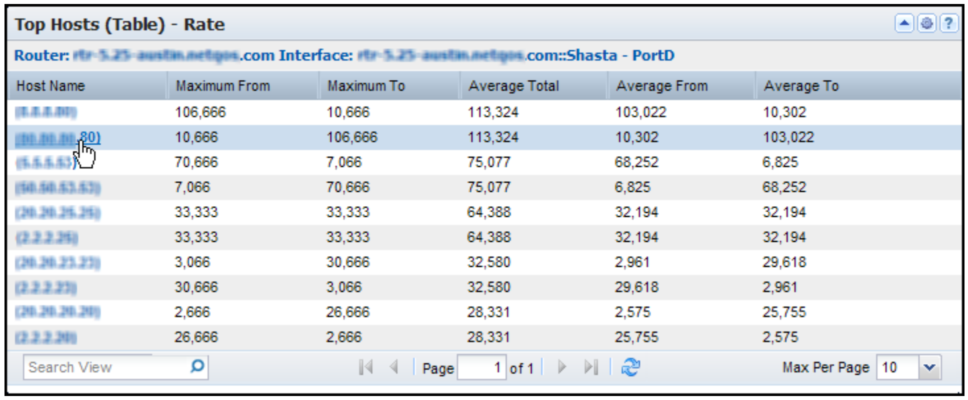
  View: Protocol Hosts Summary (From, To, and Total) for the single protocol.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Top Hosts (Table)

The Top Hosts (Table) views show rate, volume, or utilization for the highest volume hosts on a particular interface.

The example shows a Top Hosts (Table) view that is configured to show the rate for each listed host.



Top Hosts (Table) - Rate

Router: [illegible].com Interface: [illegible].com::Shasta - PortD

Host Name	Maximum From	Maximum To	Average Total	Average From	Average To
[illegible]	106,666	10,666	113,324	103,022	10,302
[illegible]	10,666	106,666	113,324	10,302	103,022
[illegible]	70,666	7,066	75,077	68,252	6,825
[illegible]	7,066	70,666	75,077	6,825	68,252
[illegible]	33,333	33,333	64,388	32,194	32,194
[illegible]	33,333	33,333	64,388	32,194	32,194
[illegible]	3,066	30,666	32,580	2,961	29,618
[illegible]	30,666	3,066	32,580	29,618	2,961
[illegible]	2,666	26,666	28,331	2,575	25,755
[illegible]	26,666	2,666	28,331	25,755	2,575

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The view contains an interface identification string and a table. The table contains a row for each host with the host name or IP address and the following rate, volume, or utilization information (by default):

- Rate: Maximum rate of outbound data (Maximum From) and inbound data (Maximum To) for each host; average rates of total data (Average Total), outbound data (Average From), and inbound data (Average To) for each host.
- Volume: Number of bytes/megabytes of outbound data (From), inbound data (To), and all data (Total) for each host.
- Utilization: Maximum percentage of interface capacity that is utilized by the outbound data (Maximum From) and inbound data (Maximum To) for each host; and the average utilization by inbound data (Average From), outbound data (Average To), and total data (Average Total) for each host.

By default, views and reports show the most recent 24 hours of data.

To see a Top Hosts (Table) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the type of measurement, the view name, and the interface for the report by editing the view settings (see page 189).
- Re-sort the table data by clicking a column heading. Click again to toggle between descending and ascending order.

- Change the Max Per Page value to show more or fewer items on each table page.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Click a host name to jump to a pre-filtered Interfaces report in CA Network Flow Analysis.

Find Host Tables in the NFA Console

You can display tables with host volumes in the NFA console for any interface that you have selected:

- *Top N Hosts Summary* -- Report type: Hosts. Filter: Top N Hosts. Presentation menu option: Summary Table; Volume.

  View: Host Summary Table for the Top N Hosts.
- *Hosts for a Single Protocol* -- Report type: Protocols. Filter: Single protocol. Report subtype: Overview. Presentation menu option: Summary Table; Volume.

  View: Protocol Host Summary Table for the single protocol.
- *Hosts for a Single ToS* -- Report type: ToS. Filter: Single ToS. Report subtype: Hosts. Subtype filter: Top N Hosts. Presentation menu options: Summary Table; Volume.

  View: ToS Hosts Summary Table for the single ToS.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Interface: Top Protocols

The Top Protocols views show the protocols associated with the highest traffic on the currently selected interface. The views are described in the topics that follow.

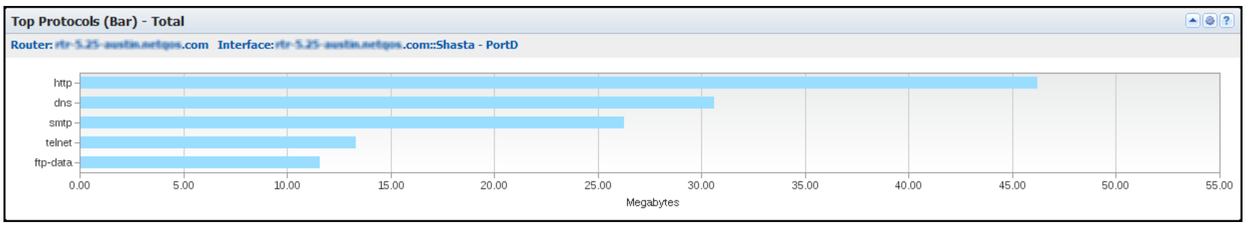
This section contains the following topics:

Top Protocols (Bar)

The Top Protocols (Bar) views show the top 10 highest-volume IP protocols for traffic on a particular interface. A bar chart shows which protocols account for the most traffic on the selected interface.

