HP OpenView Performance Insight

Report Pack for IP Telephony Call Detail

Software Version: 1.0

Reporting and Network Solutions

March 2004

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Overview

This chapter covers the following topics

- OVPI and Cisco CallManager
- Data collection and data aggregation
- Folders and reports
- Ways to customize the reports in this package
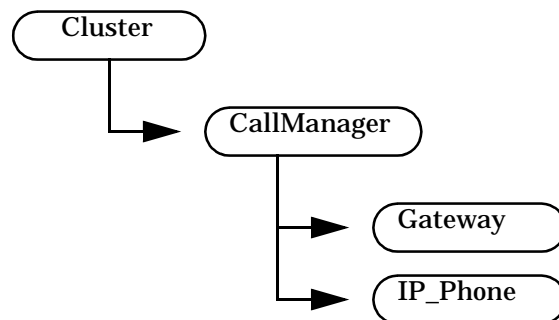- Sources for additional information

OVPI and Cisco CallManager

Improved planning and management of Cisco CallManager installations is the reason why the IP Telephony Call Detail solution was created. This package contains 30 reports that analyze CDR data collected from Cisco CallManager. Each report will help you assess call quality, call availability, and call usage. Assuming you collect data once a day (the default), the tables and graphs in these reports will update once daily.

Although Cisco CallManager has its own ad hoc reporting capability, those reports are limited and harder to produce compared to reports in IP Telephony Call Detail. Following are the salient features of this reporting solution:

- Spans multiple CallManager clusters (inter-site reporting)
- Produces rolling baseline statistics
- Produces forecasts derived from rolling baseline statistics
- Performs ongoing analysis and aggregation of IPT records
- Monitors thresholds and reports threshold breaches
- Integrates with other OVPI reporting solutions, including
    - IP Telephony Statistics Report Pack 2.0
    - Service Assurance Report Pack 3.0

IP Telephony Call Detail 1.0 was released October 2003 as part of RNS 4.0. That release installed on OVPI 4.6 and took advantage of object and forms management capability introduced in OVPI 4.6. For details about the forms that come with IP Telephony Call Detail 1.0, see Chapter 3, Package Configuration.

The October 2003 release added the following object model to the object tree:

```
┌──────────┐
│ Cluster  │
└──────────┘
     │
     │      ┌──────────────┐
     └─────▶│ CallManager  │
            └──────────────┘
                  │
                  │      ┌───────────┐
                  ├─────▶│  Gateway  │
                  │      └───────────┘
                  │      ┌───────────┐
                  └─────▶│ IP_Phone  │
                         └───────────┘
```

IP Telephony Call Detail 1.0 was released—unchanged—in April 2004. This release installs on OVPI 4.6 and OVPI 5.0. Unlike other packages on the RNS 5.0 CD, IP Telephony Call Detail 1.0 supports Sybase database software only. Version 1.0 does not support Oracle database software.

Data Collection and Aggregation

Cisco CallManager produces two types of call information records:

- Call Detail Records (CDRs)
- Call Management Records (CMRs)

CDRs store information about call endpoints and other call control/routing details; CMRs contain information about the quality of the streamed audio. A preprocessor built into the CDR Datapipe processes both record types, producing CSV files. The CDR datapipe runs a collection against these files, populates rate tables, then maps data into hourly tables maintained by the report pack. This process provides the report pack with hourly data for the following variables:

- Lost packets
- Jitter
- Latency
- A value for QoS derived from lost packets, jitter, and latency
- Call volume
- Call duration
- Call Success Ratio (CSR)
- Disconnect Cause Distribution
- Call Type Distribution

In accordance with directives from the report pack, OVPI produces hourly, daily, and monthly summaries. In addition, OVPI aggregates data by the following perspectives:

- Phone Number
- Gateway by CallManager
- Gateway by Location

- CallManager
- CallManager Cluster
- Location

Folders and Reports

IP Telephony Call Detail contains the following report folders:

- CallManager Cluster
- CallManager
- Gateway
- Phone Number
- Location

Folder contents are as follows:

Reports in the CallManager Cluster Folder

- Cluster History Summary
- Cluster QoS Summary
- Cluster History Top Ten
- Cluster QoS Top Ten
- Cluster Call Detail Forecast

Reports in the Call Manager Folder

- CallManager History Summary
- CallManager QoS Summary
- CallManager History Top Ten
- CallManager QoS Top Ten
- CallManager Call Detail Forecast

Reports in the Gateway Folder

- Gateway History Summary by CallManager
- Gateway QoS Summary by CallManager
- Gateway History Top Ten by CallManager
- Gateway QoS Top Ten by CallManager
- Gateway Call Detail Forecast by CallManager

Reports in the Phone Number Folder

- Phone Number History Summary
- Phone Number QoS Summary

- Phone Number History Top Ten

- Phone Number QoS Top Ten

- Phone Number Call Detail Forecast

Reports in the Location Folder

- Gateway History Summary by Location

- Gateway QoS Summary by Location

- Gateway History Top Ten by Location

- Gateway QoS Top Ten by Location

- Gateway Call Detail Forecast by Location

- Location History Summary

- Location QoS Summary

- Location History Top Ten

- Location QoS Top Ten

- Location Call Detail Forecast

Reports in the Admin Folder

The Admin folder contains one inventory report. This report provides a list of clusters, CallManagers, gateways, and IP phones. The inventory report reads property tables that are created by the Admin module and populated by the CDR Datapipe.

> The IP Telephony Call Detail solution and the IP Telephony Statistics solution use the same Admin module. They share the same inventory report and the same property tables.

Generic Report Types

Following is a brief description of each report type in the package.

History Summary. Provides summary data about call history from multiple perspectives. This report focuses on the Call Success Rate percentage, while also providing statistics for Total Call Minutes and Total Normal Disconnections. Selection tables rank items by CSR, highest to lowest. Investigate CSR more closely by looking at the following graphs:

- Total Call Volume

- Total Call Minutes

- Call Type Distribution

- Maximum and Average Call Duration per success call

- Abnormal Disconnect Cause

- Call Duration Distribution

History Summary Top Ten. Performs a ranking function, using results from yesterday. Provides the following tables:

- Highest Call Volume

- Highest Call Volume Increase

- Most Call Minutes

- Highest Call Minutes Increase

- Worst Call Success Rate

- Highest CSR Decrease

QoS Summary. Provides summary data about call QoS metrics for multiple perspectives. Focuses on the packets lost, jitter, latency, and average QoS. Investigate call QoS more closely by looking at the following graphs:

- Calls by QoS Value stacked by:

    — Good

    — Acceptable

    — Fair

    — Poor

- Packet Lost

- Jitter

- Latency

QoS Top Ten. Performs a ranking function, using results from yesterday. Provides the following tables:

- Highest Packet Lost

- Highest Packet Lost Increase

- Highest Jitter

- Highest Jitter Increase

- Highest Latency

- Highest Latency Decrease

Forecast reports. Focuses on Total Calls 30, 60, and 90 days from today. You can investigate forecasts in more detail by using the following tabbed graphs:

- Call Volume Forecast

- Call Minutes Forecast

- Call Success Rate Forecast

- Average QoS Forecast

Use the Standard tab to compare the baseline average to future performance; use the Day of Week tab to correlate future performance by day of week; use the History tab to track the data used in the forecast. The rolling baseline average is based on 91 days of data.

Integration with Network Node Manager (NNM)

If the preliminary work of integrating OVPI with Network Node Manager has already taken place, this package will integrate smoothly with the fault management and diagnostic capabilities of Network Node Manager. The NNM operator will see IP Telephony Call Detail reports listed in the Report Launchpad window. This window can be opened from NNM ovw, Home Base Dynamic Views, and the NNM alarm browser.

If a threshold is breached, the optional thresholds sub-package that comes with this package will send a threshold trap to NNM. The trap sent by the thresholds sub-package will appear as an alarm in the NNM alarm browser. Depending on the alarm category, the NNM operator can launch one of the following reports:

*   CallManager History Summary

*   CallManager QoS Summary

*   Gateway History Summary by Location

*   Gateway QoS Summary by Location

Ways to Customize Reports

The contents of a report can be customized. Here are your options:

*   Apply group filters

*   Edit parameters, tables, and graphs

*   Modifying property information, including thresholds

When you apply a group filter, your goal is to change how the entire package appears to a particular group of users. If you edit a report, you are making a temporary change. For more information about editing tables and graphs (also known changing view options), see Chapter 9, Editing Tables and Graphs.

Group Filters

If you intend to share your reports with customers, or let divisions within your enterprise see division-specific performance data, you will need reports that contain data limited to one customer. Creating customer-specific reports involves the following steps:

*   Importing customers and locations using Common Property Tables 2.2

*   Creating a group account for all of the users affiliated with a particular customer

*   Creating a group filter for the group account

For more information about creating filters for group accounts, refer to the *HP OpenView Performance Insight 5.0 Administration Guide.*

Importing Property Information

The reports in this package include the following types of property information:

- The ID assigned to a cluster, CallManager, or gateway
- The customer and location associated with a cluster, CallManager, or gateway
- Threshold values assigned to a CallManager, a gateway, or a QoS parameter
- Users and locations assigned to IP phones

Property information comes from the following sources:

- CDR Datapipe
- Common Property Tables 3.0
- Forms built into IP Telephony Call Detail

If the CDR Datapipe identifies a new CallManager or gateway, it will add that CallManager or gateway to Common Property Tables. When that CallManager or gateway appears in reports, the following defaults will appear as associated properties:

- *Customer Unassigned*
- *Location Unassigned*

To associate a customer or a location with a CallManager or a gateway, use the Update Node Information form. This form belongs to Common Property Tables. When you are navigating the object tree, you will find this form under **Object Specific Tasks**.

The following properties are imported using forms built into IP Telephony Call Detail:

- CallManager thresholds
  — Call Success threshold
  — Network Fail threshold
  — QoS threshold
- Gateway thresholds
  — Call Success threshold
  — Network Fail threshold
  — QoS threshold
- Gateway dial plans
  — International call prefix
  — Local area codes
  — Toll free codes

> Assigning a dial plan to each of your gateways is mandatory; if this step is not taken, the report pack will not function properly.

- IP phone properties
  — user
  — location

- QoS thresholds
  - Packet loss
  - Jitter
  - Latency

For more information about using forms to modify properties, see Chapter 3, Package Configuration.

Report Parameters

Editing a parameter applies a constraint. The constraint filters out the data you do not want to see. If you were to edit the Customer Name parameter, data for every customer except the customer you typed in the Customer Name field would drop from the report. Similarly, if you edited the Location, data for all locations except the location you typed in the Location field would drop from the report.

Filtering the contents of a report by editing parameters is completely optional and you may apply multiple constraints at once. IP Telephony Call Detail supports the following parameters:

- Customer Name
- Location
- Cluster
- CallManager
- Gateway
- Phone number

Some reports support every parameter in this list, while most reports support a subset of this list. To edit parameters, click the **Edit Parameters** icon at the bottom right-hand corner of the report. When the **Edit Parameters** window opens, type the constraint in the field and then click **Submit**.

Sources for Additional Information

For information regarding the latest enhancements to this package and any known issues affecting its operation, refer to the *IP Telephony Call Detail Report 1.0 Pack Release Statement*. You may also be interested in the following documents:

- *Service Assurance Report Pack 3.0 User Guide*
- *IP Telephony Gateway Statistics 2.0 User Guide*
- *Common Property Tables 3.0 User Guide*
- *Thresholds Module 5.0 User Guide*
- *NNM / OVPI Integration Module 2.0 User Guide*
- *RNS 5.0 Release Notes, April 2004*

User guides for OVPI and user guides for the reporting solutions that run on OVPI can be downloaded from the following web site:

http://support.openview.hp.com

Select **Technical Support** > **Product Manuals** to reach the **Product Manuals Search** page. The user guides for OVPI are listed under **Performance Insight**. The user guides for reporting solutions are listed under **Reporting and Network Solutions**.

Each title under **Reporting and Network Solutions** indicates the date of publication. Because updated user guides are posted to the web on a regular basis, always check this site for updates before using an older PDF that may no longer be current.

Package Installation

This chapter covers the following topics:

- Guidelines for a smooth installation
- Using Package Manager to install IP Telephony Call Detail and associated packages
- Options for viewing reports
- Package removal

Guidelines for a Smooth Installation

Version 1.0 of the IP Telephony Call Detail Report Pack was released October 2003 on the RNS 4.0 product distribution CD. Version 1.0 is reappearing—unchanged—on the RNS 5.0 product CD. Version 1.0 installs on OVPI 4.6 and OVPI 5.0. Version 1.0 supports Sybase only. Version 1.0 does not support Oracle.

The RNS 5.0 CD contains packages for NNM and OVPI. When you select OVPI report packs for installation, the install script on the CD extracts every OVPI package from the CD to the Packages directory on your system. Once the extract process finishes, the install script prompts you to start the Package Manager install wizard. Before you get to that step, review the following guidelines.

Prerequisites for a New Install

The following software must be in place before installing the IPT Call Detail package:

- OVPI 4.6, with any available Service Pack; or
- OVPI 5.0, with any available Service Pack

Details about each Service Pack, including installation instructions, are available in the release notes for the Service Pack.

Distributed Environments

If you intend to run this package in a distributed environment, installation is more complicated. The rules are as follows:

- Make sure that every server is running the same release of OVPI.
- Make sure that every server is running the same Service Packs, if there are Service Packs for your release of OVPI.
- Disable trendcopy on the central server.
- Install the following packages on the central server:
  — IP Telephony Call Detail; deploy reports
  — Location sub-package
  — Thresholds sub-package
  — Thresholds Module (Threshold and Event Generation)
  — Common Property Tables 3.0
- Install the following packages on each satellite server:
  — IP Telephony Call Detail; do not deploy reports
  — Cisco CDR Datapipe
  — Location sub-package
  — Common Property Tables 3.0
- Re-enable trendcopy on the central server.

Upgrading Common Property Tables

Common Property Tables is required by the IP Telephony Call Detail package. If you are installing everything for the first time, there is nothing for you to do regarding Common Property Tables; the install wizard will install this package for you, automatically.

If you are running the previous release of Common Property Tables, which is version 2.2, you must upgrade to the latest version. Do this by installing the version 2.2 to 3.0 upgrade package. Installing the upgrade package is no different from installing other packages. However, keep in mind that you cannot install the upgrade *and* other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Integration with the NNM Alarm Browser

If you have already integrated OVPI with NNM, the threshold breaches spotted by OVPI can be detected by NNM. To take advantage of this feature, install the thresholds sub-package. This optional package contains default threshold settings. If necessary, these settings can be modified using the forms described in Chapter 3, Package Configuration.

The thresholds sub-package cannot operate unless the Threshold and Event Generation Module, more commonly known as the Thresholds Module, is also installed. Although there are configuration options for the Thresholds Module, configuring the Thresholds Module is not necessary.

If you are running the previous version of the Thresholds Module, you may upgrade to the current release. For more information about the latest enhancements to this package, refer to the *Thresholds Module 5.0 User Guide*.

