IP Telephony Call Detail Report Pack

Software Version: 3.0

HP OpenView Performance Insight

User Guide

July 2007

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- Software Version number, which indicates the software version.
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Contents

1 Overview

This chapter covers the following topics

OVPI and Cisco CallManager

Performance Insight is a performance management application that collects data from many sources, performs in-depth trend analysis, maintains performance baselines, and provides users with convenient, web-based reporting. Following is a partial list of OVPI features:

- Distributed architecture
- Easy to scale (supports data collection from thousands of agents)
- CODA/OVPA agent support
- Multi-company security model
- Data warehousing
- Near Real Time reporting
- Forecasting
- Multiple aggregations (by day, week, month; by location, by customer)
- Thresholding and alerting
- Bottlenecks easy to spot; capacity trends easy to assess
- Accurate and timely documentation for management

Our reporting solution for Cisco CallManager call details consists of a report pack and a datapipe. Version 3.0 of the IP Telephony Call Detail Report Pack contains 51 reports. The datapipe, Cisco CDR Datapipe 3.0, has two data sources, Cisco CallManager and the NNM SPI for Cisco IP Telephony. Although Cisco CallManager has its own ad hoc reporting capability, those reports are limited and difficult to produce. Our reporting solution offers these advantages:

- Spans multiple CallManager clusters (inter-site reporting)

- Generates statistics for call quality, call availability, and call usage
- Generates the following statistics for CCM:
  - Gateway usage
  - Channel usage
  - Resource utilization
  - Performance Monitor
  - Voice application process
- Produces rolling baseline statistics
- Produces forecasts derived from rolling baseline statistics
- Monitors thresholds for usage and availability and reports threshold breaches
- Integrates with the NNM SPI for Cisco IP Telephony

This report pack will not operate correctly until you assign a dial plan to each gateway. The procedure for this step is in Chapter 4, Post-Install Configuration. Chapter 4 also includes procedures for defining a data source. You can define the data source before installing the report pack or after installing the report pack.

Enhancements in Version 3.0

Version 3.0 includes new reports, new features, new upgrade packages, a new release of the Cisco CDR Datapipe, and a defect fix.

New Reports

- Gateway EndPoint Channel Top Ten by CM
- Gateway EndPoint Channel History Summary by CM
- Gateway EndPoint History Summary by CM
- Gateway EndPoint Channel Forecast by CM
- Gateway EndPoint Top Ten by CM
- Gateway EndPoint Channel History Summary by Location
- Gateway EndPoint History Summary by Location
- Gateway EndPoint Forecast by CM
- PerfMon Forecast
- PerfMon Summary
- Phone Number MOS Forecast
- Phone Number MOS Summary
- Phone Number MOS Top100Offender
- Process CallManager Forecast
- Process CallManager Summary
- Process Forecast by Location
- Process Summary by Location

- System Resource Forecast by Location
- System Resource Summary by Location
- System Resource CallManager Forecast
- System Resource CallManager Summary
- Voice Application History Summary by Location
- Voice Application CallManager History Summary

New Features

- Supports **Management Console > LIR configuration**
- Supports **Management Console > Copy Policy Manager**
- Collects MOS data from CCM 5.x
- Collects gateway and channel usage statistics from the Cisco IPT SPI

New Upgrade Packages

- UPGRADE_IPT_CallDetails_Location_to_21
- UPGRADE_IPT_Admin_to_21
- UPGRADE_IPT_CallDetails_to_3

New Datapipe

- Cisco CDR Datapipe 3.0

Defect Fix

- QXCR1000352040

For details about changes to previous releases of the IP Telephony Call Detail, see Appendix A, Version History.

Data Collection and Aggregation

The Cisco CDR Datapipe performs the following tasks:

- Creates rate data tables
- Collects data from two sources:
  - Cisco CallManager 3.3, 4.x, and 5.x
  - NNM SPI for Cisco IP Telephony

  For details about the integration procedure, see Integrating with the Cisco IPT SPI on page 37.
- Maps data into hourly tables created by the IP Telephony Call Detail Report Pack.