This view gives you an overall picture of how much data is associated with particular protocols--and, therefore, with applications--on the interface. The view also lets you determine whether the application protocols are related to business-critical processes, or are related to low-priority or non-business related processes such as unauthorized web use.

You can view protocol traffic for incoming flows, outgoing flows, or all flows--as shown in the example graphic.



The view includes a bar for each high-volume protocol on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The bar chart includes the following information:

Protocol

Identifies the protocol by its keyword (Y-Axis).

Volume

Measures the total amount of data that was associated with the protocol (for example, in number of megabytes) (X-Axis).

By default, views and reports show the most recent 24 hours of data.

To see a Top Protocols (Bar) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the view name, and the interface for the report by editing the view settings (see page 189).
- Position your cursor over a protocol bar in the view to display Tooltip details: the protocol name, protocol encapsulation name, description, and data volume.
- Jump to a related report on the CA Network Flow Analysis Enterprise Overview page by clicking a protocol name or bar in the view.

Find the Comparable View in the NFA Console

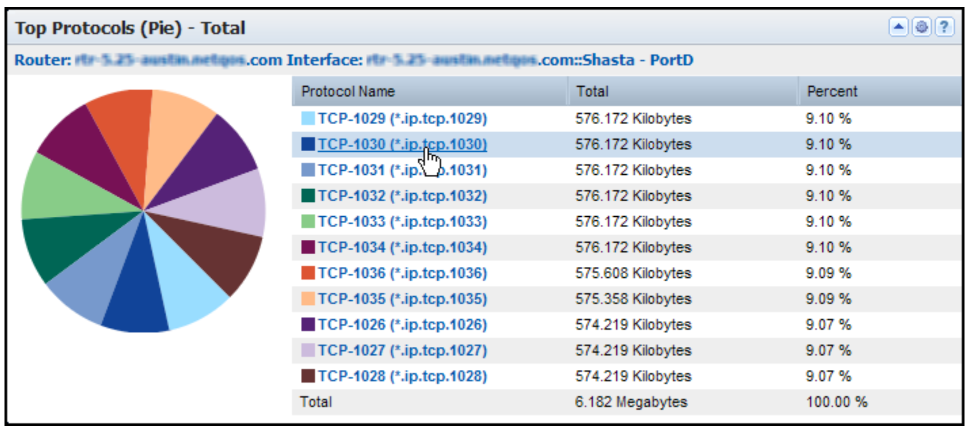
The Top Protocols (Bar) views in CA Performance Center are similar to the Top Protocol view on the Enterprise Overview page in CA Network Flow Analysis.

Also See:

Stacked Protocol Trend (see page 162)

Top Protocols (Pie)

The Top Protocols (Pie) views show the protocols that are associated with the highest volumes of network traffic on the selected interface. You can use this information for quick comparisons of the amounts of inbound and outbound data for particular applications on the interface, for example.



Protocol Name	Total	Percent
TCP-1029 (*.ip.tcp.1029)	576.172 Kilobytes	9.10 %
TCP-1030 (*.ip.tcp.1030)	576.172 Kilobytes	9.10 %
TCP-1031 (*.ip.tcp.1031)	576.172 Kilobytes	9.10 %
TCP-1032 (*.ip.tcp.1032)	576.172 Kilobytes	9.10 %
TCP-1033 (*.ip.tcp.1033)	576.172 Kilobytes	9.10 %
TCP-1034 (*.ip.tcp.1034)	576.172 Kilobytes	9.10 %
TCP-1036 (*.ip.tcp.1036)	575.608 Kilobytes	9.09 %
TCP-1035 (*.ip.tcp.1035)	575.358 Kilobytes	9.09 %
TCP-1026 (*.ip.tcp.1026)	574.219 Kilobytes	9.07 %
TCP-1027 (*.ip.tcp.1027)	574.219 Kilobytes	9.07 %
TCP-1028 (*.ip.tcp.1028)	574.219 Kilobytes	9.07 %
Total	6.182 Megabytes	100.00 %

The view includes a pie chart and table of information about the high-volume protocols on the selected interface. A text string near the top of the view identifies the interface whose data is displayed. The table includes the following information by default:

Protocol Name

Identifies the protocol by its keyword and TCP/UDP port assignment.

Total

Records the total amount of network traffic on the interface that is associated with the protocol (for example, in number of megabytes).

Percent

Records the percentage of the total network traffic for the displayed protocols that is associated with the particular protocol.

By default, views and reports show the most recent 24 hours of data.

To see a Top Protocols (Pie) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the traffic direction, the view name, and the interface for the report by editing the view settings (see page 189).
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Jump to details on a CA Network Flow Analysis Interfaces page by clicking a protocol name in the view.

Find Protocol Pie Charts in the NFA Console

You can display pie charts with protocol traffic volumes in the NFA console for any interface that you have selected:

- *Overview* -- Report type: Overview. Presentation menu option: Pie Chart.

  View: Protocol Summary (In and Out) for the Top N Protocols, plus other overview views.
- *Top N Protocol Summaries* -- Report type: Protocols. Filter: Top N Protocols. Presentation menu option: Pie Chart.

  View: Protocol Summary (In, Out, and Total) for the Top N Protocols.
- *Hosts or Conversations for Single Protocol* -- Report type: Protocols. Filter: Single protocol. Presentation menu option: Pie Chart.