Installable Packages and Sub-Packages

Once OVPI packages have been extracted to the Packages directory on your system, the following packages will be available for installation:

- IPT_Admin.ap
- IPT_CallDetails.ap
- IPT_CallDetails_Location.ap
- IPT_CallDetails_Thresholds.ap

A brief description of each follows.

IPT_Admin.ap Property

This module installs automatically when you install the main package. IPT_Admin.ap allows the IP Gateway Statistics and IPT Call Detail packages to share property data for the objects they have in common. Sharing property data eliminates duplication, allows the database to operate more efficiently, and simplifies administration. The IPT_Admin.ap module creates the following tables:

- K_IPT_Cluster for IP Telephony CallManager clusters
- K_IPT_CManager for IP Telephony CallManagers
- K_IPT_gateway for the gateways associated with CallManagers
- K_IPT_gateway_loc for the gateways associated with locations
- K_IPT_phoneNum for the IP phones associated with CallManagers
- K_IPT_loc for the IP phones associated with locations
- K_IPT_Qos for QoS parameters

The data in these tables can be modified using the property update forms described in Chapter 3, Package Configuration.

IPT_CallDetails.ap

The main package. It provides summarization and aggregation directives to OVPI.

IPT_CallDetails_Location.ap

An optional sub-package that makes it possible to see usage patterns and trends aggregated by location.

IPT_CallDetails_Thresholds.ap

An optional sub-package that sets thresholds for performance, generates exception traps when a threshold is breached, and sends traps to NNM. The Thresholds Module is a prerequisite for this package. If you install the thresholds sub-package, Package Manager will install the Thresholds Module automatically.

Installing IP Telephony Call Detail

Perform the following tasks to install IP Telephony Call Detail 1.0:

- Task 1: Extract packages from the product CD.
- Task 2: If necessary, upgrade to Common Property Tables 3.0.
- Task 3: Install two packages:
  — Cisco IP Telephony Call Detail 1.0
  — CiscoCDR Datapipe 1.0

> This procedure is geared for a stand-alone system. If your system is distributed, do not install the CDR Datapipe on the central server. For more information about distributed systems, see Guidelines for a Smooth Installation, earlier in this chapter.

If desired, install the following optional packages:

- Cisco IP Telephony CallDetails Thresholds
- Cisco IP Telephony CallDetails Locations
- Cisco IP Telephony CallDetails Demo

Task 1: Extract Packages From the RNS CD

Follow these steps to copy OVPI packages from the RNS CD to the Packages directory on your system:

1 Log in to the system. On UNIX systems, log in as root.

2 Stop OVPI Timer and wait for processes to terminate.

   Windows: Select **Settings > Control Panel > Administrative Tools > Services**

   UNIX: As root, do one of the following:

   HP-UX: `sh /sbin/ovpi_timer stop`

   Sun: `sh /etc/init.d/ovpi_timer stop`

3 Insert the RNS 5.0 product distribution CD. On Windows, a Main Menu displays automatically; on UNIX, mount the CD if it does not mount automatically, then navigate to the top level directory on the CD and run the **./setup** command.

4 Type **1** in the choice field and press **Enter**. The install script displays a percentage complete bar. When the copy is complete, the install script starts Package Manager. The Package Manager welcome window opens.

Once the copy to the Package directory is complete, you have the option of navigating to the Packages directory. That directory will have in it a folder for IP Telephony Call Details and a separate folder for Cisco CDR Datapipe. Under IP Telephony Call Detail you will see the following folders:

- Cisco_IP_Telephony_CallDetails.ap
- Cisco_IP_Telepony_CallDetails_Demo.ap
- Cisco_IP_Telephony_CallDetails_Locations.ap

- Cisco_IP_Telephny_CallDetails_Thresholds.ap

Under Cisco CDR Datapipe, you will see the following folder:

- CiscoCDR_Datapipe.ap

Installing the demo package is optional. You may install the demo package by itself, with no other packages, or you may install the demo package along with everything else. Reports in the demo package are interactive, selection tables are linked to graphs, and you may experiment with view options for individual tables and graphs.

Task 2:   Upgrade to Common Property Tables 3.0

IP Telephony Call Detail 1.0 requires Common Property Tables 3.0. If you have not already upgraded to Common Property Tables 3.0, do this now, *before* moving on to Task 3. If you need help with the upgrade, refer to the *Common Property Tables 3.0 User Guide*. When installation of the upgrade finishes, click **Done** to return to the Management Console.

Task 3:   Install IP Telephony Call Detail, the Datapipe, and Optional Sub-Packages

Follow these steps to install IPT Call Detail 1.0:

1   From the Management Console, select **Tools > Package Manager**. The Package Manager welcome window opens.

2   Click **Next**. The Package Location window opens.

3   Click the **Install** radio button.

4   Approve the default installation directory or select a different directory if necessary.

5   Click **Next**. The Report Deployment window opens.

6   Accept the default for Deploy Reports; also accept the defaults for application server name and port.

7   Type your user name and password for the OVPI Application Server.

8   Click **Next**. The Package Selection window opens.

9   Click the check box next to the following packages:

   Cisco_IP_Telephony_CallDetails

   Cisco_IP_Telephony_CallDetails_Locations

   Cisco_IP_ Telephony_CallDetails_Thresholds

   CiscoCDR_Datapipe

> If your system is distributed, the thresholds sub-package belongs on the central server *only,* not on satellite servers, and the datapipe belongs on any server that polls.

10   Click **Next**. The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.

11   Click **Install** to begin the installation process. The Installation Progress window opens and the install process begins. When the install finishes, an installation complete message appears.

12   Click **Done** to return to the Management Console.

Options for Viewing Reports

Before reports can be viewed using a web browser, they must be deployed. During the preceding installation step, you enabled the Deploy Reports option. As a result, IP Telephony Call Detail reports are deployed and available for remote viewing.

The method of report viewing available to you depends on how OVPI was installed. If the client component is installed on your system, you have access to the Report Viewer, Report Builder, and the Management Console. If the client component was not installed on your system, use the Web Access Server to view reports.

For more information about the client components, refer to the *Performance Insight Installation Guide*. For more information about Object Manager and viewing reports specific to selected objects, refer to the *Performance Insight Administration Guide*. For more information about deploying, viewing, and undeploying reports, refer to the *Performance Insight Guide to Building and Viewing Reports*.

Package Removal

If you remove a report pack, the associated tables and all the data in those tables will be deleted. If you want to preserve the data in those tables, archive the data before removing the package. Follow these steps to uninstall IPT Call Detail and the associated packages.

1   Log in to the system. On UNIX systems, log in as root.

2   Stop OVPI Timer and wait for processes to terminate.

   Windows: Select **Settings > Control Panel > Administrative Tools > Services**

   UNIX: As root, do one of the following:

      HP-UX: `sh /sbin/ovpi_timer stop`

      Sun: `sh /etc/init.d/ovpi_timer stop`

3   Select **HP OpenView > Performance Insight > Package Manager**. The Package Manager welcome window opens.

4   Click **Next**. The Package Location window opens.

5   Select the **Uninstall** radio button.

6   Click **Next**. The Report Undeployment window opens.

7   Accept the defaults for Undeploy Reports, Application Server Name, and Port.

8   Type the username and password for *trendadm*.

9   Click **Next**. The Package Selection window opens. Click the check box next to the following packages:

      Cisco_IP_Telephony_CallDetails

      Cisco_IP_Telephony_CallDetails_Locations (if installed)

      Cisco_IP_Telephony_CallDetails_Thresholds (if installed)

      Cisco IP_Telephonyic_CallDetails_Demo (if installed)

      CiscoCDR_Datapipe

10 Click **Next.** The Selection Summary window opens.

11 Click **Uninstall**. The Progress window opens and the removal process begins. When removal finishes, a removal complete message appears.

12 Click **Done** to return to the Management Console.

13 Restart OVPI Timer.

Windows: Select **Settings > Control Panel > Administrative Tools > Services**

UNIX: As root, do one of the following:

HP-UX: `sh /sbin/ovpi_timer start`

Sun: `sh /etc/init.d/ovpi_timer start`

Package Configuration

This chapter covers the following topics:

*   Configuring central servers and satellite servers as a distributed system
*   Configuring a data source
*   Assigning dial plans to gateways

> ▶ This step is mandatory. The report pack will not operate correctly until you have assigned a dial plan to every gateway.

*   Default thresholds for CallManagers and gateways
*   Modifying users and locations for IP phones
*   Modifying QoS parameters

Configuring a Distributed System

If you intend to run IPT Call Detail as a distributed system, you installed packages on the central server and each satellite server. The following packages should already be installed on the central server:

*   IP Telephony Call Detail 1.0
*   Location Sub-Package (optional)
*   Thresholds Sub-Package (optional)
*   Common Property Tables 3.0

The following packages should already be installed on each satellite server:

*   IP Telephony Call Detail 1.0
*   Location Sub-Package (optional)
*   Common Property Tables 3.0
*   Cisco CDR Datapipe

Your next step is to configure the central server to pull data from each satellite server. This is done by setting up connections from the central server to each satellite server database and by configuring trendcopy pull commands for each satellite server database. You will also need to configure each satellite server by disabling daily aggregations on each satellite server.

Configuring the Central Server

To configure the central server, perform these tasks:

- Task 1: Set up connections with satellite server databases
- Task 2: Configure trendcopy pull commands for hourly data

In addition to performing these tasks, it is important to verify that the system clock on the central server is synchronized with the system clock on each satellite server.

Task 1:   Set up connections with satellite server databases

1   Start the Management Console.

2   Click the **Systems** icon on the lower left. The **System/Network Administration** pane opens.

3   Right-click the **Databases** folder. When prompted, select **Add OVPI Database**. The Add Database Wizard opens.

4   Click **Next**.

5   Type the hostname and port number for the database you want to add; click **Next**.

6   Review the Summary. Repeat Steps 4 and 5 for each additional database.

7   Click **Finish** when you are done.

Task 2:   Configure trendcopy pull commands

1   Configure trendcopy pull commands for each satellite server; open the following file:

```
$DPIPE_HOME/scripts/IPT_CallDetails_trendcopy.pro
```

2   Append the following text to the end of the file:

```
begin: block0 wait
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_phoneNum -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_gateway -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_CManager -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_Cluster -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_phoneNum -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_gateway -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_CManager -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_Cluster -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_gateway_loc -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_Hist_loc -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_gateway_loc -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
{DPIPE_HOME}/bin/trendcopy -t SHIPT_QoS_loc -s
  SATELLITE_SERVER_1_DATABASE -S THIS_MACHINE_DATABASE
end: block0
```

3   Modify block0 as follows:

— Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name

— Replace *THIS_MACHINE_DATABASE* with the central server name

4   If there is more than one satellite server, create a copy of block0 for each satellite server and repeat step 2 for each copy of block0.

Configuring a Satellite Server

Follow these steps to disable daily aggregations on each satellite server:

1   Open the following file:

```
$DPIPE_HOME/scripts/IPT_CallDetails_Daily.pro
```

2   Comment out block1 to block8 by adding the comment sign ("#") before the word **begin** and the word **end**.

3   Open this file:

```
DPIPE_HOME/scripts/IPT_CallDetails_Location_Daily.pro
```

4   Comment out block2 to block4 by adding the comment sign ("#") before the word **begin** and and the word **end**.

5   Verify that the system clock is synchronized with the system clock in the central server.

Configuring a Data Source

If you are running OVPI on Windows, you have two ways to collect call data:

- The CDR Datapipe can read CSV-format flat files exported by CallManager

- The CDR Datapipe can collect CallDetail data directly from the CallManager SQL Server database

If you are running OVPI on UNIX, your only option is to collect CallDetail data from CSV-format flat files exported by CallManager. If you are running OVPI on Windows, you have the option of collecting call data directly from the CallManager SQL Server database.

This section provides procedures for the following tasks:

- Configuring CallManager to schedule exports from the appropriate tables

- Defining and ODBC data source

Whether you are collecting data from flat files exported by CallManager, or collecting data directly from the SQL Server database, the preprocessor built into the CDR Datapipe needs to be able to locate the raw data before it can make the raw data ready for the CDR Datapipe. The preprocessor is configured to use a default directory, however, you can select a different local directory or, if necessary, specify a directory on the CallManager server.

Configuring CallManager to Schedule Exports

This section provides procedures for the following tasks:

- Scheduling an export from the CallDetailRecord table

- Scheduling an export from the CallDetailRecordDiagnostic table

Schedule an Export from the CallDetailRecord Table

To schedule exporting data of the table *CallDetailRecord* in the database CDR, go through following steps:

1   Click **Start > Programs > Microsoft SQL Server > Enterprise Manager.** The SQL Server Enterprise Manager window opens.

2   Select **Console Root > Microsoft SQL Servers > SQL Server Group** and select the SQL server name in the Tree window.

3   Click **Tool > Data Transformation Services > Export Data.** The DTS Import/Export Wizard opens.

4   Click **Next.** The Choose a Data Source window opens.

5   Select **CDR** in the **Database** drop-down button.

6   Click **Next.** The Choose a destination window opens.

7   Select **Text File** in the **Destination** drop-down button.

8   Type the path\filename in the **File name** field. For example:

```
C:\IPT_CDR\CallDetailRecord.csv
```

> The .csv extension is required.

9   Click **Next.** The Specify Table Copy or Query window opens.

10   Click **Use a query to specify the data to transfer.**

11   Click **Next.** The Type SQL Statement window opens.

12   Type the following SQL statement in the Query statement window:

```
select * from CallDetailRecord where
datediff(day,dateadd(second,dateTimeDisconnect,'1/1/
1970'),getdate())=1
```

13   Click **Next.** The Select Destination File Format window opens.

14   Click **Next** by accepting default settings. The Save, schedule, and replicate package window opens.

15   Mark the **Schedule DTS package for later execution** check box.

16   Click **Next.** The Save DTS Package window opens.

17   Type the name of your DTS package in the **Name** field. For example:

```
Export_CDRs
```

18   Click **Next.** The Summary window of the DTS Import/Export Wizard opens.

19   Click **Finish** if there is no error in the Summary window.

20   Click **OK** if a pop-up window opens with this message:

Successfully copied a table from the Microsoft SQL Server to flat File.

If you see an error message, fix the problem, then repeat these steps.

21   Click **Done** in the Executing Package window.

Schedule an Export from the CallDetailRecordDiagnostic Table

Follow these steps to schedule an export of data from the *CallDetailRecordDiagnostic* table:

1   Repeat steps 1 through 11 above.

2   Type the following SQL statement in the Query statement window:

```
select * from CallDetailRecordDiagnostic where
datediff(day,dateadd(second,dateTimeStamp,'1/1/1970'),getdate())=1
```

3   Repeat steps 13 through 16 above.

4   Type the name of your DTS package in the **Name** field. For example:

```
Export_CMRs
```

5   Repeat steps 18 through 21 above.

Defining an ODBC Data Source (Windows Only)

If you are running OVPI on Windows, you have the option of collecting CallDetail data directly from the CallManager SQL Server database. Follow these steps to define an ODBC data source.