Cisco CallManager as Data Source

Cisco CallManager produces two call information records:

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

A CDR stores information about call endpoints and other call control/routing details. CDR data is used to generate bills, to track call activity, to diagnose certain types of problems, and to evaluate the quality of service of calls through the system. Beginning with Cisco Call Manager 5.0, CDR data includes MOS values. MOS values measure call quality.

A CMR contains information about the quality of streamed audio. In Cisco literature, both CDRs and CMRs together are referred to as CDR data.

The Cisco CDR Datapipe includes a preprocessor. If the raw data is not local, the preprocessor uses FTP to get the raw data. Next, the preprocessor parses CDR data, creating a format that Performance Insight can read and import.

Cisco IPT SPI as Data Source

The Cisco CDR Datapipe collects the following CCM details from the Cisco IPT SPI:

- Gateway availability and usage
- Gateway Endpoint availability and usage
- Channel availability and usage
- Performance Monitor statistics
- System resource usage
- Voice applications

The Cisco CDR Datapipe uses an XML parser to extract data from the SPI. If the SPI is not local, the XML parser uses FTP to get data from the SPI.

Mapping Rate Data to Hourly Tables

The Cisco CDR Datapipe runs a collection against each CallManager and the Cisco IPT SPI. Using data collected from these sources, the Cisco CDR Datapipe populates rate tables and maps data for the following statistics into hourly tables maintained by the report pack:

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

Data Summarization and Aggregation

In response to processing directives in the report pack, OVPI produces daily summaries from the hourly statistics, and monthly summaries from the daily statistics. In addition, OVPI aggregates data by:

- Phone Number
- Gateway (by CallManager and also by location)
- CallManager
- CallManager Cluster
- Location
- Process
- System Resource
- Performance Monitor

Folders and Reports

IP Telephony Call Detail contains the following report folders:

- CallManager
- CallManager Cluster
- Gateway
- Performance Monitor
- Phone Number
- Process
- System Resource
- Voice Application
- Location

Folder contents are as follows:

Call Manager Folder

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

CallManager Cluster Folder

- Cluster History Summary
- Cluster QoS Summary
- Cluster History Top Ten

- Cluster QoS Top Ten
- Cluster Forecast

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 Forecast by CallManager
- Gateway EndPoint Channel History Summary by CallManager
- Gateway EndPoint Channel Top Ten by CallManager
- Gateway EndPoint History Summary by CallManager
- Gateway EndPoint Top Ten by CallManager

Performance Monitor Folder

- Performance Monitor Forecast by CallManager

Phone Number Folder

- Phone Number History Summary
- Phone Number QoS Summary
- Phone Number History Top Ten
- Phone Number QoS Top Ten
- Phone Number Forecast
- Phone Number MOS Forecast
- Phone Number MOS Summary
- Phone Number MOS Top 100 Offenders

Process Folder

- Process CallManager Forecast
- Process CallManager Summary

System Resource Folder

- System Resource Metrics Forecast by Call Manager
- System Resource Metrics Summary by Call Manager

Voice Application Folder

- Voice Service History Summary by Call Manager

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 Forecast by Location
- Location History Summary
- Location QoS Summary
- Location History Top Ten
- Location QoS Top Ten
- Location Forecast
- Gateway EndPoint Channel History Summary by Location
- Gateway EndPoint History Summary by Location
- Process Forecast by Location
- Process Summary by Location
- System Resource Metrics Forecast by Location
- System Resource Metrics Summary by Location
- Voice Service History Summary by Location

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 Cisco CDR Datapipe.

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

Generic Report Types

The IP Telephony Report Pack contains multiple instances of these reports:

- History Summary
- History Summary Top Ten
- QoS Summary
- Forecast

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

If you integrate OVPI and NNM, you can diagnose and isolate problems faster. Integrating NNM and OVPI involves running an integration script on NNM and running the Integration Wizard on OVPI. Installing integration packages on NNM and OVPI is no longer necessary.