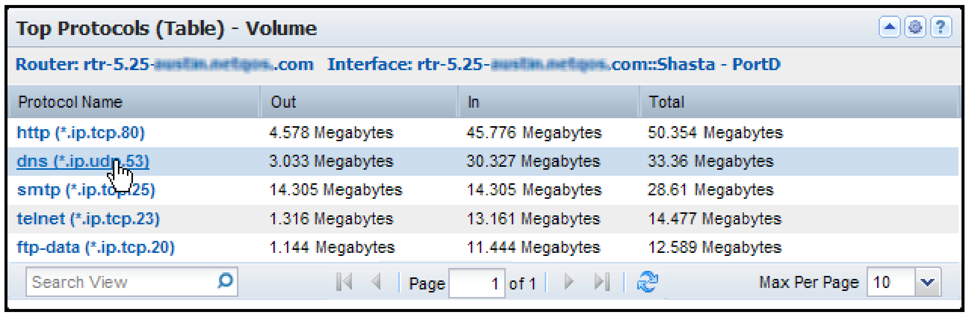
  Views: Protocol Hosts Summary (From and To) for the single protocol; Protocol Conversations Summary (Total) for the single protocol.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Top Protocols (Table)

The Top Protocols (Table) views show rate, volume, or utilization for the top 10 highest-volume IP protocols for traffic on a particular interface. A table shows data for the protocols--and therefore, the applications--that account for the most traffic on the selected interface. For example, use this information to compare the amounts of data or level of utilization for particular applications on the interface.

The example graphic shows a Top Protocols (Table) view that is set to show the volume of flow for each listed protocol.



The view contains an interface identification string and a table. The table contains a row for each protocol with the protocol name (keyword and TCP/UDP port assignment) and the following rate, volume, or utilization information (by default):

- Rate: Maximum rate of outbound data (Maximum From) and inbound data (Maximum To) for each protocol; average rates of total data (Average Total), outbound data (Average From), and inbound data (Average To) for each protocol.
- Volume: Number of bytes/megabytes of outbound data (From), inbound data (To), and all data (Total) for each protocol.
- Utilization: Maximum percentage of interface capacity that is utilized by the outbound data (Maximum From) and inbound data (Maximum To) for each protocol; and the average utilization by inbound data (Average From), outbound data (Average To), and total data (Average Total) for each protocol.

By default, views and reports show the most recent 24 hours of data.

To see a Top Protocols (Table) view in CA Performance Center, add it to a custom dashboard (see page 195).

Available Actions for This View

You can perform several actions in this view, including the ones in the following list:

- Change the type of measurement, the view name, and the interface for the report by editing the view settings (see page 189).
- Re-sort the table data by clicking a column heading. Click again to toggle between descending and ascending order.

- Change the Max Per Page value to show more or fewer items on each table page.
- Change the columns that are shown in the table: Click near a column border, click Columns, then choose the columns that you want to display.
- Click a host name to jump to a pre-filtered Interfaces report in CA Network Flow Analysis.

Find Protocol Tables in the NFA Console

You can display tables of protocol volume data in the NFA console for any interface that you have selected:

You can display pie charts with protocol traffic volumes in the NFA console for any interface that you have selected:

- *Top N Protocols* -- Report type: Protocols. Filter: Top N Protocols. Presentation menu options: Summary Table; Volume.

  View: Protocol Summary Table for the Top N Protocols, plus other overview views.
- *Protocols for a Single Host* -- Report type: Hosts. Filter: Single host. Report subtype: Protocols. Presentation menu options: Summary Table; Volume.

  View: Host Protocol Summary Table for the single host.
- *Protocols for a Single Conversation* -- Report type: Conversations. Filter: Single conversation. Report subtype: Protocols. Presentation menu options: Summary Table; Volume.

  View: Conversation Protocol Summary Table for the single conversation.

To display Flow Forensics-level detail, click the Flow Forensics link and run a Flow Forensics report.

Customizing Views

The icons at the top right of each data view give access to settings and other options that are associated with views. The View icons let you modify view settings, export views, and access context-sensitive online Help.

You can select predefined and custom time frames for dashboards to compare data that was collected at different times. The time frame setting affects all views on the same page. For a dashboard or for an individual view, you can change the data context to see data from another reporting group.

For some types of views, you can customize the table or chart format.

View Options

Many views offer a search feature and other settings that you can change to modify the view. In addition to filtering and time frame (see page 191) options, the following options are available for most data views:

- Editing view settings , such as changing its title or severity categories.
- Seeing more data by selecting another "page" of a table view.
- Increasing or decreasing the number of items that are shown per "page".
- Collapsing the view so that the data is hidden.
- Changing the managed item context for the data shown in the view.

  Note: Users with the 'Save Changes to Shared Views' role right can save view modifications to their own user account. The changes persist after logout. However, other users cannot see changes to views.

Other view options are specific to the selected view. The available options depend on the format and data source.

Trend View Options

The trend views that are available in context pages let you quickly and easily change the trend lines that are displayed on the graph. The following options also apply to multitrend views:

- Right-click a metric in the chart legend and select Hide to remove it from the view.
- Exclude all other metrics by right-clicking a metric in the legend and selecting Focus.
- Narrow the focus to a precise time frame using the zoom feature (see page 192).

Trend views also include an option to add a "goal line" as a visual indication of performance levels or thresholds. You can supply any value or label for the goal line, and you can show or hide the goal line for a selected trend view.

Table View Options

In table views, you can drill down to detailed data for individual items. Use the page feature to see metrics from a longer list of items. Increase the Max Per Page value to increase the size of the view and the number of table rows per page.

You can sort table data columns by selected metrics and also select columns to include. Click a table column to sort. A white arrow on the column lets you access a menu of table column options. Select Columns to enable and disable the metrics that were enabled for the table by default.

Change the View Settings

You can change several settings for an enterprise-wide view or an interface-specific view. The available settings depend on the view that you are editing.

For example, some views have settings for data direction--so you can set the view to display inbound data, outbound data, or all data. Other views have settings for the type of measurement--so you can set the view to display data rates, data volumes, or interface capacity utilization.