1 Make sure that perl module DBD::ODBC is installed. Type this command:

   `perl -e "use DBD::ODBC;"`

   If no error message appears, the DBD::ODBC module is installed. If the module is not installed, use PPM to download and install the module.

2 Select **Settings > Control Panel > Administrative Tools.** The Administrative Tools window opens.

3 Click **Data Sources (ODBC).** The ODBC Data Source Administrator window opens.

4 Select the **System DSN** tab.

5 Click **Add**. The Create New Data Source window opens.

6 Select SQL Server as the driver.

7 Click **Finish**. The next window opens for inputting DSN information.

8 Type a name in the **Name** field. For example:

   `CiscoCDR`

   This name will be used for the *–m* option for the CiscoCDR_PP.pl.

9 Type the SQL Server name you want to connect. For example:

   `CallManager1`

10 Click **Next.**

11 Click this radio button: **With SQL Server authentication using a login ID and password entered by the user.**

12 Type your user name and password. (The username and password that are registered in the Cisco CallManager SQL Server database.)

13 Click **Next.**

14 Click this radio button: **Change the default database to** and select CDR in the drop-down button.

15 Click **Next.**

16 Click **Finish.**

17 Click **Test Data Source**.

18 If you see this message in a pop-up window: **TESTS COMPLETED SUCCESSFULLY!** click **OK**. If an error message displays, fix the problem and repeat the steps above.

19 Click **OK.**

20 Click **OK** again.

Data Source Directories

This section covers:

- Changing the default local directory
- Using an FTP session
- Using an ODBC connection

Changing the Default Directory

If you are using the default local directory, the preprocessor will look for raw data in the following directory:

```
$ENV{DPIPE_HOME}/IPT_CDR
```

If this directory does not exist, create it under the OVPI home directory. If you want to change the default, follow these steps:

1 Open this file:

```
{DPIPE_HOME}/scripts/CiscoCDR_Collection.pro
```

2 Locate this line:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl
```

3 Change that line to:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl l <<new directory path>>
```

4 Locate this line:

```
DPIPE_HOME}/bin/ee_collect -a CiscoCDR_CDRs
```

5 Change that line to:

```
{DPIPE_HOME}/bin/ee_collect -a CiscoCDR_CDRs -s <<new directory path>>/CDRs.dat
```

6 Locate this line:

```
DPIPE_HOME}/bin/ee_collect -a CiscoCDR_Hist_phoneNum
```

7 Change that line to:

```
{DPIPE_HOME}/bin/ee_collect -a CiscoCDR_Hist_phoneNum -s <<new directory path>>/
CDRs_phone.dat
```

8 Locate this line:

```
DPIPE_HOME}/bin/ee_collect -a CiscoCDR_CMRs
```

9 Change that line to:

```
{DPIPE_HOME}/bin/ee_collect -a CiscoCDR_CMRs -s <<new directory path>>/CMRs.dat
```

Using an FTP Session

If CallManager is storing raw data on a remote machine, configure the preprocessor to FTP those files from the remote machine to your OVPI server. Follow these steps:

1 Open this file:

```
{DPIPE_HOME}/scripts/CiscoCDR_Collection.pro
```

2 Locate this line:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl
```

3 Change that line to:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl -f l -m <<Remote_Host_Name>> -
u <<username>> -p <<password>> -r <<Remote_directory>>
```

Using an ODBC Connection

Follow these steps to configure the preprocessor to use an ODBC Connection.

> This option applies to OVPI servers running on Windows only.

1 Open this file:

```
{DPIPE_HOME}/scripts/CiscoCDR_Collection.pro
```

2 Locate this line:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl
```

3 Change that line to:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoCDR_PP.pl -f 2 -m <<ODBC_DSN_Name>> -u
<<username>> -p <<password>>
```

Assigning Dial Plans to Gateways

The IPT Call Detail Report Pack will not operate correctly until you have assigned a dial plan to every gateway. *Do this as soon as possible.* Follow these steps to configure dial plans:

1 Start the Management Console.

2 Click **Objects**. The **Object/Property Management** window opens.

3 Select **View > Change View > Cluster**.

4 Select a cluster.

5 Open a CallManager folder and select a gateway. You will see the Configure Gateway Dial Plan form under **Object Specific Tasks**.

6 Double-click **Configure Gateway Dial Plan**. The form opens.

7 Modify the following fields:

— International call prefix

— Local area codes

— Toll free codes

8 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

9 Repeat this procedure for every gateway.

Default Thresholds

The thresholds sub-package imposes six defaults. Three defaults pertain to CallManagers and three defaults pertain to gateways. When performance reaches a default, the thresholds sub-package sends a trap to the network management system. The following table indicates the default setting, the breach condition, and the severity associated with the breach condition.

Threshold	Default	Breach Condition	Severity
Call Success	50%	Call success ratio is below the threshold.	Warning
Network Fail	50%	The ratio of failed calls caused by network problems exceeds the threshold.	Warning

Threshold	Default	Breach Condition	Severity
QoS	3.0	Average QoS value for all calls exceeds the threshold.	Warning

Modifying Default Thresholds

Two forms are available for modifying the default thresholds in the preceding table:

- Modify CallManager Call Detail Thresholds
- Modify Gateway Call Detail Thresholds

CallManager Thresholds

Follow these steps to modify default thresholds for CallManagers:

1   Start the Management Console.

2   Click **Objects**. The **Object/Property Management** window opens.

3   Select **View > Change View > Cluster**.

4   Select a cluster.

5   Open a CallManager folder and select a CallManager. You will see the Modify CallManager Call Detail Thresholds form under **Object Specific Tasks**.

6 Double-click **Modify CallManager Call Detail Thresholds**. The form opens.

7 Modify one or more defaults.

8 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Gateway Thresholds

Follow these steps to modify default thresholds for gateways:

1 Start the Management Console.

2 Click **Objects**. The **Object/Property Management** window opens.

3 Select **View > Change View > Location**.

4 Select a location.

5 Open the Gateway folder and select a gateway. You will see the Modify Gateway Call Detail Thresholds form under **Tasks Specific to the Selected Objects**.

6 Double-click **Modify Gateway Call Detail Thresholds**. The form opens.

7 Modify one or more defaults.

8 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Modifying IP Phone User and Location

Follow these steps to modify default thresholds for gateways:

1 Start the Management Console.

2 Click **Objects**. The **Object/Property Management** window opens.

3 Select **View > Change View > Cluster**.

4 Select a location.

5 Open the CallManager folder.

6 Open the IP phone folder and select an IP phone. You will see the Configure IP Phone User and Location form under **Tasks Specific to the Selected Objects**.

7 Double-click **Configure IP Phone User and Location**. The form opens.

8 Add the user and location, for multiple IP phones if necessary.

9 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Modify IP QoS Parameters

Follow these steps to modify default QoS definition ranges:

1 Start the Management Console.

2 Click **Objects**. The **Object/Property Management** window opens.

3 You will see the Modify QoS Parameters form under **General Tasks**.

4 Double-click **Modify QoS Parameters**. The form opens.

5 Modify defaults for Good, Acceptable, Fair.

6 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Call History Summary

The History Summary reports look at call history from the following perspectives:

- Cluster
- CallManager
- Gateway by CallManager
- Gateway by Location
- Location
- Phone number

The focus of this report, regardless which perspective you are using, is yesterday's Call Success Rate (CSR). CSR is a percentage calculated by dividing successful calls by total calls and multiplying the result by 100. All selection tables sort by CSR, highest to lowest. All History Summary reports provide the following graphs:

- Total Call Volume stacked by Success Call and Failed Call
- Total Call Minutes
- Call Type Distribution stacked by:
    - Internal
    - Incoming PSTN Call
    - Outgoing Local; Long Distance; International
    - Tandem Calls
- Maximum and Average Call Duration per success call
- Abnormal Disconnect Cause stacked by:
    - Called Party Cause
    - Wrong Number
    - No Response
    - Network Fail
    - Others
- Call Duration Distribution stacked by:
    - Less than 1 minute

— 1 to 5 minutes

— 5 to 30 minutes

— 30 minutes to 2 hours

— 2 hours to 12 hours

— More than 12 hours.

An hourly graph shows 24 hours for yesterday, a daily graph looks at data for the previous 30 days, and a monthly graph looks at data for the previous 12 months.
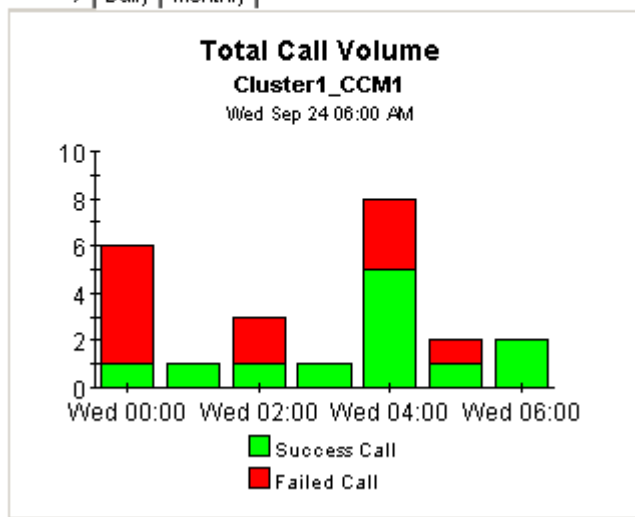
Cisco IP Telephony Call Details

Cluster History Summary

The Cluster History Summary Report presents call history metrics aggregated for a given Call Manager Cluster. This report can be used to view call history statistics and identify device performance issues.

Cluster Selection
Wed Sep 24 12:00 AM

ClusterName	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1	24	52.2	134.4	13

Hourly Daily | Monthly |

Total Call Volume
For Selected Cluster
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM

■ Success Call
■ Failed Call

Hourly Daily | Monthly |

Total Call Minutes
For Selected Cluster

Hourly | Daily | Monthly |

Call Type Distribution
For Selected Cluster

- Internal
- Incoming PSTN Call
- Outgoing Local
- Outgoing Long Distance
- Outgoing International
- Tandem

Hourly | Daily | Monthly |

Call Duration
For Selected Cluster

- Avg Duration
- Max Duration

Hourly | Daily | Monthly |

Unnormal Disconnect Cause
For Selected Cluster

- Called Party Cause (17|18|19)
- Wrong Number (1|28)
- No Resource (3|34|47)
- Network Fail (38|41)
- Others

Hourly | Daily | Monthly |

Call Duration Distribution
For Selected Cluster

- Duration<1 min
- 1<=Dura<5 min
- 5<=Dura<30 min
- 30<=Dura<120 min
- 2<=Dura<12 hours
- Duration>=12 hours

Cisco IP Telephony Call Details

CallManager History Summary

The CallManager History Summary Report presents call history metrics aggregated for a given Call Manager. This report can be used to view call history statistics and identify device performance issues.

CallManager Selection
Wed Sep 24 12:00 AM

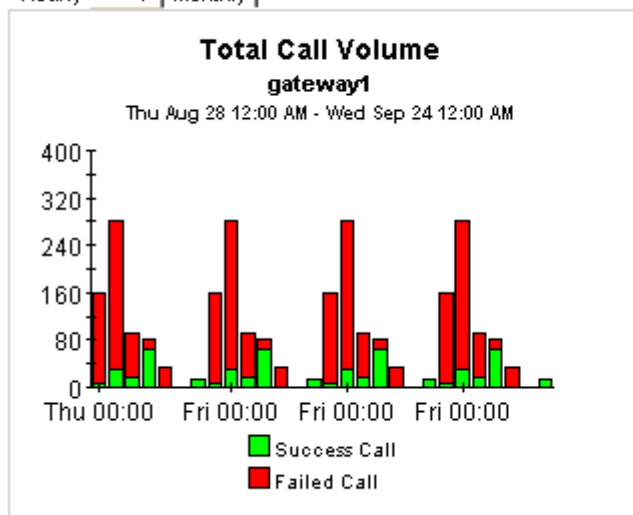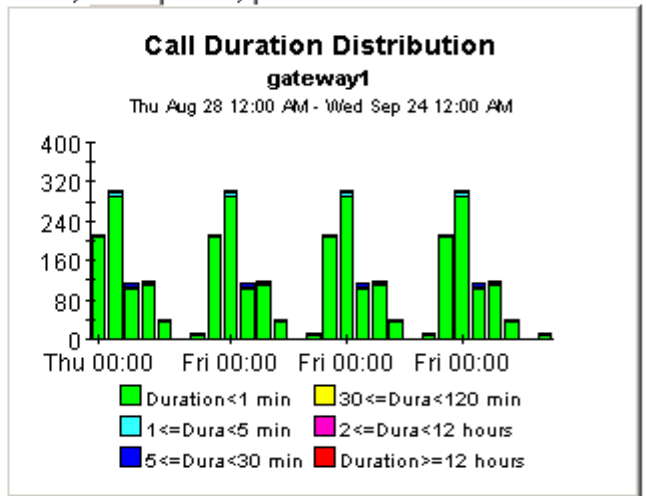| Cluster_CallManager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

Hourly | Daily | Monthly
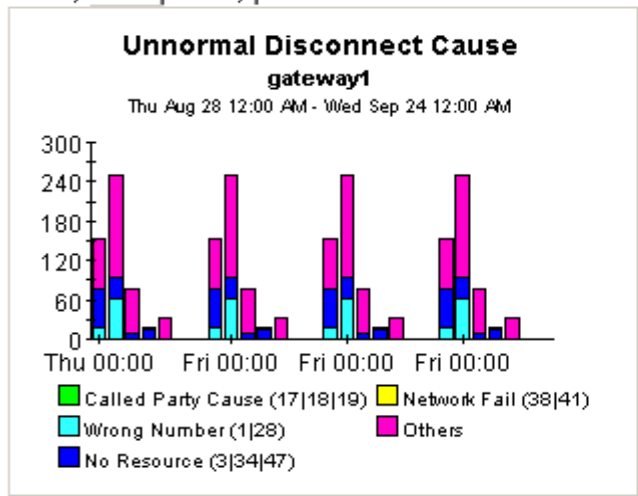
Hourly | Daily | Monthly

Cisco IP Telephony Call Details

Gateway History Summary by CallManager

The Gateway History Summary Report presents call history metrics aggregated for a given gateway. This report can be used to view call history statistics and identify device performance issues.

CallManager Selection
Wed Sep 24 12:00 AM

Call Manager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

Gateway Selection
Wed Sep 24 12:00 AM

Gateway	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
gateway1	13	100.0	134.4	13

Hourly   Daily | Monthly |

Total Call Volume
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM

Success Call
Failed Call

Hourly   Daily | Monthly |

Total Call Minutes
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM

Cisco IP Telephony Call Details

Gateway History Summary by Location

The Gateway History Summary by Location Report presents call history metrics aggregated for a given gateway. This report can be used to view call history statistics and identify device performance issues.