If NNM and OVPI are already integrated, be sure to install the optional thresholds sub-package that comes with IP Telephony Call Detail. Installing the thresholds sub-package configures the Thresholds Module to detect threshold breaches related to Call Success, Network Fail, and QoS. If the Thresholds Module detects a breach, it responds by taking an action. The default action is to send a threshold trap to NNM. The trap received by NNM becomes an alarm in the NNM alarm browser. The NNM operator can respond to the alarm by opening the following reports:

- CallManager History Summary
- CallManager QoS Summary
- Gateway History Summary by Location
- Gateway QoS Summary by Location

Configuring the Thresholds Module is not necessary. You do not need to define an action or specify a destination for breach traps. However, you are free to modify category, severity, and destination parameters at any time. For details about these options, refer to the *Thresholds Module User Guide*.

Ways to Customize Reports

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

- Apply group filters
- Edit parameters, tables, and graphs
- Add and modify property information, including thresholds

Service providers use group filters to produce customer-specific reports. Edits to parameters, tables, and graphs are temporary change that anyone can make. For more information about view options for tables and graphs see Appendix B, Editing Tables and Graphs.

Group Filters

If you want to share reports with your customers, you must configure OVPI to produce customer-specific reports. Here is an overview of the steps involved:

- Use Common Property Tables to import customer names and device locations
- Create a group account for all the users affiliated with each customer
- Create a group filter for each group account

For more information about group filters, refer to the *OVPI 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, gateway, or QoS parameter
- Users and locations assigned to IP phones

Property information comes from the following sources:

- Cisco CDR Datapipe
- Common Property Tables
- Change forms bundled with IP Telephony Call Detail

If the Cisco 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 is bundled with Common Property Tables. When you navigate the object tree, you will see the form listed under **Object Specific Tasks**.

The following properties are imported using forms bundled with 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 details about forms, see Chapter 4, Post-Install Configuration.

Editing Parameters

Editing a parameter applies a constraint. The constraint filters out the data you are not interested in seeing. If you edit the Customer Name parameter, data for every customer except the customer you typed in the Customer Name field drops from the report. Similarly, if you edit the Location parameter, data for all locations except the location you typed in the Location field drops from the report.

You may apply multiple constraints at once. Which constraints are available depends in w which report you are viewing. Your constraint options depend on which report you are viewing. Each report supports one or more of the following constraints:

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

If you are using the Web Access Server to view reports remotely, edit parameters by clicking the Edit Parameters icon at the bottom right-hand corner of the report. When the Edit Parameters window opens, enter the constraint in the field and click **Submit.**

If you are using Report Viewer, select **Edit > Parameter Values** from the menu bar. When the Modify Parameter Values window opens, click the **Current Value** field. Type a new value and click **OK**.

Sources for Additional Information

This guide contains samples of some of the reports in the package. The demo package that comes with IP Telephony Call Detail contains a sample of every report in the package. If you have access to the demo package and you want to know what fully-populated reports look like, install the demo package. Like real reports, demo reports are interactive; unlike real reports, demo reports are static.

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

- *Call Manager 3.3 Call Detail Record Definition* (Cisco)
- *Call Manager 4.0(1) Call Detail Record Definition* (Cisco)
- *Call Manager 5.0 Call Detail Record Definition* (Cisco)
- *Cisco IP Telephony Statistics User Guide*
- *Service Assurance Report Pack User Guide*

- *Common Property Tables User Guide*
- *Thresholds Module User Guide*
- *NNM/OVPI Integration User Guide*
- *OVPI Report Packs, April 2007, Release Notes*

You can download manuals for OVPI and manuals for the reporting solutions that run on OVPI from this site:

http://ovweb.external.hp.com/lpe/doc_serv/

The user guides for OVPI are listed under **Performance Insight**. The user guides for report packs and datapipes are listed under **Performance Insight Report Packs**. Every guide indicates a date. If a guide is revised and reposted, the date will change. Since we post revised manuals on a regular basis, you should check this site for an update before using any PDF that came with the report pack CD-ROM.