Follow these steps:

1. Open the dashboard that contains the view that you want to modify.
2. (Optional) Change the time frame, if necessary.
3. Click the Edit icon  in the view title bar and select Edit from the menu.

   The View Settings dialog opens.
4. (Optional) Edit the view Title to change the text that appears in the view title bar.
5. (Optional) If the view has Measurement Settings, select the type of measurement to show in the report:
   - Rate: Rate of traffic, expressed in Mbps.
   - Bytes: Volume of traffic.
   - Utilization: Percentage of total capacity used by the traffic.
6. (Optional) If the view has Direction Settings, select the data direction on the selected interface:
   - Out: Outbound traffic from the interface.
   - In: Inbound traffic to the interface.
   - Total: Inbound and outbound traffic combined.
7. (Optional) For an interface-specific view, change the interface whose data is included: Select a different interface from the Context Settings table.

   Note: You can change the interface for an individual view on a custom dashboard that you defined with the Interface context. You cannot change the interface for standard views on other types of dashboards or on interface context pages.

   To re-sort the table, click a column heading. You can click the white arrow to choose between Sort Ascending and Sort Descending.

   To change the columns that are included in the table, display the Columns list: Click near the right edge of a column heading, then click the white arrow and select Columns.

8. (Optional) For an enterprise-wide view, change the context to change the set of managed items that can be used in the view: Select a group in the Context Settings tree.

   For example, to restrict the interface set to a domain, select the domain from the IP Domains list.

9. (Optional) Specify which users are affected by the setting changes: Select a value from the Apply Changes list:

   - For All Tenant Users: Saves the changes so that they apply to all users.
   - My User Account: Saves the changes to your user account as the default setting for this view.
   - My Current Session: Reverts the changes when you log out.

   Note: The availability of these options depends on your user account role rights.

10. Click Save to save your changes.

    The View Settings dialog closes. The view refreshes to reflect your updates.

Note: You can also change the context for a dashboard, which applies the selected group or managed item as a filter to all views on the page.

Change the Context for a View

You can change the context for a single view on a dashboard. Change the context of an enterprise-wide view to show data from a different set of managed items. Change the context of an interface-specific view to show data from a different interface.

Changing the context for a view is useful for troubleshooting performance issues. For example, you can use your group structure to compare data from different geographical regions.

Follow these steps:

1. Open the dashboard that contains the view that you want to modify.
2. (Optional) Change the time frame, if necessary.
3. Click the Edit icon  in the view title bar and select Edit from the menu.

   The View Settings dialog opens.

4. Take one of the following steps:
   - Enterprise view: Click to expand folders in the Groups filter tree, and select the group whose data you want to see in the view.
   - Interface view: Locate the interface whose data you want to see in the view, and click the link in the table.
5. Change the view Title to reflect the new context.

   The context types that are available depend on the type of view.
6. Select the scope of your changes from the Apply Changes drop-down. Select one of the following options:
   - For All Tenant Users: Saves the changes so that they are only available to users associated with your tenant (possibly the Default Tenant).
   - My User Account: Saves the changes to your user account as a default for this view.
   - My Current Session: Reverts the changes when you log out.

   Note: The availability of these options depends on your user account role rights.
7. Click Save.

   The view is updated with data from the new context.

You can also change the context for a dashboard, which applies the selected group or managed item as a filter to all views on the page.

Set a Custom Time Frame

You can select a precise time frame for the performance data shown in the current dashboard. You can select the day, the start time, and the end time using the time period selectors.

Follow these steps:

1. Navigate to a dashboard.
2. Click the date links in the upper-left corner of the dashboard page to open the calendar panes.
3. Select the beginning day and ending day of the new time period on the calendar panes.
4. Click the hours or minutes links to specify the beginning and ending times of the new time period.
5. Click Set.

   The custom time frame is applied to the dashboard you are viewing.

Zoom in to Narrow the Time Frame

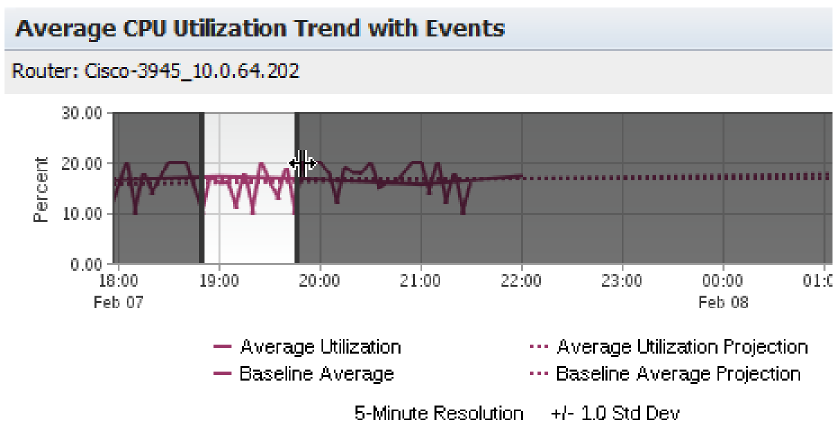
You can look more closely at the data points from a small range by using the zoom feature. The ability to "zoom in" on a time frame is available for views that contain trend (line) charts. The feature is not available for bar charts, tables, or gauges.

Follow these steps:

1. Navigate to a dashboard page.
2. (Optional) Change the time frame, if necessary.
3. Select a view that contains a line chart.

   Note: You cannot zoom in on a bar chart, table, or gauge.

4. Click and drag, using the mouse to select an area of the chart.



   Select an area that spans at least 30 minutes. Black lines appear to indicate a valid selection.