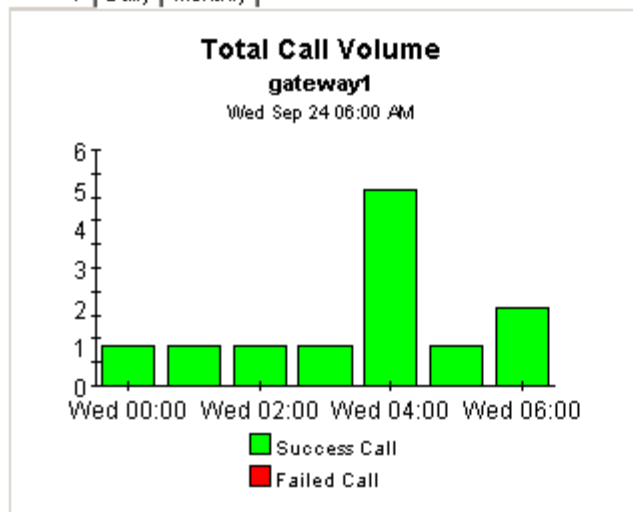### Location Selection
Wed Sep 24 12:00 AM

Location	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Location Unassigned	23	52.2	134.4	12

Gateway Selection
Wed Sep 24 12:00 AM

Gateway	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
gateway1	13	100.0	134.4	13

Hourly | Daily | Monthly |

Total Call Volume
gateway1
Wed Sep 24 06:00 AM

Hourly | Daily | Monthly |

Total Call Minutes
gateway1
Wed Sep 24 06:00 AM

Hourly | Daily | Monthly

Call Type Distribution
gateway1
Wed Sep 24 06:00 AM

- Internal
- Incoming PSTN Call
- Outgoing Local
- Outgoing Long Distance
- Outgoing International
- Tandem

Hourly | Daily | Monthly

Call Duration
gateway1
Wed Sep 24 06:00 AM

minutes

- Avg Duration
- Max Duration

Hourly | Daily | Monthly

Unnormal Disconnect Cause
gateway1
Wed Sep 24 06:00 AM

- Called Party Cause (17|18|19)
- Wrong Number (1|28)
- No Resource (3|34|47)
- Network Fail (38|41)
- Others

Hourly | Daily | Monthly

Call Duration Distribution
gateway1
Wed Sep 24 06:00 AM

- Duration<1 min
- 1<=Dura<5 min
- 5<=Dura<30 min
- 30<=Dura<120 min
- 2<=Dura<12 hours
- Duration>=12 hours

Cisco IP Telephony Call Details

Phone Number History Summary

The Phone Number History Summary Report presents call history metrics aggregated for a given Phone Number. This report can be used to view call history statistics and identify device performance issues.
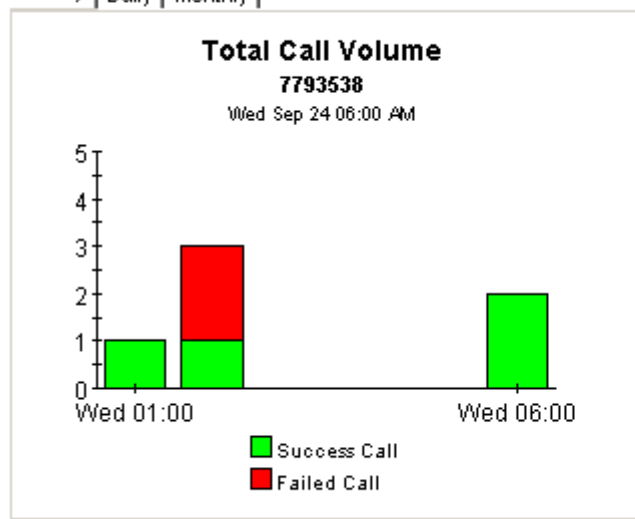
CallManager Selection
Wed Sep 24 12:00 AM

Call Manager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

Phone Number Selection
Wed Sep 24 12:00 AM

Phone Number	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
7793538	6	66.7	125.8	4
7793520	8	62.5	8.0	5
7793535	2	50.0	0.2	1
7793599	6	16.7	0.3	1
7793535	1	100.0	0.1	1

Hourly | Daily | Monthly

Total Call Volume
7793538
Wed Sep 24 06:00 AM

Success Call
Failed Call

Hourly | Daily | Monthly

Total Call Minutes
7793538
Wed Sep 24 06:00 AM

Hourly | Daily | Monthly

Call Type Distribution
7793538
Wed Sep 24 06:00 AM

- 🟩 Internal
- 🟨 Outgoing Long Distance
- 🟦 Received Call
- 🟪 Outgoing International
- 🟦 Outgoing Local

Hourly | Daily | Monthly

Call Duration
7793538
Wed Sep 24 06:00 AM

minutes

- — Avg Duration
- — Max Duration

Hourly | Daily | Monthly

Unnormal Disconnect Cause
7793538
Wed Sep 24 06:00 AM

- 🟩 Called Party Cause (17|18|19)
- 🟨 Network Fail (38|41)
- 🟦 Wrong Number (1|28)
- 🟪 Others
- 🟦 No Resource (3|34|47)

Hourly | Daily | Monthly

Call Duration Distribution
7793538
Wed Sep 24 06:00 AM

- 🟩 Duration<1 min
- 🟨 30<=Dura<120 min
- 🟦 1<=Dura<5 min
- 🟪 2<=Dura<12 hours
- 🟦 5<=Dura<30 min
- 🟥 Duration>=12 hours

5

Top Ten Reports

There are 12 top ten reports, six in the call history area, and six in the call QoS area.

Call History	Call QoS
Cluster History Top Ten	Cluster QoS Top Ten
CallManager History Top Ten	CallManager QoS Top Ten
Gateway History Top Ten by CallManager	Gateway QoS Top Ten by CallManager
Phone Number History Top Ten	Phone Number QoS Top Ten
Location History Top Ten	Location QoS Top Ten
Gateway History Top Ten by Location	Gateway QoS Top Ten by Location

Every top ten report performs a ranking function that makes it easy for you to spot potential problem areas in yesterday's extremes. The call history reports contain these tables:

• Highest Call Volume

• Highest Call Volume Increase

• Most Call Minutes

• Highest Call Minutes Increase

• Worst Call Success Rate

• Highest CSR Decrease

The call QoS reports contain these tables:

• Highest Packet Lost

• Highest Packet Lost Increase

• Highest Jitter

• Highest Jitter Increase

• Highest Latency

• Highest Latency Decrease

Cisco IP Telephony Call Details

Cluster History Top Ten

The Cluster History Top Ten Report provides lists of Cluster that had the highest call volume, highest call minutes, and worst call success rate during the previous day. Clusters are also listed by the highest projected increase rate for each metric.

Highest Call Volume
Wed Sep 24 12:00 AM

Cluster Name	Calls
Cluster1	24

Highest Call Voulme Increase
Thu Aug 28 12:00 AM

Cluster Name	Baseline	+30/60/90 Days
Cluster1	142	30/-47/-124

Most Call Minutes
Wed Sep 24 12:00 AM

Cluster Name	Minutes
Cluster1	134

Highest Call Minutes Increase
Thu Aug 28 12:00 AM

Cluster Name	Baseline (minutes)	+30/60/90 Days
Cluster1	66	103/128/153

Worst Call Success Rate
Wed Sep 24 12:00 AM

Cluster Name	CSR,%
Cluster1	52.2

Highest CSR Decrease
Thu Aug 28 12:00 AM

Cluster Name	Baseline (%)	+30/60/90 Days
Cluster1	19.2	80/-999/-999

Cisco IP Telephony Call Details

CallManager History Top Ten

The CallManager History Top Ten Report provides lists of CallManager that had the highest call volume, highest call minutes, and worst call success rate during the previous day. CallManagers are also listed by the highest projected increase rate for each metric.

Highest Call Volume
Wed Sep 24 12:00 AM

Call Manager	Calls
Cluster1_CCM1	24

Highest Call Voulme Increase
Thu Aug 28 12:00 AM

Call Manager	Baseline	+30/60/90 Days
Cluster1_CCM1	142	30/-47/-124

Most Call Minutes
Wed Sep 24 12:00 AM

Call Manager	Minutes
Cluster1_CCM1	134

Highest Call Minutes Increase
Thu Aug 28 12:00 AM

Call Manager	Baseline (minutes)	+30/60/90 Days
Cluster1_CCM1	66	103/128/153

Worst Call Success Rate
Wed Sep 24 12:00 AM

Call Manager	CSR,%
Cluster1_CCM1	52.2

Highest CSR Decrease
Thu Aug 28 12:00 AM

Call Manager	Baseline (%)	+30/60/90 Days
Cluster1_CCM1	19.2	80/-999/-999

Cisco IP Telephony Call Details

Cluster QoS Top Ten

The Cluster QoS Top Ten Report provides lists of Cluster which had the highest Packets Lost, highest Jitter, and highest Latency during the previous day. Clusters are also listed by the highest projected increase rate for each metric.

Highest Packets Lost

Cluster Name	Packets Lost (%)
Cluster1	0.0

Highest Packets Lost Increase

Cluster Name	Baseline (%)	+30/60/90/ Days
Cluster1	0.1	0.1/0.0/0.0

Highest Jitter

Cluster Name	Jitter (ms)
Cluster1	7.0

Highest Jitter Increase

Cluster Name	Baseline (ms)	+30/60/90/ Days
Cluster1	5.8	6.4/6.7/7.1

Highest Latency

Cluster Name	Latency (ms)
Cluster1	0.0

Highest Latency Increase

Cluster Name	Baseline (ms)	+30/60/90/ Days
Cluster1	0.0	0.0/0.0/0.0

Cisco IP Telephony Call Details

CallManager QoS Top Ten

The CallManager QoS Top Ten Report provides lists of CallManager that had the highest Packets Lost, highest Jitter, and highest Latency during the previous day. CallManagers are also listed by the highest projected increase rate for each metric.

Highest Packets Lost

CallManager	Packets Lost (%)
Cluster1_CCM1	0.0

Highest Packets Lost Increase

CallManager	Baseline (%)	+30/60/90/ Days
Cluster1_CCM1	0.1	0.1/0.0/0.0

Highest Jitter

CallManager	Jitter (ms)
Cluster1_CCM1	7.0

Highest Jitter Increase

CallManager	Baseline (ms)	+30/60/90/ Days
Cluster1_CCM1	5.8	6.4/6.7/7.1

Highest Latency

CallManager	Latency (ms)
Cluster1_CCM1	0.0

Highest Latency Increase

CallManager	Baseline (ms)	+30/60/90/ Days
Cluster1_CCM1	0.0	0.0/0.0/0.0

6

Call QoS Summary Reports

The call QoS summary reports provide QoS metrics aggregated by:

- Cluster
- CallManager
- The gateways associated with each CallManager
- The gateways associated with each location
- The phone numbers associated with each CallManager
- The phone numbers associated with each location

These reports focus on the following metrics:

- Total calls
- Average packets lost
- Average jitter
- Average latency
- Average QoS

Investigate Packets Lost more closely by looking at the following data graphs, tabbed Hourly, Daily, and Monthly:

- Calls by QoS Value stacked by:
  — Good
  — Acceptable
  — Fair
  — Poor
- Packets Lost
- Jitter
  — Average
  — Maximum
- Latency
  — Average
  — Maximum

Cisco IP Telephony Call Details

Cluster QoS Summary

The Cluster QoS Report presents QoS metrics aggregated for a given Cluster. This report can be used to view QoS statistic metrics and identify device performance issues. QoS value is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: 1=Good, 2=Acceptable, 3=Fair, and 4=Poor.
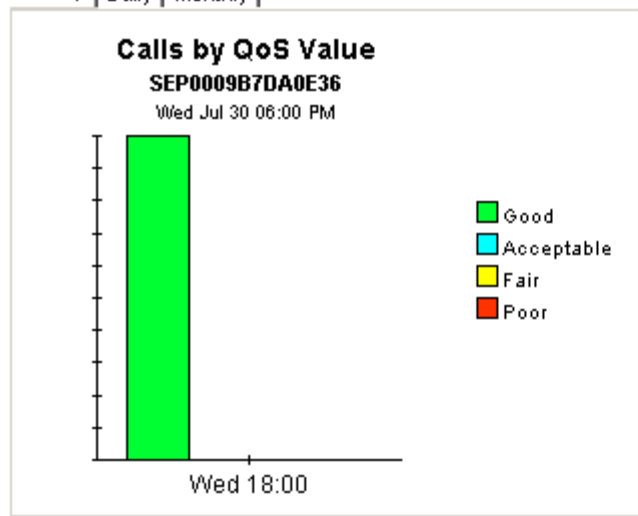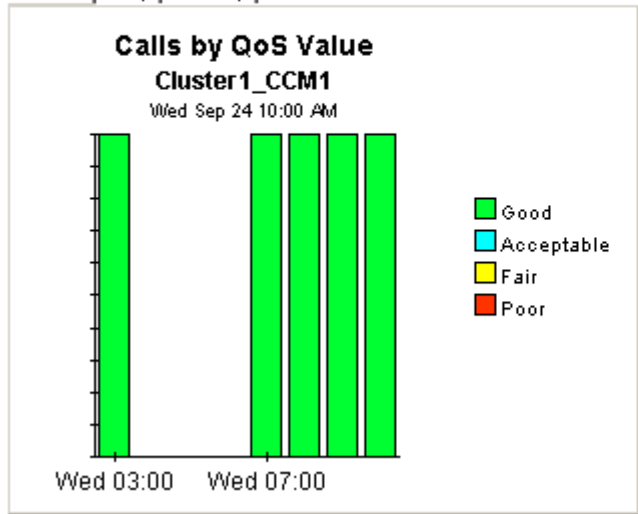
Cluster Selection
Wed Sep 24 12:00 AM

Cluster Name	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1	5	0.0	6.0	0.0	1.0

Hourly | Daily | Monthly
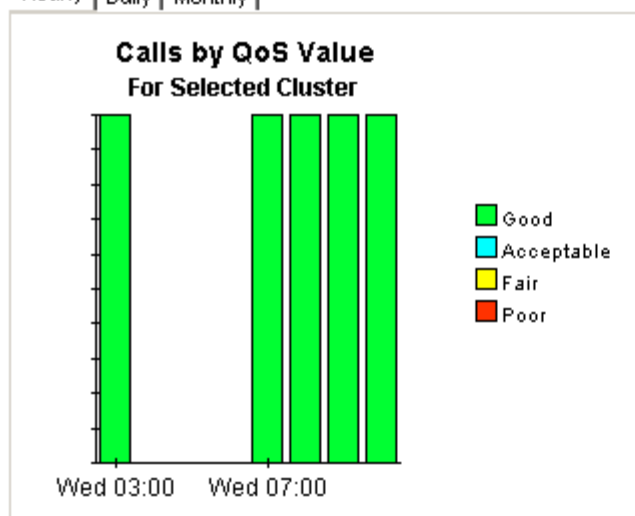
Calls by QoS Value
For Selected Cluster