2 The Upgrade Install

This chapter covers the following topics:

- Guidelines for a smooth upgrade
- Installing the upgrade
- Package removal

Guidelines for a Smooth Upgrade

The report pack CD contains report packs, datapipes, and several shared packages. When you insert the CD and launch the extraction program, the install script extracts every package from the CD and copies the results to the Packages directory on your system. When the extract finishes, the install script prompts you to launch OVPI and start Package Manager. Before using Package Manager, review the following guidelines.

Prerequisites for Cisco CallManager

To successfully run IP Telephony Call Detail 3.0, each system running CallManager must be running the following software:

- CallManager version 3.3, 4.x, or 5.x
- FTP server (if running CallManager 3.3 or 4.x)

Prerequisites for Installing the Upgrade Package

The following software must be in place before upgrading:

- OVPI 5.2
- Any and all service packs available for OVPI 5.2
- Common Property Tables 3.6
- Cisco IP Telephony Admin 2.0
- Cisco IP Telephony CallDetails 2.0
- Cisco IP Telephony CallDetails Location 2.0 (optional)Cisco CDR Datapipe 2.1

  ➤ IP Telephony Statistics and IP Telephony Call Detail share the same Admin package. If you just upgraded the IP Telephony Statistics Report Pack, the Admin sub-package is already upgraded

- FTP server configured with the trendadm user (allows the trendadm user to FTP)

Distributed Environments

If you are running IP Telephony Call Detail in a distributed environment, the upgrade is more complicated. These are the steps to follow:

1. Disable trendcopy on the central server.
2. Install the following package on the central server:
   - UPGRADE_IPT_CallDetails_to_3; deploy reports
   - UPGRADE_IPT_Admin_to_21; deploy reports
   - UPGRADE_IPT_CallDetails_Location_to_21
3. For each satellite server:
   - Install the following packages:
     - UPGRADE_IPT_CallDetails_to_3
     - UPGRADE_IPT_Admin_to_21
     - UPGRADE_IPT_CallDetails_Location_to_21
   - Delete Cisco CDR Datapipe 2.1.
   - Install Cisco CDR Datapipe 3.0
4. Re-enable trendcopy on the central server.
5. Configure the central server and each satellite server. For details, see Chapter 5, Setting up a Distributed System.

Upgrading Common Property Tables

If you are running an earlier version of Common Property Tables, upgrade to version 3.6 by installing the upgrade package. Installing this particular upgrade package is no different from installing any other upgrade package. However, do not install this upgrade package *and* other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Upgrading to IP Telephony Call Detail to 3.0

Perform the following tasks to upgrade IP Telephony Call Detail:

- Task 1: Extract packages from the report pack CD
- Task 2: If necessary, upgrade to Common Property Tables 3.6
- Task 3: Install the upgrade packages
- Task 4: Delete Cisco CDR Datapipe 2.1
- Task 5: Install Cisco CDR Datapipe 3.0

If your system is distributed, do not install the datapipe on the central server.

Task 1: Extract Packages from the report pack 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/init.d/ovpi_timer stop`**

   Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Insert the report pack CD in the CD-ROM drive. 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.

When the copy to the Packages directory is complete, you have the option of seeing the results by navigating to the Packages directory. If you open the IP_Telephony folder, you will see the following contents:

- Docs
- Gateway_Statistics.ap
- Gateway_Statistics_Demo.ap
- Gateway_Statistics_Location.ap
- Gateway_Statistics_Thresholds.ap
- IPT_Admin.ap
- IPT_CallDetails.ap
- IPT_CallDetails_Demo.ap
- IPT_CallDetails_Location.ap
- IPT_CallDetails_Thresholds.ap
- NNM_Utils
- UPGRADE_Gateway_Statistics_to_32.ap
- UPGRADE_Gateway_Statistics_Location_to_31.ap
- UPGRADE_IPT_Admin_to_21.ap
- UPGRADE_IPT_CallDetails_to_3.ap
- UPGRADE_IPT_CallDetails_Location_to_21.ap

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

- CiscoCDR_Datapipe.ap
- Docs

Task 2: If necessary, upgrade to Common Property Tables 3.6

IP Telephony Call Detail requires Common Property Tables. If you have not already upgraded to version 3.6, upgrade now. Do not install other packages when you upgrade Common Property Tables. If you need help with the upgrade, refer to the *Common Property Tables User Guide*. When you finish the upgrade, click **Done** to return to the Management Console.