   When you release the mouse button, the custom time period you selected is applied to the current view.

5. (Optional) Click Undo, just below the view, to return to the previous time frame.

   The view is refreshed. The previous time period is now applied to the view.

6. (Optional) Click Apply to Dashboard.

   The dashboard page is refreshed. The new time period is now applied to all views on the current dashboard page.

Building Custom Views

You can create custom views that provide the charts, tables, or gauges of metrics that you select.

View "containers" are available when you edit a dashboard. These containers contain code to format the data and present it in the CA Performance Center interface. After you add a view to a dashboard, edit it from the dashboard interface. You can select view options and data to build a custom view.

Generic View Containers

Generic view containers let you build your own views and add them to dashboards. You select a container with a basic chart format. Then select view options to build a custom view. The View Settings dialog limits the parameters that you can change, based on the view container and the parameters it supports.

When you build a custom view, you can select a metric or metric family to display in the view, and you can select other parameters for charts and tables.

Most custom views are specific to data sources. Generic containers that can only display data from a single data source are labeled as such on the Edit Dashboard Layout page. Look for the name of the data source and the "Custom View" label to find these containers on the page.

More information:

Build a Custom View for a Single Interface (see page 195)

Build a Custom View

You can create custom views that contain metrics that you select. The Edit Dashboard feature lets you select generic view "containers" that you can use to build new views. These generic containers are available when you edit a dashboard. After you add a generic view to a dashboard, you can select view options to build a custom view.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Navigate to a dashboard page where you want the custom view to appear.
3. Click the More menu and select Edit Dashboard.

   The Edit Dashboard Layout page opens.

4. Expand the categories of views shown in the left pane.
5. Select a view from one of the expanded lists of custom views. For example, select the 'Top Flows By Interfaces' view from the 'IP Flow' category.
6. Drag the view to the layout, and drop it where you want it to appear.
7. Click Save to save the change to the dashboard.

   The dashboard page refreshes to show the generic view container. Its title and subtitle are 'Undefined'.

8. Click the Edit icon  on the generic view, and select Edit.

   The View Settings dialog opens.

9. Replace the default view Title and Subtitle with text to describe the custom view.
10. (Optional) Select or enter any view-specific settings that you want to change.

    The metrics that are available are specific to the report type. Metrics may include the direction of data that is collected or the utilization thresholds that determine which interfaces are displayed, for example. Some reports have no additional options for metrics.

11. (Optional) Select another managed item or group in the Context Settings area.

    Data from the new item or group will be shown in the custom view.

12. Select the scope of your changes from the Apply Changes drop-down. Select one of the following options:

    - For All Tenant Users: Saves the changes so that they are only available to users associated with your tenant (possibly the Default Tenant).
    - My User Account: Saves the changes to your user account as a default for this view.
    - My Current Session: Reverts the changes when you log out.

    Note: The availability of these options depends on your user account role rights.

13. Click Save.

    The view refreshes to reflect your updates.

Build a Custom View for a Single Interface

You can create custom views that contain CA Network Flow Analysis data for a single interface. You can add these interface views to a custom dashboard.

Several interface views are available in addition to the views that are displayed by default on the interface pages.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Navigate to the dashboard page in CA Performance Center where you want to add a custom view.
3. Click the More menu, and select Edit Dashboard.

   The Edit Dashboard Layout page opens.
4. Click the Summary link above the view category list.

   The Select View Context dialog opens.
5. Select Interface from the Context Type list.

   A table of routers and interfaces appears.
6. Locate and select an interface in the table.

   A long identification string for the router and interface appears in the Context Item field.
7. Click OK.

   You return to the Edit Dashboard Layout page.
8. Expand the IP Flow category.
9. Drag one of the CA Network Flow Analysis interface views to the layout and drop it where you want it to appear.
10. Click Save to save the change to the dashboard.

    The dashboard page refreshes to show the generic view container. Its title and subtitle are 'Undefined'.
11. Click the Edit icon on the CA Network Flow Analysis interface view, and select Edit.

    The View Settings dialog opens.
12. Replace the default view Title with text to describe the custom view.
13. Select or enter any other view-specific settings that you want to change. For example, select the direction of data to display.

    Data from the new interface or setting will be shown in the custom view.

14. Select the scope of your changes from the Apply Changes drop-down. Select one of the following options:
    - For All Tenant Users: Saves the changes so that they are only available to users associated with your tenant (possibly the Default Tenant).
    - My User Account: Saves the changes to your user account as a default for this view.
    - My Current Session: Reverts the changes when you log out.

    Note: The availability of these options depends on your user account role rights.
15. Click Save.

    The view refreshes to reflect your updates.

Sharing Data with Other Users

Multiple options let you share dashboards and views with coworkers. You can export a dashboard to a static report in PDF format. You can print reports or send them by email. You can set up a schedule to send a report automatically on a regular basis.

You can also export individual views. You can publish views on a web page, such as an intranet site. Or you can export data from a view to a file in CSV format. For all data-export options, certain user account role rights are required.

Print a Report

If your user account has the required role right, you can export the current dashboard contents as a printed report. The Print feature first displays the current dashboard page in PDF format.

Follow these steps:

1. Navigate to the dashboard that you want to export as a report.
2. (Optional) Change the time frame (see page 146).
3. Click the Print link on the toolbar.

   The report is exported as a PDF. Typically, it is displayed in a separate browser window.

   The data uses the current dashboard settings.
4. (Optional) Save the PDF to the local computer using the options in your PDF viewer.
5. Click the Print icon in the browser toolbar.

   The report page is sent to the local default printer.

Send a Report by Email

You can export the current dashboard contents as a report attached to an email message. The Email feature lets you specify the email address of the recipient and also the Subject line of the email message. The report is attached to the message as a document in PDF format.