- Good
- Acceptable
- Fair
- Poor

Wed 03:00   Wed 07:00

Hourly | Daily | Monthly

Packets Lost
For Selected Cluster

Fri 12:00 AM   Tue 12:00 AM   Sat 12:00 AM

— AVGPacketsLostRate
— Max PacketsLost Rate

Hourly | Daily | Monthly |

Jitter
For Selected Cluster

ms

8.0
6.4
4.8
3.2
1.6
0

Wed 03:00 AM   Wed 09:00 AM

— Avg Jitter
— Max Jitter

Hourly | Daily | Monthly |

Latency
For Selected Cluster

ms

Wed 03:00 AM   Wed 06:00 AM   Wed 09:00 AM

— Avg Latency
— Max Latency
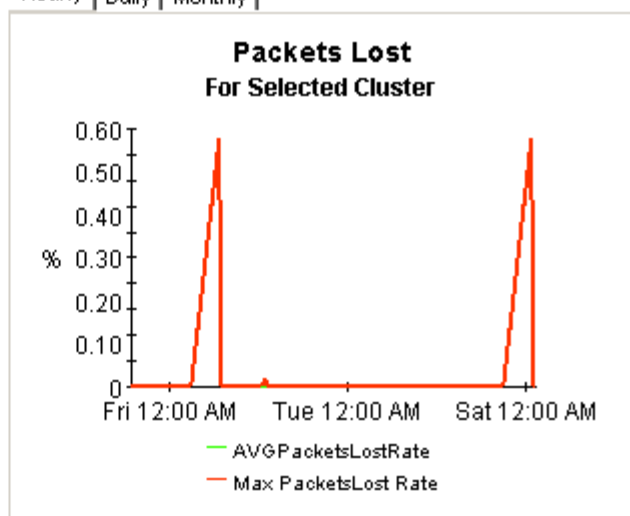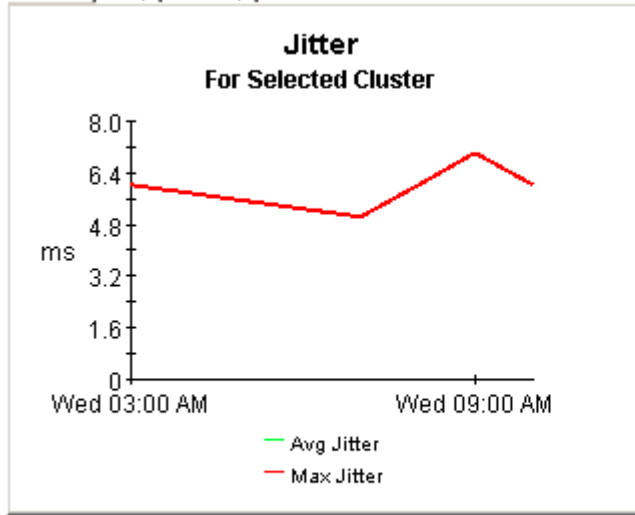
Cisco IP Telephony Call Details

Gateway QoS Summary by Location

The Gateway QoS Summary by Location Report presents QoS metrics aggregated for a given Gateway grouped by location. This report can be used to view QoS statistic metrics and identify device performance issues. QoS vlaue is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: 1=Good, 2=Acceptable, 3=Fair, and 4=Poor.
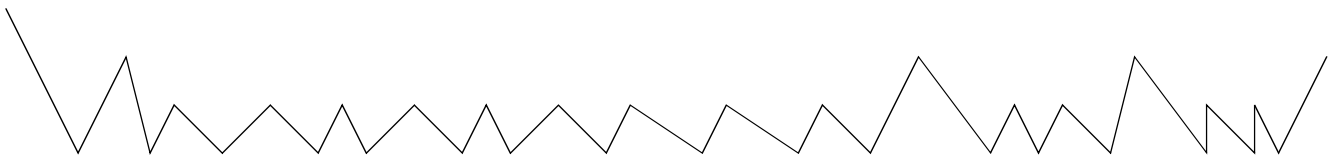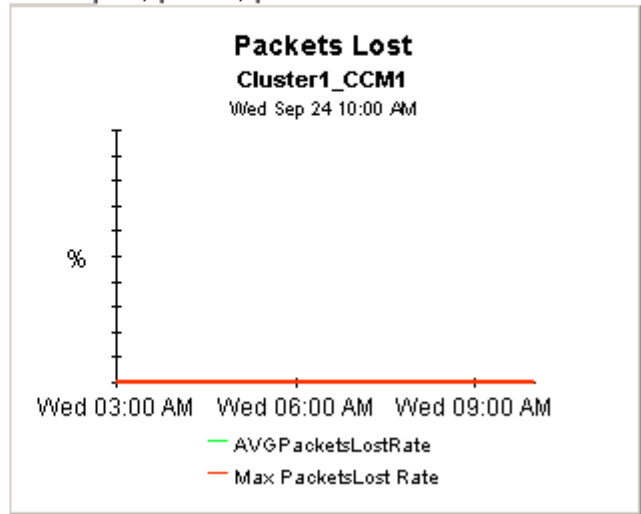
Location Selection
Wed Jul 30 12:00 AM

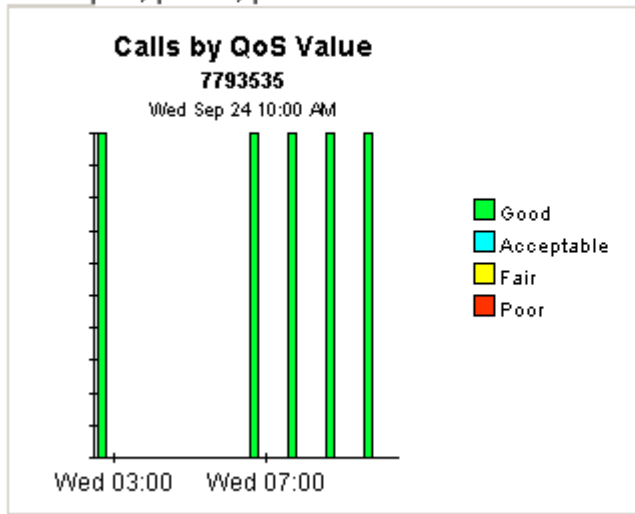| Location	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Location Unassigned	1.00	0.0	0.0	0.0	1.0

Gateway Selection
Wed Jul 30 12:00 AM

Gateway	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
SEP0009B7DA0E36	1	0.0	0.0	0.0	1.0

Hourly | Daily | Monthly

Calls by QoS Value
SEP0009B7DA0E36
Wed Jul 30 06:00 PM

- Good
- Acceptable
- Fair
- Poor

Wed 18:00

Hourly | Daily | Monthly

Packets Lost
SEP0009B7DA0E36
Wed Jul 30 06:00 PM

%

Wed 06:00 PM

— Avg PacketsLost Rate
— Max PacketsLost Rate

Hourly | Daily | Monthly |

Jitter
SEP0009B7DA0E36
Wed Jul 30 06:00 PM

ms

Wed 06:00 PM

— Avg Jitter
— Max Jitter

Hourly | Daily | Monthly |

Latency
SEP0009B7DA0E36
Wed Jul 30 06:00 PM

ms

Wed 06:00 PM

— Avg Latency
— Max Latency
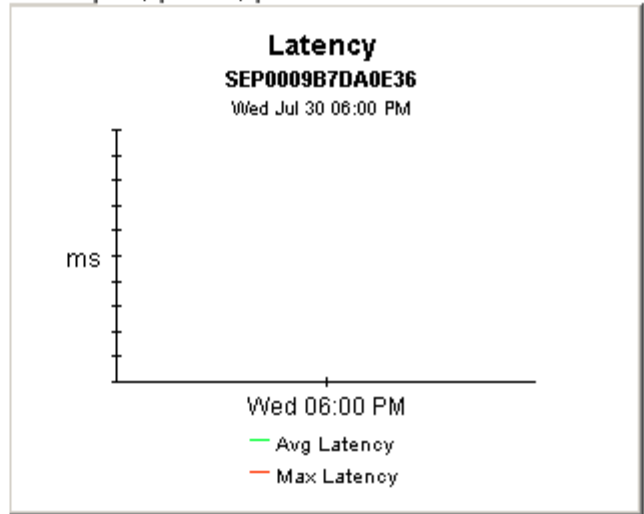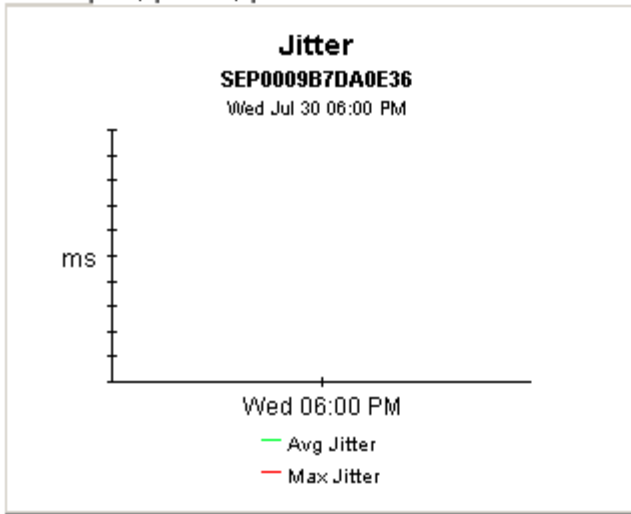
Cisco IP Telephony Call Details

CallManager QoS Summary

The CallManager QoS Report presents QoS metrics aggregated for a given CallManager. This report can be used to view QoS statistic metrics and identify device performance issues. QoS value is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: 1=Good, 2=Acceptable, 3=Fair, and 4=Poor.

CallManager Selection
Wed Sep 24 12:00 AM

Call Manager	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1_CCM1	5	0.0	6.0	0.0	1.0

Hourly | Daily | Monthly

Calls by QoS Value
Cluster1_CCM1
Wed Sep 24 10:00 AM

- Good
- Acceptable
- Fair
- Poor

Wed 03:00   Wed 07:00

Hourly | Daily | Monthly

Packets Lost
Cluster1_CCM1
Wed Sep 24 10:00 AM

%

Wed 03:00 AM   Wed 06:00 AM   Wed 09:00 AM

— AVGPacketsLostRate
— Max PacketsLost Rate

Cisco IP Telephony Call Details

Phone Number QoS Summary

The Phone Number QoS Summary Report presents QoS metrics aggregated for a given phone number associated with a CallManager. This report can be used to view QoS statistic metrics and identify device performance issues. QoS value is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: 1=Good, 2=Acceptable, 3=Fair, and 4=Poor

CallManager Selection
Wed Sep 24 12:00 AM

Call Manager	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1_CCM1	5.00	0.0	6.0	0.0	1.0

Phone Number Selection
Wed Sep 24 12:00 AM

Phone Number	Total Calls	Avg Jitter (ms)	Avg PacketsLost (%)	Avg Latency (ms)	Avg QoS
7793535	5	6.0	0.0	0.0	1.0

Hourly | Daily | Monthly

Calls by QoS Value
7793535
Wed Sep 24 10:00 AM

- Good
- Acceptable
- Fair
- Poor

Wed 03:00   Wed 07:00

Hourly | Daily | Monthly

Packets Lost
7793535
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM

— Avg PacketsLost Rate
— Max PacketsLost Rate
— Max HourlyPacketsLost Rate

Hourly | Daily | Monthly |

Jitter
7793535
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM

— Avg Jitter
— Max Jitter
— Max HourlyJitter

Hourly | Daily | Monthly |

Latency
7793535
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
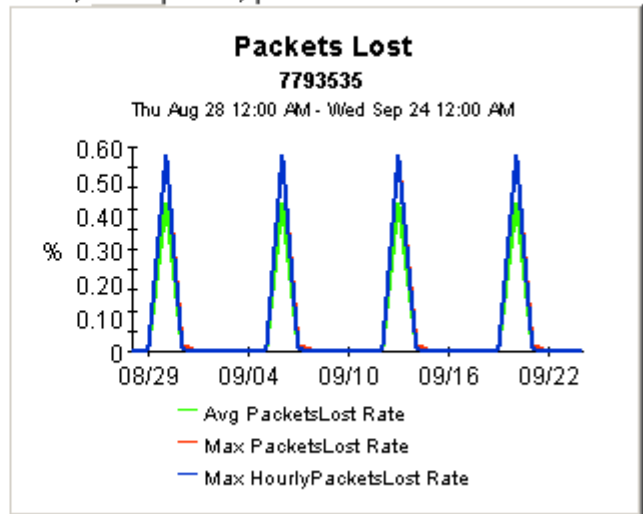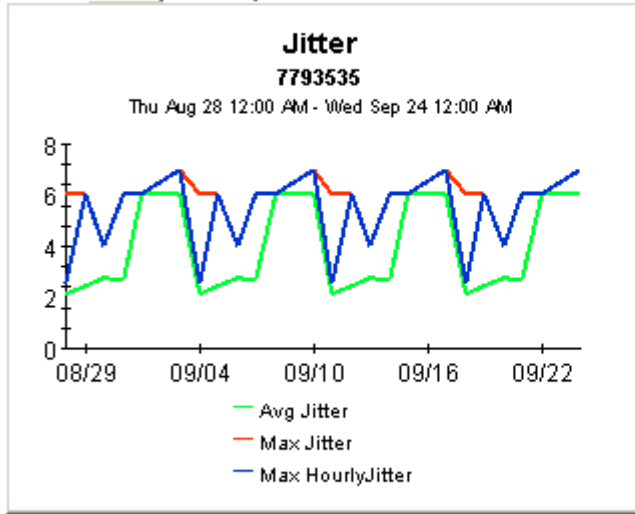
— Avg Latency
— Max Latency
— Max HourlyLatency
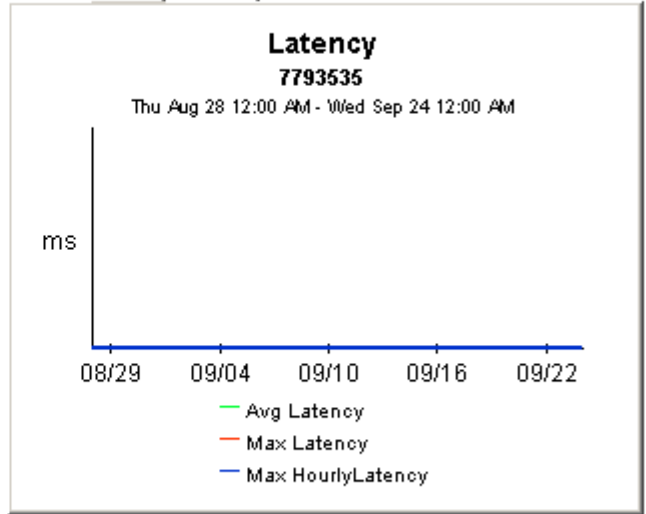
Forecast Reports

Forecast reports tell you whether call volume is growing or decreasing and how fast it is growing or decreasing. IPT Call Detail includes five forecast reports:

- CallManager forecast
- Cluster forecast
- Gateway forecast by CallManager
- Gateway forecast by location
- Phone number forecast
- Location forecast

Each report begins with an estimate of future call volume. The time ranges are 30 days from now, 60 days from now, and 90 days from now. You can investigate future performance in more detail by using the following graphs:

- Call Volume Forecast
- Call Minutes Forecast
- Call Success Rate Forecast
- Average QoS Forecast

Each graph has the following tabs:

Standard

Compare the baseline average to future performance.