Task 3: Install the upgrade packages

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next**. The Package Location window opens.
3. Click **Install.**
4. Approve the default installation directory or select a different directory if necessary.
5. Click **Next**. The Report Deployment window opens. Accept the default for Deploy Reports; accept the defaults for application server name and port; type your user name and password for the OVPI Application Server.
6. Click **Next**. The Package Selection window opens.
7. Click the check box next to the following packages:

   UPGRADE_IPT_CallDetails_to_3

   UPGRADE_IPT_Admin_to_21

   UPGRADE_IPT_CallDetails_Location_to_21
8. Click **Next**. The Type Discovery window opens.
9. Disable the default and click **Next**. The Selection Summary window opens.
10. Click **Install**. The Installation Progress window opens and the install process begins. When the install finishes, an installation complete message appears.
11. Click **Done** to return to the Management Console.

Task 4: Remove Cisco CDR Datapipe 2.1

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next.** The Package Location window opens.
3. Click **Uninstall**.
4. Click **Next.** The Report Undeployment window opens.
5. Accept the defaults for Undeploy Reports, Application Server Name, and Port; type the username and password for *trendadm*.
6. Click **Next**. The Package Selection window opens.
7. Click the check box next to the following package:

   CiscoCDR_Datapipe 2.1
8. Click **Next.** The Selection Summary window opens.
9. Click **Uninstall**. The Progress window opens and the removal process begins. When removal finishes, a removal complete message appears.
10. Click **Done** to return to the Management Console.

Task 5: Install Cisco CDR Datapipe 3.0; restart OVPI Timer

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next.** The Package Location window opens.
3. Click **Install**.

4. Click **Next.** The Report Deployment window opens. Disable the default for Deploy Reports; accept the defaults for application server name and port. Type your user name and password for the OVPI Application Server.
5. Click **Next.** The Package Selection window opens.
6. Click the check box next to the following package:

   Cisco CDR Datapipe 3.0
7. Click **Next.** The Type Discovery window opens. Disable the default.
8. Click **Next**. The Selection Summary window opens.
9. 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.
10. Click **Done** to return to the Management Console.
11. Restart OVPI Timer.

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

    UNIX: As root, do one of the following:

    HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

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

Package Removal

Follow these steps to uninstall IP Telephony Call Detail and 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/init.d/ovpi_timer stop`**

   Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Start Package Manager. The Package Manager welcome window opens.
4. Click **Next.** The Package Location window opens.
5. Click **Uninstall**.
6. Click **Next.** The Report Undeployment window opens. Accept the defaults for Undeploy Reports, Application Server Name, and Port; type the username and password for *trendadm*.
7. Click **Next**. The Package Selection window opens.
8. Click the check box next to the following packages:

   Cisco_IP_Telephony_Admin

   Cisco_IP_Telephony_CallDetails

   Cisco_IP_Telephony_CallDetails_Location (if installed)

   Cisco_IP_Telephony_CallDetails_Thresholds (if installed)

Cisco_IP_Telephony_CallDetails_Demo (if installed)

CiscoCDR_Datapipe

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

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

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

12 Restart OVPI Timer.

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

UNIX: As root, do one of the following:

HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

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

3 The New Install

This chapter covers the following topics:

- Guidelines for a smooth installation
- Installing the report pack and associated packages
- Accessing deployed reports
- New objects in the object model
- Package removal

Guidelines for a Smooth Install

An OVPI reporting solution has two ingredients, a report pack and a datapipe. Some reporting solutions offer multiple datapipes. Installing a datapipe configures OVPI to collect a specific type of performance data at a specific interval, while installing a report pack configures OVPI to summarize and aggregate the data collected by the datapipe.