Sending reports as email attachments requires an administrator to specify an SMTP server. Your user account must also have a role with the 'Send Reports by Email' role right. For more information, see the Related Topics.

Follow these steps:

1. Open the dashboard that you want to send in an email message.
2. (Optional) Change the time frame, if necessary.
3. Click the Email icon on the toolbar.
4. Supply information for the following fields:

   Send To

   Specifies the email addresses where the report should be sent. Use the standard format:

   <name>@<domain>

   Note: Use commas or semicolons to separate multiple addresses. Or you can enter an email alias that includes multiple recipients.

   Subject

   Appears in the email Subject line; describes the emailed report.

   Example: The dashboard title and any components whose data is included in the report.

   Message

   (Optional) Is a message to accompany the emailed report.

5. Select Send Now to send the email message immediately.

   Or select Send on a Schedule to create a schedule to send the email message on a regular basis. For more information, see Set Up a Recurring Email Schedule (see page 198).

6. Click OK.

   The CA Performance Center server generates a PDF from the current dashboard and sends the report as an attachment to an email message.

More information:

Set Up a Recurring Email Schedule (see page 198)

Set Up a Recurring Email Schedule

Each dashboard contains options to export and send data in reports. Your user account must have the 'Send Reports by Email' role right.

You can send a report by email immediately, or you can create a schedule for recurring emailed reports. For example, you can email interface utilization reports each week to coworkers in the IT department for capacity planning.

Note: The administrator must specify an email server to enable this feature.

Follow these steps:

1. Log in to CA Performance Center and select a report from the menus on the Dashboards tab.
2. Click Email.

   The Email Dashboard dialog opens.
3. Supply information in the following fields:

   Send To

   Specifies the email addresses where the report should be sent. Use the standard format:

   <name>@<domain>

   Note: Use commas or semicolons to separate multiple addresses. Or you can enter an email alias that includes multiple recipients.

   Subject

   Appears in the email Subject line; describes the emailed report.

   Example: The dashboard title and any components whose data is included in the report.

   Message

   (Optional) Is a message to accompany the emailed report.
4. Select one of the following Scheduling Options:

   Send Now

   Sends the email message immediately.

Send Daily

Sends the email message once per day. If enabled, reveals check boxes where you can select the day of the week when the report is sent.

Default: Send the emailed report every weekday (Monday - Friday) at 0:30 hours in the time zone of the logged-in user. The data in the report reflects the previous 24 hours.

Send Weekly

Sends the email message once per week. If enabled, lets you select the day of the week to send the report.

By default, the weekly schedule sends the emailed report every Sunday at 01:00 in your time zone.

Default: The data in the report reflects the previous seven days (Saturday - Sunday).

Week Ends on

Determines the day when the week ends. The start of the week is automatically adjusted to include seven days.

Send Monthly

Sends the email message once per month. Sends the report on the first Sunday of each month at 01:00 in the time zone of the Management Console. The data in the report reflects the previous 30 days.

Send Email at

Determines the time of day when the message is sent. The start of the month is automatically adjusted to include 30 days.

Send Quarterly

Sends the email message once per quarter. Sends the report on the first Sunday of each quarter at 01:00 in the time zone of the Management Console. The data in the report reflects the previous three months.

First Quarter Ends in

Determines the month when the quarter ends. The start of the quarter is automatically adjusted to include three months. All other quarters are also adjusted to proceed from the first quarter.

Send Yearly

Sends the email message once per calendar year. Sends the report on the last day of the month you select for the 'Year ends in' parameter. The data in the report reflects the previous 12 months.

Year Ends in

Determines the month when the year ends. The start of the year is automatically adjusted to include 365 days.

Send email at [time of day]

Sends the email message at a time you select.

5. Click Save to save the schedule.

   The report is saved as a PDF file and attached to an email message. The message is sent immediately or according to the schedule you selected.

Manage Email Schedules

Users with the required role rights can set up schedules to send reports by email on a recurring basis. Selected dashboard data is exported in report format and sent to designated users according to a regular schedule.

Users who lack administrative role rights can edit the email schedules that they have created themselves. But if your user account has the required administrative role rights, you can also edit or delete the schedules that other users have created.

Follow these steps:

1. Log in as a user with administrative role rights.
2. Select Admin, User Settings, and click Scheduled Emails.

   The Manage Scheduled Emails page opens.

   The page displays the current list of email schedules.

   Note: Tenant administrators only see the items that are associated with their tenant.

3. Select the email schedule that you want to change, and click Edit.

   The Email Dashboard dialog opens.

4. View or change the settings for email schedules. For more information, see Set Up a Recurring Email Schedule (see page 198).
5. Click Save.

Generate a URL for a View

You can export a view and share it with coworkers who do not have access to dashboards. CA Performance Center can generate a special uniform resource locator (URL) to recreate a selected data view on demand. The URL lets you add the view to a web page or intranet site to share performance data with coworkers. The Generate URL feature lets you involve others in capacity-planning and infrastructure upgrade decisions and lets you share status information.

Follow these steps:

1. Log in as a user with the 'Generate URLs from Views' role right.
2. Navigate to the dashboard that contains the view for which you want to generate a URL.
3. Click the Edit icon  on the view, and select Generate URL.

   The Generate URL dialog opens. The URL is displayed in the URL field.
4. Enable or disable the following required parameters for the exported view:

   View Container

   Displays the chart or graph with a surrounding container. The container includes the title of the view in a title bar and a black outline around the chart or graph.

   Default: Enabled

   Drill Down

   Enables users to drill down from the view into the underlying data source for more detailed data. These users must have a minimal product privilege to the data source and the 'Drill into Data Sources' role right to use this feature.