Day of Week

Correlate future performance by day of week.

History

Inspect the data collected throughout the baseline period (the previous 91 days).

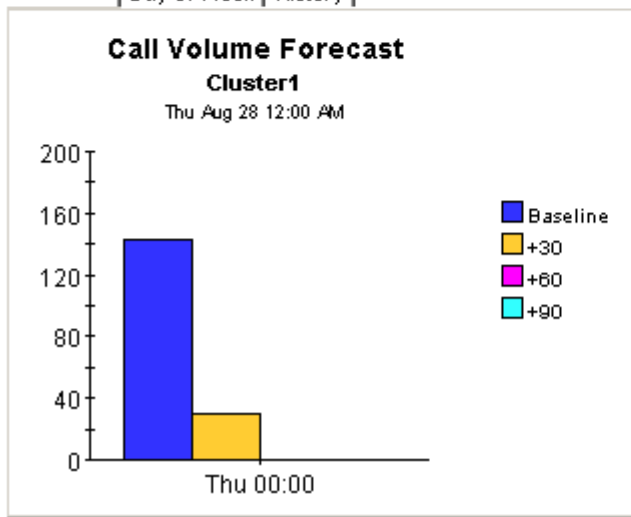# Cisco IP Telephony Call Details

CallManager Forecast

The CallManager Forecast Report enables the user to quickly identify CallManagers with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. CallManagers are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected CallManager.

CallManager Selection
Thu Aug 28 12:00 AM

Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

Standard | Day of Week | History
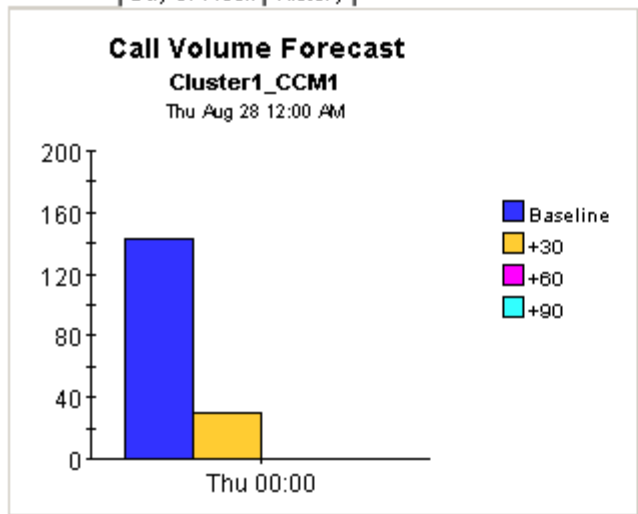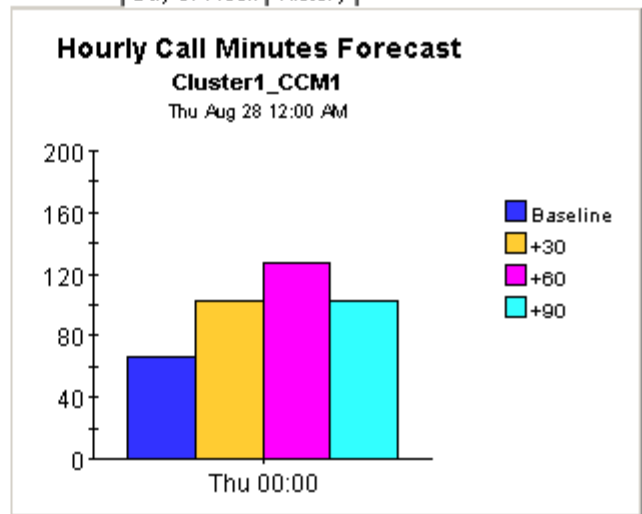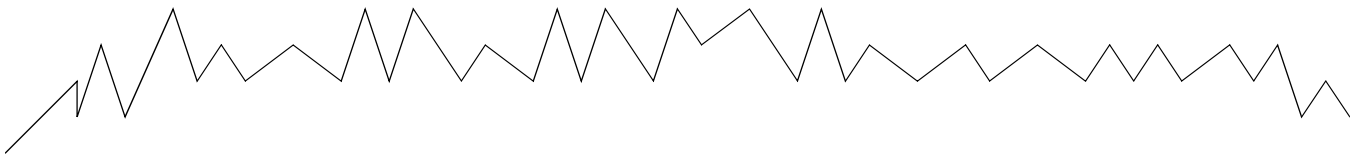
Call Volume Forecast
Cluster1_CCM1
Thu Aug 28 12:00 AM

Baseline
+30
+60
+90

Thu 00:00

Standard | Day of Week | History

Hourly Call Minutes Forecast
Cluster1_CCM1
Thu Aug 28 12:00 AM

Baseline
+30
+60
+90

Thu 00:00
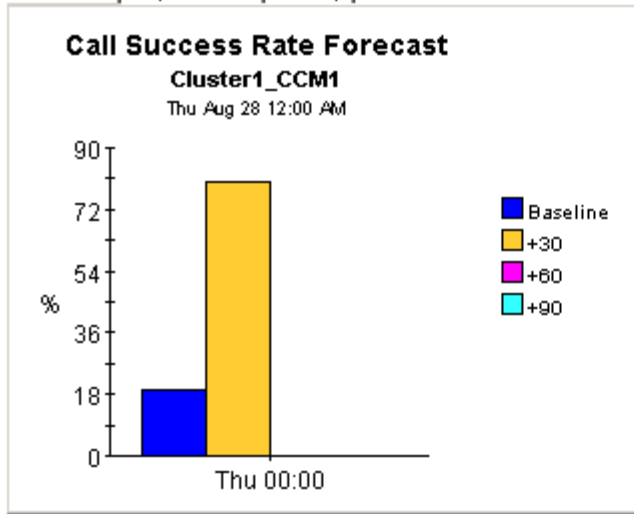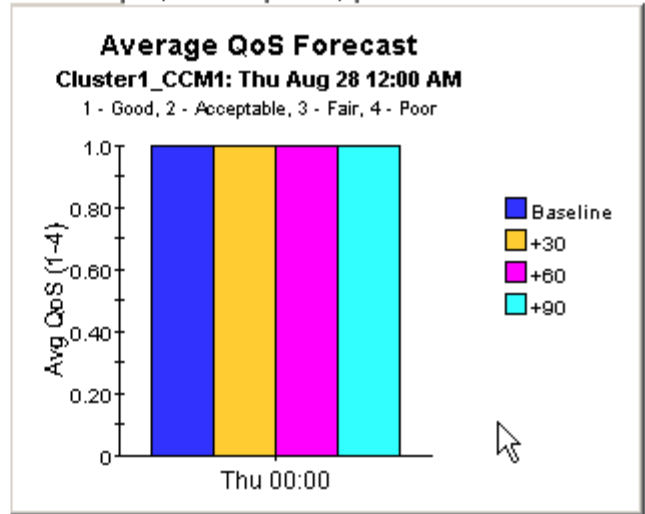
Cisco IP Telephony Call Details

Cluster Forecast

The Cluster Forecast Report enables the user to quickly identify Cluster with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. Clusters are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected Cluster.
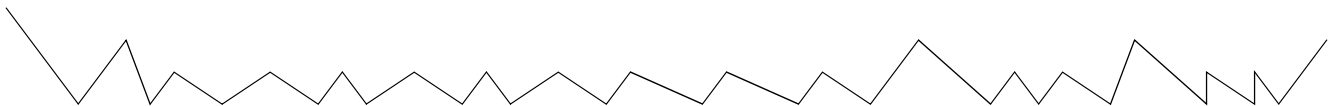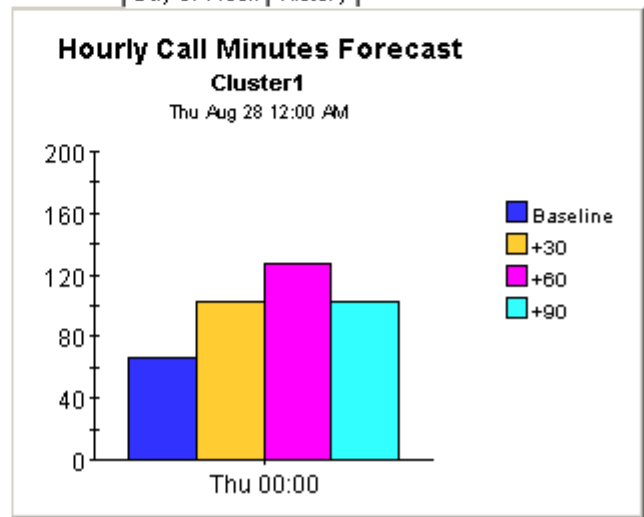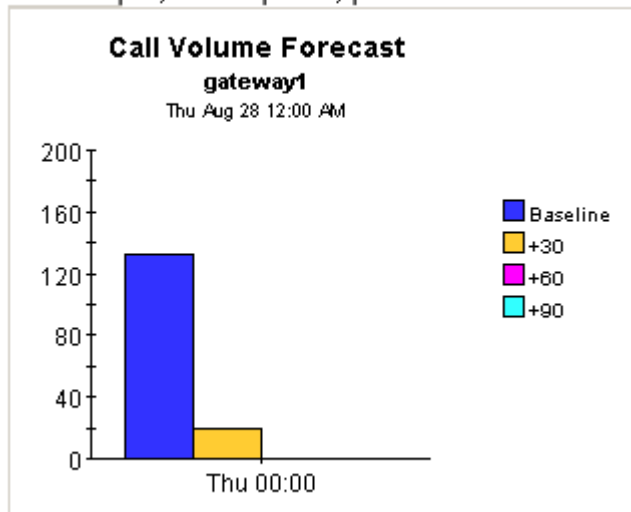
Cluster Selection
Thu Aug 28 12:00 AM

ClusterName	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1	142	30	-47	-124

Standard | Day of Week | History

Call Volume Forecast
Cluster1
Thu Aug 28 12:00 AM

Standard | Day of Week | History

Hourly Call Minutes Forecast
Cluster1
Thu Aug 28 12:00 AM

Standard | Day of Week | History |

Call Success Rate Forecast

Thu Aug 28 12:00 AM

Baseline
+30
+60
+90

Thu 00:00

Standard | Day of Week | History |

Average QoS Forecast
Cluster1: Thu Aug 28 12:00 AM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor

Avg QoS (1-4)

Baseline
+30
+60
+90

Thu 00:00
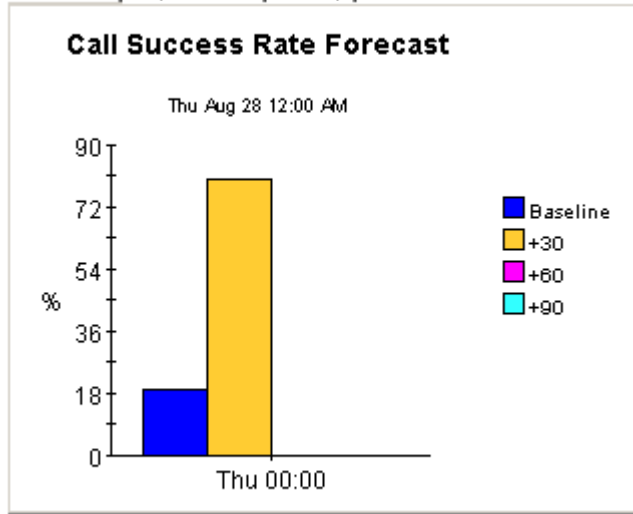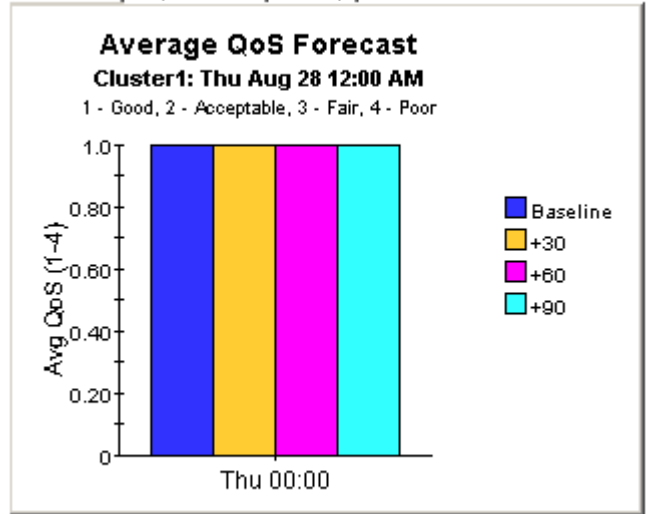
Cisco IP Telephony Call Details

Gateway Forecast by CallManager

The Gateway Forecast Report enables the user to quickly identify Gateways with the greatest projected increase in call volume, call minutes, call success rate, and average Quos grade. Gateways are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected Gateway.
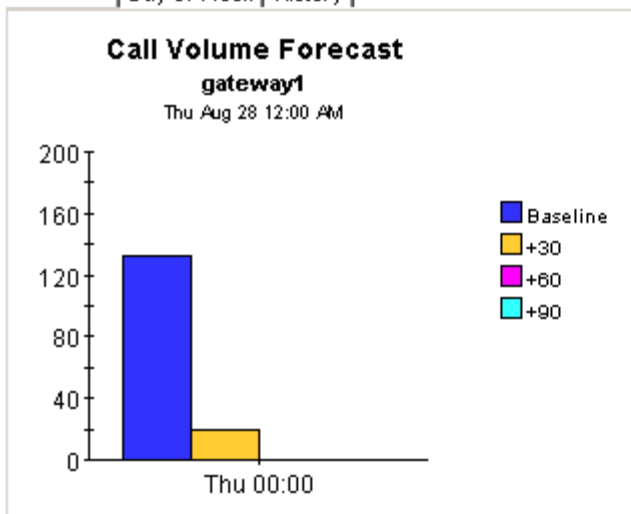
CallManager Selection
Thu Aug 28 12:00 AM

Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

Gateway Selection
Thu Aug 28 12:00 AM

Gateway	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
gateway1	132	20	-57	-134

Standard | Day of Week | History

Call Volume Forecast
gateway1
Thu Aug 28 12:00 AM

Legend:
- Baseline
- +30
- +60
- +90

Thu 00:00

Standard | Day of Week | History

Hourly Call Minutes Forecast
gateway1
Thu Aug 28 12:00 AM

Legend:
- Baseline
- +30
- +60
- +90

Thu 00:00
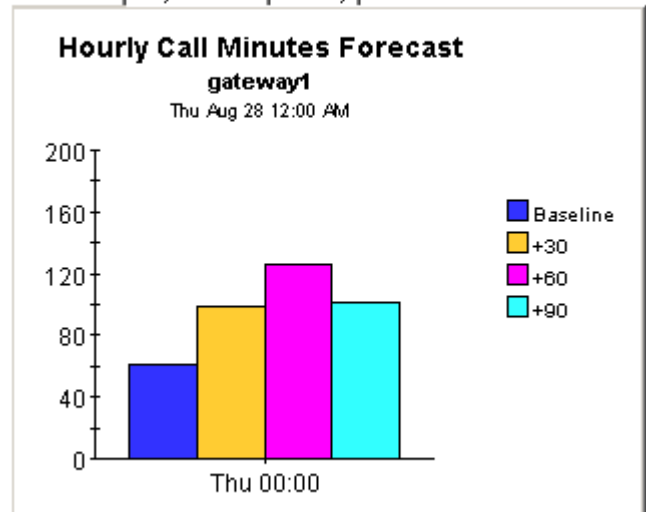
Standard | Day of Week | History |

Call Success Rate Forecast
gateway1
Thu Aug 28 12:00 AM
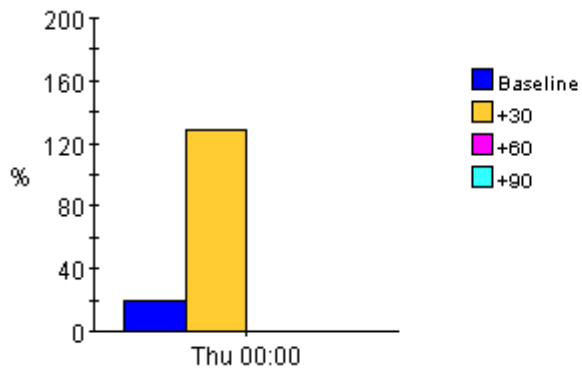
Standard | Day of Week | History |

Average QoS Forecast
gateway1: Fri Sep 26 02:01 PM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor

Cisco IP Telephony Call Details

Gateway Forecast by Location

The Gateway Forecast by Location Report enables the user to quickly identify Gateways with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. Gateways are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected Gateway.

Location Selection
Thu Aug 28 12:00 AM

Location	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Location Unassigned	37	31	27	24

Gateway Selection
Thu Aug 28 12:00 AM

Gateway	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
gateway1	132	20	-57	-134

Standard | Day of Week | History

Call Volume Forecast
gateway1
Thu Aug 28 12:00 AM

Standard | Day of Week | History

Hourly Call Minutes Forecast
gateway1
Thu Aug 28 12:00 AM
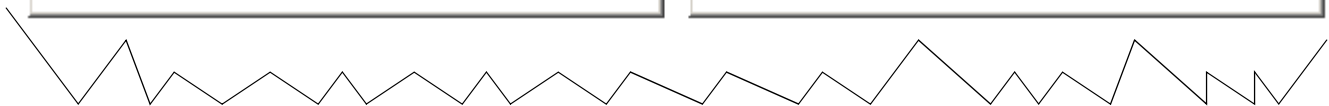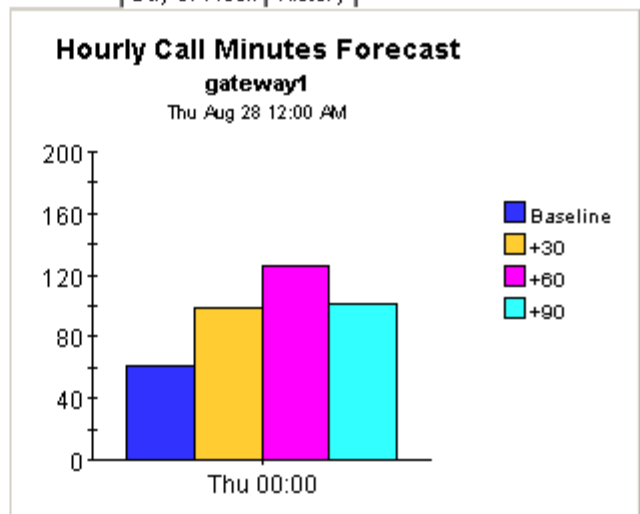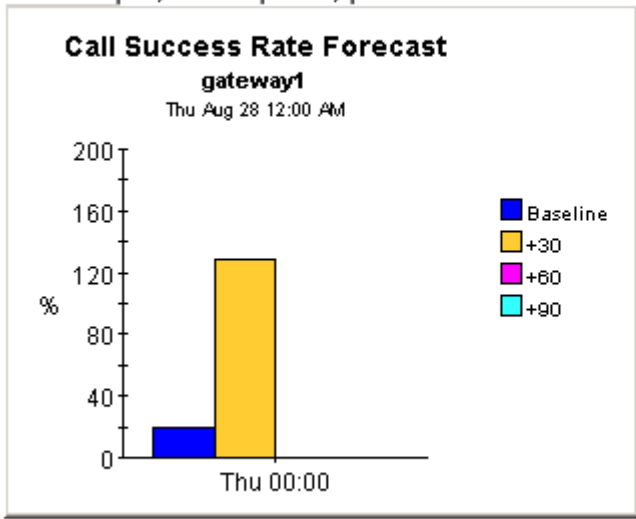
Cisco IP Telephony Call Details

Phone Number Forecast

The Phone Number Forecast Report enables the user to quickly identify phone numbers with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. Phone numbers are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected phone number.

CallManager Selection
Thu Aug 28 12:00 AM

Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

Phone Number Selection
Sun Aug 31 12:00 AM

Phone Number	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
7793538	13	14	15	16
7793502	1	1	1	1
7793520	9	8	7	7
7793522	17	17	17	17
7793535	10	2	-4	-10
7793599	7	6	5	5
7793501	1	1	1	1
7793502	2	3	4	5

Standard | Day of Week | History
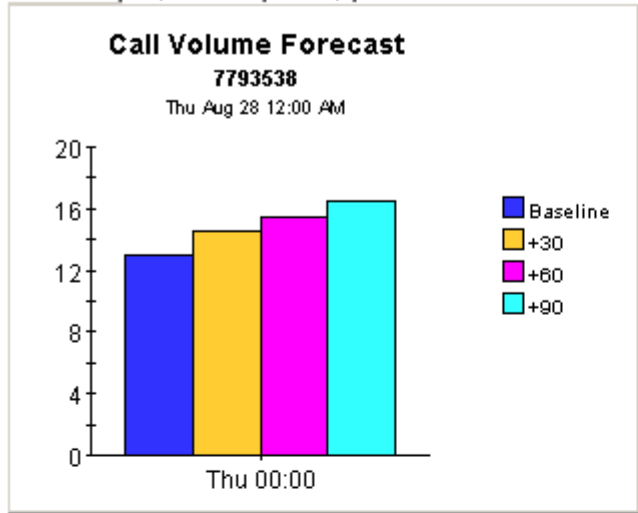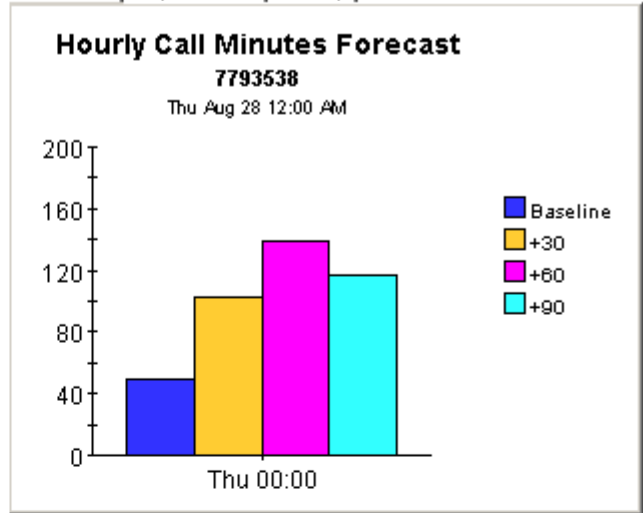
Call Volume Forecast
7793538
Thu Aug 28 12:00 AM

Legend:
- Baseline
- +30
- +60
- +90

Thu 00:00

Standard | Day of Week | History

Hourly Call Minutes Forecast
7793538
Thu Aug 28 12:00 AM

Legend:
- Baseline
- +30
- +60
- +90

Thu 00:00

Standard | Day of Week | History

Call Success Rate Forecast
Thu Aug 28 12:00 AM

Legend:
- Baseline
- +30
- +60
- +90

Thu 00:00

Standard | Day of Week | History

Average QoS Forecast
7793538: Fri Sep 26 02:16 PM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor

8
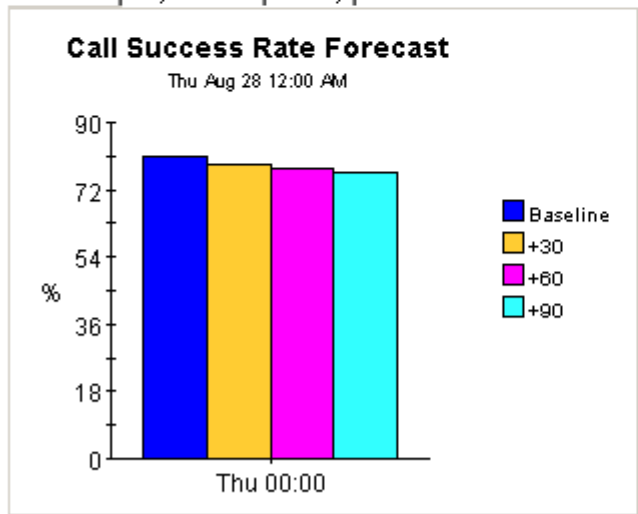
Inventory Report

The inventory report provides a list of:

*   Clusters
*   CallManagers associated with each cluster
*   Gateways associated with each CallManager
*   IP phones associated with each CallManager

If you are in the habit of assigning customers and locations to CallManagers and gateways, this report will tell you which CallManager and gateways, if any, do not have customers or locations assigned to them.

The inventory report reads property tables created by the Admin module. The Admin module that comes with IPT Call Detail is exactly the same as the Admin module that comes with IP Telephony Gateway Statistics. Both packages share the same inventory report. The inventory report reads the following property tables:

*   K_IPT_Cluster
*   K_IPT_CManager
*   K_IPT_gateway
*   K_IPT_phoneNum
*   K_IPT_gateway_loc (location module)
*   K_IPT_loc (location module)
*   K_IPT_QoS

These tables are refreshed daily by the CDR Datapipe. In addition, they are updated by any changes you make using the property update forms that come with IPT Call Detail.

Cisco IP Telephony Administration

Inventory

This report has one entry for each CallManager Cluster and provides hierarchy information for the CallManagers, Gateways, and IP Phones associated with that CallManager Cluster.

Cluster Selection

Cluster Name	Number of CallManager	Number of Gateway	Number of IP Phone
default	1	1	1
Cluster1	1	1	10

Call Manager for Selected Cluster

CallManager	Location	Number of Gateway	Number of IP Phone
default	Location Unassigned	1	1

Gateways for Selected CallManager

Gateway	Location

IP Phones For Selected CallManager

Phone Number	User	Location
default		Location Unassigned

Editing Tables and Graphs

Any table or graph can be viewed in several ways. While the default view is usually adequate, you can easily change to a different view. If you are using the Report Viewer application, right-click the object and select a different view. If you are looking at a report using the Web Access Server, click the **Edit Table** or **Edit Graph** icons.

View Options for Tables

Right-clicking a table, or selecting **Edit Table**, opens a list of table view options.

Device	Interface	F/H	Customer	Descr.	Baseline Avg.
24.13.17.1	5	F	Concert	Cable5/0	In:2 Out:5
24.13.17.1	5	F	Concert	Cable5/0	In:2 Out:5
24.13.17.1	5	F	Concert	Cable5/0	In:3 Out:5
24.13.17.1	5	F	Concert	Cable5/0	In:2 Out:5
24.13.17.1	5	F	Concert	Cable5/0	In:2 Out:4
24.13.17.1	6	F	Concert	Cable6/0	
24.13.17.1	5	F	Concert	Cable5/0	
24.13.17.1	6	F	Concert	Cable6/0	
24.13.17.1	6	F	Concert	Cable6/0	
24.13.17.1	6	F	Concert	Cable6/0	

Set Time Period...
Change Constraint Values...
Select Nodes/Interfaces...
Change Max Rows...
View in new Frame
Print Table...
Export Element as CSV...
Delete Table

Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

You may shorten the period of time covered by the table from, for example, 42 days to 30 days or to 7 days. If you are interested in a specific period of time that starts in the past and stops *before* yesterday, click **Use Absolute Time** and select a Start Time and an End Time.

Select **Change Constraint Values** to loosen or tighten a constraint, thereby raising or lowering the number of elements that conform to the constraint. The Change Constraint Values window opens. To loosen a constraint, set the value lower; to tighten a constraint, set the value higher.

The **Select Nodes/Interfaces** allows you to change the scope of the table by limiting the table to specific nodes, specific interfaces, or a specific group of nodes or interfaces. The Select Node Selection Type window opens.

Change Max Rows increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

View in new Frame opens the table in a Table Viewer window, shown below. If necessary, make the data in the table more legible by resizing the window.

III Table Viewer

Polled IP QoS Statistics Data - Input
Over Previous 6 Hours

Direction	IpPrecedence	Switched Bytes	Switched Pkts	Time Period
Input	0	105,688	675	Tue Oct 29 07:00 AM
Input	1	0	0	Tue Oct 29 07:00 AM
Input	2	0	0	Tue Oct 29 07:00 AM
Input	3	0	0	Tue Oct 29 07:00 AM
Input	4	0	0	Tue Oct 29 07:00 AM
Input	5	0	0	Tue Oct 29 07:00 AM
Input	6	600	5	Tue Oct 29 07:00 AM
Input	7	0	0	Tue Oct 29 07:00 AM
Input	0	98,334	638	Tue Oct 29 06:45 AM
Input	1	0	0	Tue Oct 29 06:45 AM
Input	2	0	0	Tue Oct 29 06:45 AM
Input	3	0	0	Tue Oct 29 06:45 AM
Input	4	0	0	Tue Oct 29 06:45 AM
Input	5	0	0	Tue Oct 29 06:45 AM
Input	6	0	0	Tue Oct 29 06:45 AM
Input	7	0	0	Tue Oct 29 06:45 AM
Input	0	97,539	648	Tue Oct 29 06:30 AM
Input	1	0	0	Tue Oct 29 06:30 AM
Input	2	0	0	Tue Oct 29 06:30 AM
Input	3	0	0	Tue Oct 29 06:30 AM
Input	4	0	0	Tue Oct 29 06:30 AM
Input	5	0	0	Tue Oct 29 06:30 AM
Input	6	120	1	Tue Oct 29 06:30 AM
Input	7	0	0	Tue Oct 29 06:30 AM
Input	0	90,744	564	Tue Oct 29 06:15 AM
Input	1	0	0	Tue Oct 29 06:15 AM
Input	2	0	0	Tue Oct 29 06:15 AM
Input	3	0	0	Tue Oct 29 06:15 AM
Input	4	0	0	Tue Oct 29 06:15 AM
Input	5	0	0	Tue Oct 29 06:15 AM
Input	6	0	0	Tue Oct 29 06:15 AM
Input	7	0	0	Tue Oct 29 06:15 AM
Input	0	103,775	656	Tue Oct 29 06:00 AM
Input	1	0	0	Tue Oct 29 06:00 AM
Input	2	0	0	Tue Oct 29 06:00 AM
Input	3	0	0	Tue Oct 29 06:00 AM
Input	4	0	0	Tue Oct 29 06:00 AM
Input	5	0	0	Tue Oct 29 06:00 AM