   Default: Enabled.
5. Select from the following time frame options:

   Time Options

   Let you change the time frame for the data in the exported view. Supply a custom time frame in the Start Time and End Time fields, or select a Time Range from the drop-down list.

Token Expiration Options

Control view expiration. The default, 'Never' expires, lets the exported view display indefinitely.

If you want the view to expire, select a timeout period from the Token Expiration drop-down list. The URL includes an encrypted token that causes the view to expire after the specified timeout period.

6. (Optional) Click Preview to see how the view looks with the options you have selected.
7. Copy the URL displayed at the top of the page to the Clipboard.
8. Paste it to the destination where you want to display the view.
9. Click OK.
10. The Generate URL window closes.

Organizing Dashboards in Menus

Dashboards are organized into menus that describe a troubleshooting or monitoring purpose. You see a list of available dashboards and menus when you hover on the Dashboards tab.

Users with the required administrative role rights can reorganize menus. They can also create custom menus that contain predefined or custom dashboards. They can then associate the new menus with user account roles. When product operators log in, the dashboards they require to perform their daily tasks are organized in a meaningful way.

Administrators can remove a dashboard from any menu and add it to a shared menu or to the My Dashboards menu of selected user accounts.

View a List of Menus

The Manage Menus page contains a list of currently defined menus. Before you add custom menus, only predefined menus are included in the list. The user account role determines the menus that each user can access.

Custom menus are defined for each tenant. Only the factory menus are shared among tenants. The global administrator sees a list of menus not explicitly associated with a tenant.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Select Admin, User Settings, and click Menus.

   The Manage Menus page opens.

   The page displays the current list of menus. The following menus are provided with CA Performance Center and appear by default in the Menu List:

   Infrastructure Health

   Contains summary and overview dashboards with at-a-glance views of system and device health and performance, events, and threshold compliance.

   Application Health

   Contains overviews and detailed analysis of application performance. Also contains related dashboards, such as performance by protocol and server performance.

   Capacity Planning

   Contains dashboards that are related to projections, thresholds, and recent changes to systems or devices.

   Management

   Contains at-a-glance scorecards and overview dashboards, as well as high-level summary and comparison dashboards.

   Operations Displays

   Contains high-level overview dashboards appropriate for display in the Operations Center and for use by Network Operators.

   To perform any action on this page, select a menu, and then click a button.

   If any dashboards have been customized, the following additional menu appears:

   My Dashboards

   Contains frequently used dashboards for an individual user account. Any dashboards that this user modified become available in this menu.

   Note: Users with the required role right can edit the My Dashboards menu for a user account by proxying that user account. For more information, see Proxy a User Account.

More information:

Custom Menus (see page 204)
Add a Menu (see page 204)

Custom Menus

Administrators and designers can create custom menus for the Dashboards tab. Custom menus let you determine the dashboards available to each user account. Ideally, at login, CA Performance Center operators see three or four menus on the Dashboards tab that contain only the data that they require.

If your user account has the necessary role right, you can also create custom dashboards to populate a custom menu.

Custom dashboards that are included in a user's My Dashboards menu are not visible to other users. Users can therefore copy a dashboard from a factory menu to their My Dashboards menu and then customize it.

A custom menu is not available to any users until the administrator edits a role to include it. The role must, in turn, be assigned to a user account.

Add a Menu

Custom menus let you organize dashboards and make them available to selected roles. Administrators and designers can create custom menus and can select dashboards for each menu.

A custom menu is not available to any users until the administrator edits a role to include it. The role must, in turn, be assigned to a user account.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Navigate to the Manage Menus page (see page 202).

   The Manage Menus page displays the current list of menus.
3. Click New.

   The Add Menu page opens.
4. Supply values in the following fields:

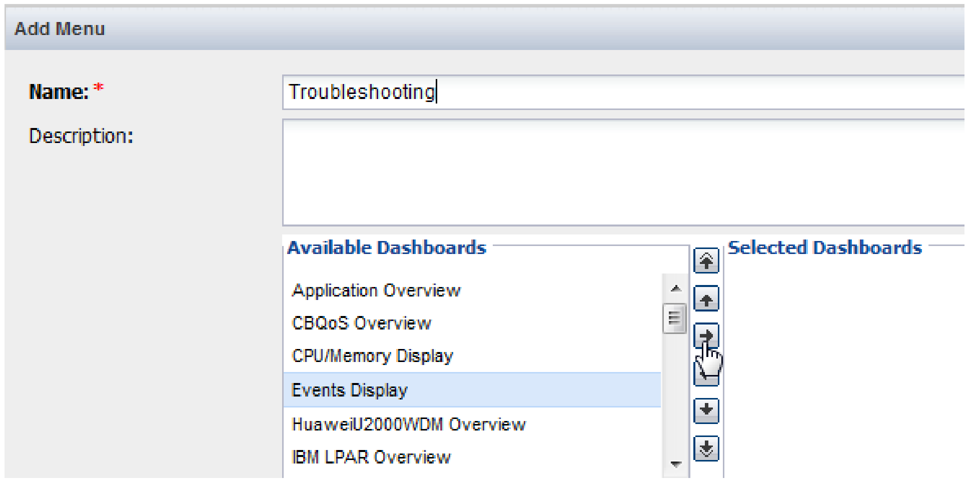
   Name

   Is a name for the menu. This name appears when you click the Dashboards tab.

Description

(Optional) Describes the menu to help other operators identify it.

5. Select a dashboard in the Available list that you want to include in the menu.



6. Click the right arrow.

   The dashboard moves to the Selected list.

   Use Shift + Click or Ctrl + Click to select multiple dashboards. Use the up and down arrows to change the order of the dashboards in the menu.