View Options for Graphs

Right-click any graph to open a list of view options.
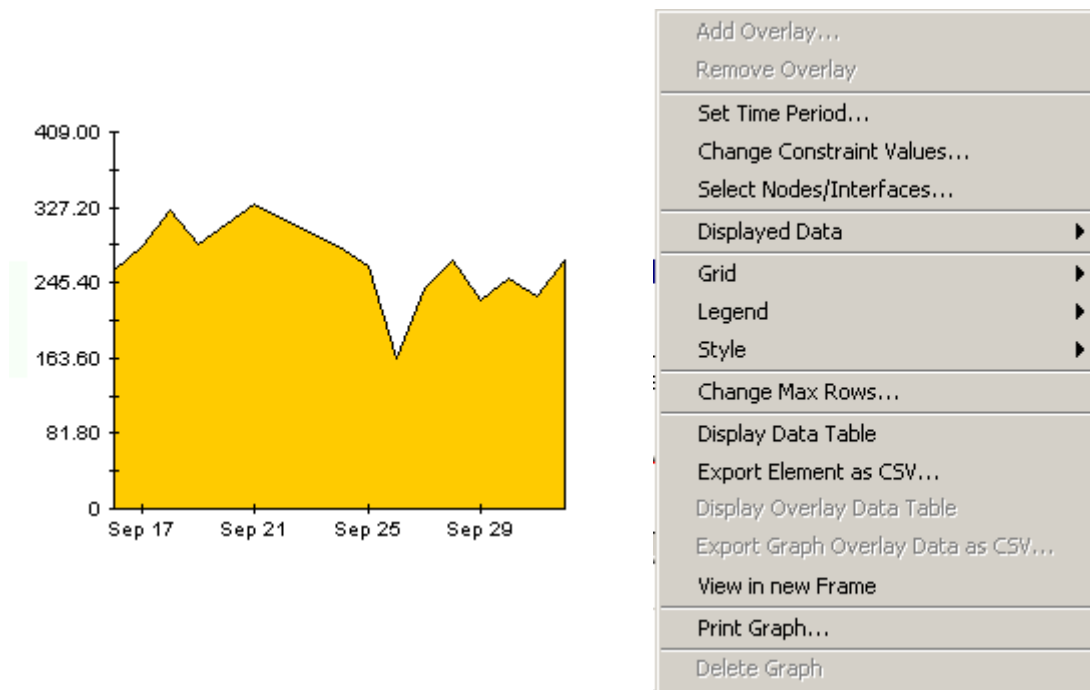
The following table provides details about each option.

Option	Function
Set Time Period	Same as the table option shown above.
Change Constraint Values	Same as the table option shown above.
Select Nodes/Interfaces	Same as the table option shown above.
Displayed Data	For every point on a graph display data in a spreadsheet.
Grid	Add these to the graph: X axis grid lines Y axis grid lines X and Y axis grid lines
Legend	Delete or reposition the legend.
Style	See the illustrations below.
Change Max Rows...	Same as the table option shown above.
Display Data Table	See below.

Option	Function
Export Element as CSV...	Same as the table option shown above.
View in New Frame	Opens graph in a Graph Viewer window.
Print Graph	Same as the table option shown above.

Style Options

Select **Style** to display a list of seven view options for graphs.
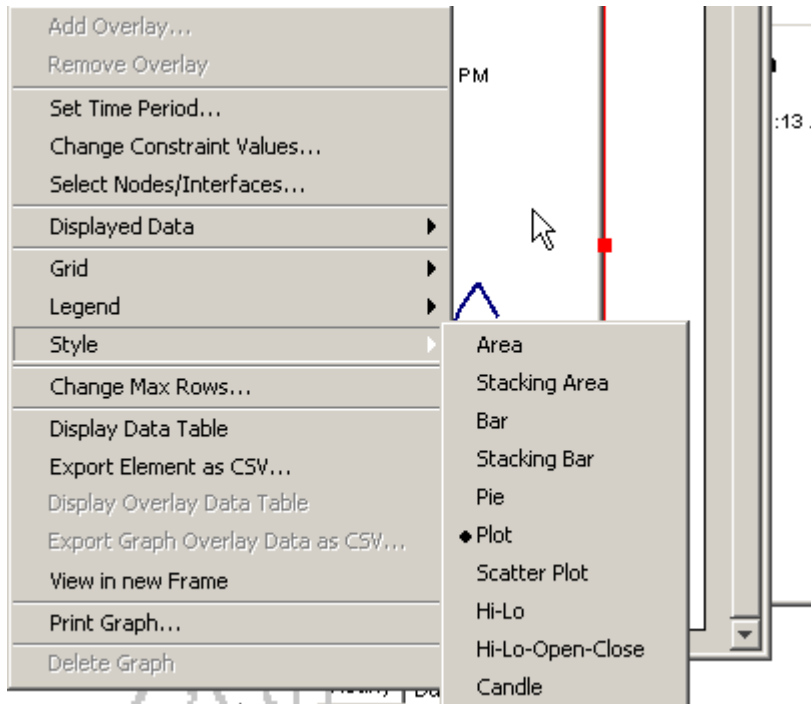
Style > Area

The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location
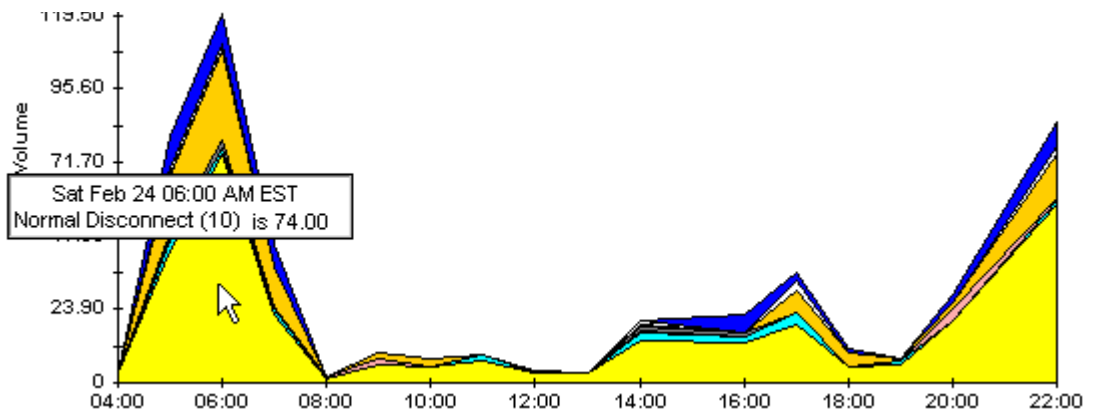
To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

Style > Stacking Area

The area or plot graph changes to a stacking area graph. This view is suitable for displaying a small number of variables.
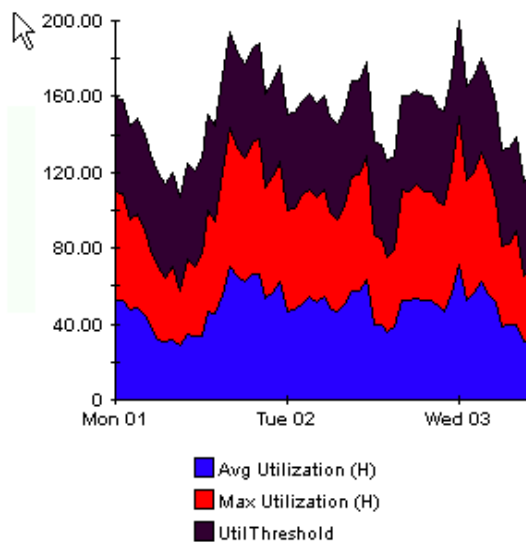
Style > Bar

The graph changes to a bar chart. This view is suitable for displaying relatively equal values for a small number of variables. There are three variables in the graph below.
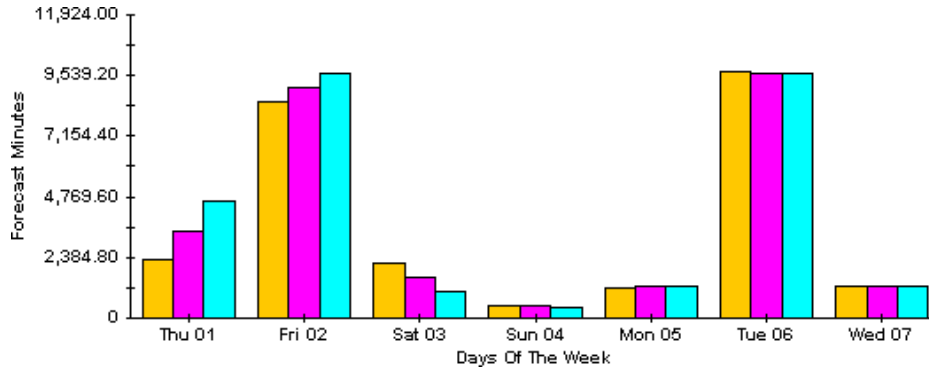
Style > Stacking Bar

The plot or area graph changes to a stacking bar chart. If you increase the width of the frame, the time scale becomes hourly. If you increase the height of the frame, the call volume shows in units of ten.
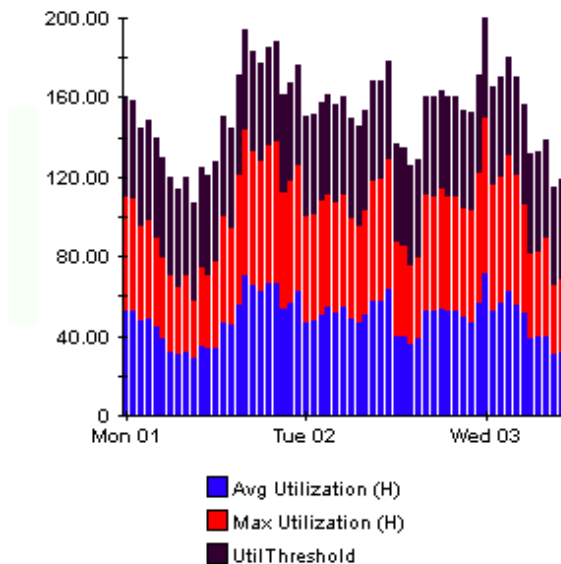
Style > Plot

Bands of color in an area graph change to lines. If you adjust the frame width, you can make the data points align with hour; if you adjust the frame height, you can turn call volume into whole numbers.
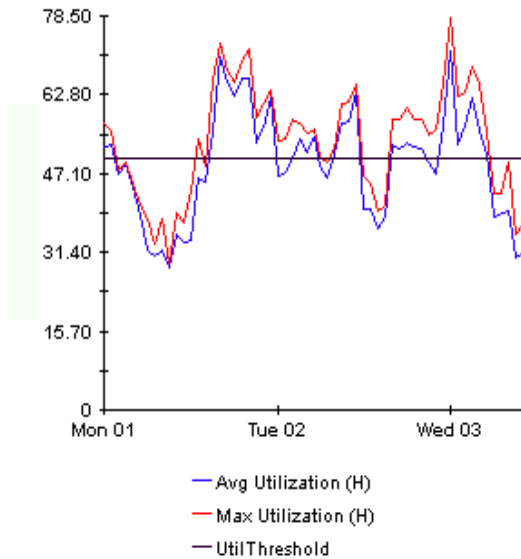
Style > Pie
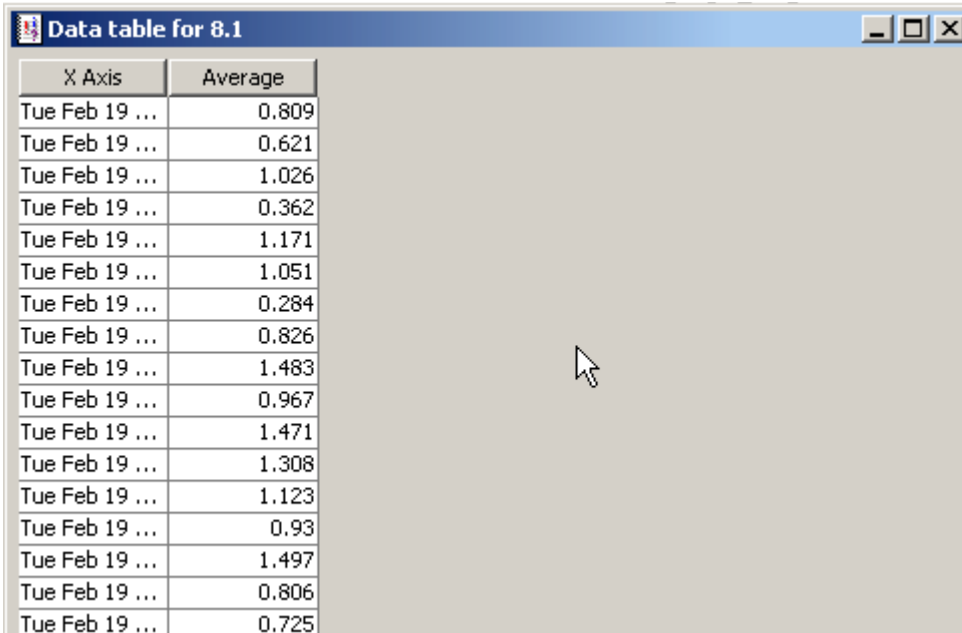
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.
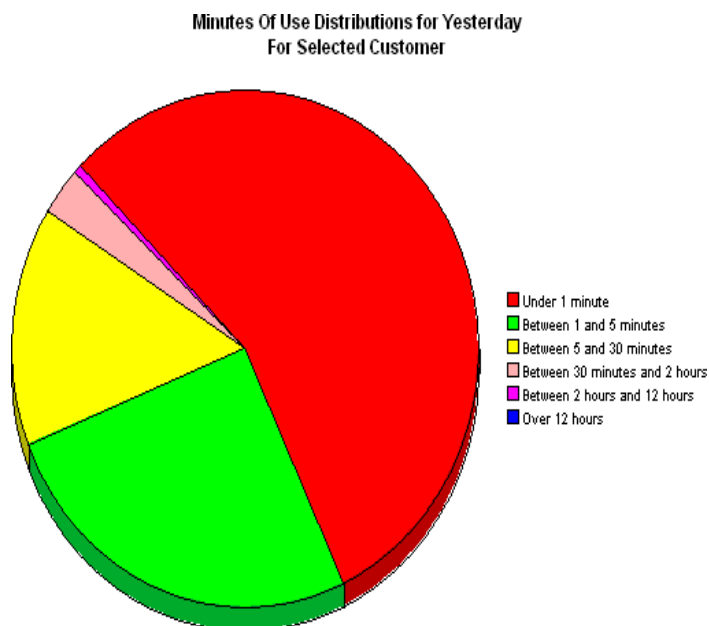
If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

Display Data Table

This option changes a graph into a spreadsheet.

View in New Frame

The graph opens in a Graph Viewer window. Improve legibility by resizing the window.

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