   Note: A maximum of 20 dashboards can be assigned to a single menu. An error message appears if you try to add more than 20 dashboards.

7. Click Save when you have finished creating menus. Or click Save & Add Another to save the menu and add another menu.

Edit a Menu

Administrators and designers can edit menus to meet changing needs and new job responsibilities for CA Performance Center operators. They can edit custom or factory menus by adding new dashboards, removing dashboards, and changing their order.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Navigate to the Manage Menus page (see page 202).

   The Manage Menus page displays the current list of menus.

3. Select the menu that you want to modify, and click Edit.
4. Modify menu settings as required.

   For example, to remove a dashboard from the menu, take the following steps:

   - Select it where it appears in the Selected list.
   - Use the arrow button to move it to the Available list.

   Note: A maximum of 20 dashboards can be assigned to a single menu. An error message appears if you try to add more than 20 dashboards.

5. Click Save.

   The menu is edited.

Delete a Menu

When a menu is no longer being used, you can delete it.

Note: Deleting a user account that is associated with a custom menu does not delete that menu.

Follow these steps:

1. Log in as a user with the required administrative role rights.
2. Navigate to the Manage Menus page (see page 202).

   The Manage Menus page displays the current list of menus.

3. Select the menu that you want to delete, and click Delete.

   The Delete Menu dialog opens.

4. Click Yes to confirm the deletion.

   The menu is deleted and no longer appears on the Dashboards tab when the associated user logs in. Any dashboards that are contained in the menu definition are not affected and can be added to other menus.

Glossary

baseline

A *baseline* is a record of typical behavior, which is computed from past behavior. Baselines help you compare changes over time, which can be used to predict future data or performance. Comparing current values to baseline projections is useful for determining whether current values are typical. The baseline in a trend plot is computed using data from six weeks preceding the selected date range, excluding the data point already in the trend plot.

conversation

A *conversation* is a session of subnet-to-subnet or user-to-user (host-to-host) traffic. The NFA console displays conversation information, so you can find out whether a particular conversation is causing a traffic spike on an interface, for example. You can create and run reports to identify the top volume-based conversations.

drill down

To *drill down* is to navigate from one data view to another, more detailed data view or context page. The new page displays data from the same time frame, for the same managed item or set of items. You can drill down to details in CA Network Flow Analysis from views in CA Performance Center.

filter

A *filter* in a report is a set of selection criteria that are used to focus a report on the desired data.

flow

A *flow* is a set of IP packets that pass a network observation point during a certain time interval. In CA Network Flow Analysis 9.1.1, flow may consist of NetFlow v5, v7, or v9; sFlow version 5; or IPFIX, Jflow, cFlow, or Huawei NetStream flow that conforms to the standards for NetFlow v5, v7, or v9.

host

A *host* is a specific computer engaged in an exchange across the network. In some cases, a host represents a managed services provider whose IT staff manage and monitor the networks and systems of multiple customers. In CA Network Flow Analysis, hosts are identified by name or IP address. You can track host activity to find out whether a specific server or end-user system is responsible for significant traffic on an interface, for example. You can create and run reports about the traffic that is generated or is received by specified hosts.

interface

An *interface* is a point of connection, such as a Serial, Frame Relay, Fast Ethernet, ATM, or PVC interface. CA Network Flow Analysis reports on any logical interface that is enabled on a supported router that has flow enabled. The NFA console displays the interfaces that are monitored in your environment.

NetFlow

NetFlow is a transaction between two hosts, which uses a unique pair of port numbers and IP addresses and which includes certain network traffic information. A Cisco router can be configured to export flow information by sending UDP packets that contain flow statistics to one or more collectors such as the Harvesters. CA Network Flow Analysis supports NetFlow versions 5, 7, and 9 and sFlow version 5. CA Network Flow Analysis also supports IPFIX, Jflow, cFlow, and Huawei NetStream that complies with the standards for NetFlow v5, v7, or v9.

protocol

A *protocol* is a standard for regulating communication between computers. Common protocols include: HTTP, SNMP, FTP, and VoIP. The information that is displayed may include the top protocols in and out for a particular interface. This information can help identify which application is causing network traffic. You can also create and run reports to determine which protocols and applications are used by different groups in your organization.

QoS (Quality of Service)

QoS (Quality of Service) is a defined level of performance--quality of transmission and service availability--in a data transmission system.

report

A *report* is a display of collected data, which you view in the NFA console from the Enterprise Overview, Interfaces, Custom Reporting, Flow Forensics, and Analysis pages. You can print or save reports in PDF format. You can also export reports as comma-separated value (CSV) files. An Administrator can set up some reports to be sent by email at scheduled intervals.

reporting period

A *reporting period* is a user-specified time range for data to be included in a CA Network Flow Analysis report. The time options vary with each report type, but the report period could consist of hours, days, weeks, or months.

Summary views

Summary views provide an overview of high-level information, such as averages from groups of managed items. Summary views often provide drilldown paths to more detailed, related pages.

threshold

A *threshold* is a user-definable limit. Meeting or exceeding a threshold may trigger an alarm. Thresholds are also used in some views to determine the status colors for items. For example, the Interface Utilization view on the Enterprise Overview page uses user-definable utilization thresholds for the status colors of the top interfaces.

view

Views, or *data views*, present statistical data, usually in a graph or table format. A view is similar to a report that is created on the fly when you display data in CA Network Flow Analysis or in CA Performance Center. For example, the Enterprise Overview page in CA Network Flow Analysis and the Infrastructure Overview dashboard in CA Performance Center show a collection of views. Each view represents a discrete set of collected data. In some cases, you can export the view data to a file in CSV format or create a PDF report from it.

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