When you insert the report pack CD-ROM and launch the package extraction program, the install script extracts every package from the CD and copies the results to the Packages directory on your system. After the extract finishes, the install script prompts you to launch OVPI and start Package Manager.

This chapter contains the package extract procedure. If the extraction step has already taken place, then IP Telephony Call Detail is ready to install. Before starting Package Manager, review the following guidelines.

Prerequisites for a New Install

The following software must be in place before installing the IPT Call Detail package on the system running OVPI:

- OVPI 5.2
- Any and all service packs available for version of OVPI 5.2
- FTP server configured with the trendadm user (allows the trendadm user to FTP)

Details about each service pack, including installation instructions, can be found in the release notes created for each service pack.

The following software must be in place on the CallManager system:

- CallManager version 3.3, 4.x, or 5.x
- FTP server (if running CallManager version 3.3 or 4.x)

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 version of OVPI.
- Make sure that every server is running the same service packs.
- Disable trendcopy on the central server.
- Install the following packages on the central server:
  - Cisco IP Telephony Admin; deploy reports
  - Cisco IP Telephony CallDetails; deploy reports
  - Cisco IP Telephony CallDetails Location; deploy reports
  - Cisco IP Telephony CallDetails Thresholds
  - Thresholds Module (Threshold and Event Generation)
  - Common Property Tables
- Install the following packages on each satellite server:
  - Cisco IP Telephony Admin
  - Cisco IP Telephony CallDetails
  - Cisco IP Telephony CallDetails Location
  - Common Property Tables
  - Cisco CDR Datapipe
- Re-enable trendcopy on the central server.
- Configure the central server and each satellite server. For details, see Chapter 5, Setting up a Distributed System.

Upgrading Common Property Tables

IP Telephony Call Detail requires Common Property Tables. If you are installing everything for the first time, the install wizard will install Common Property Tables for you. If you are running an earlier version of Common Property Tables, upgrade to the latest version by installing the upgrade package. Do not install other packages when you upgrade Common Property Tables. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Integration with the NNM Alarm Browser

If NNM and OVPI are integrated, OVPI can notify NNM when threshold breaches are detected. To take advantage of this feature, install the optional thresholds sub-package. The default settings enabled by the optional thresholds sub-package can be modified by using the forms described in Chapter 4, Post-Install Configuration.

The thresholds sub-package has a prerequisite, the Threshold and Event Generation Module, commonly known as the Thresholds Module. For more information about configuration options, recent changes, and installation, refer to the *Thresholds Module User Guide*.

Installable Packages and Sub-Packages

Once OVPI packages have been extracted from the CD to the Packages directory on your system, the following packages are available for installation:

- IPT_Admin.ap
- Cisco_IP_Telephony_CallDetails.ap
- Cisco_IP_Telephony_CallDetails_Location.ap
- Cisco_IP_Telephony_CallDetails_Thresholds.ap

A brief description of each package follows.

IPT_Admin.ap

Allows the Cisco IP Telephony Statistics Report Pack and the IP Telephony Call Detail Report Pack 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 Admin 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 4, Post-Install Configuration.

Cisco_IP_Telephony_CallDetails.ap

The main package. Contains directives for OVPI related to summarizing and aggregating data.

Cisco_IP_Telephony_CallDetails_Location.ap

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

Cisco_IP_Telephony_CallDetails_Thresholds.ap

This optional sub-package contains a thresholds policy. The policy is read by the Thresholds Module. The Thresholds Module monitors the database for threshold conditions and responds to a breach condition by taking an action. The Thresholds Module is a prerequisite for the optional thresholds sub-package.

Installing IP Telephony Call Detail

Perform the following tasks to install IP Telephony Call Detail:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD.
- Task 2: If necessary, upgrade to Common Property Tables 3.6.
- Task 3: Install these packages:
  - Cisco CDR Datapipe
  - Cisco_IP_Telephony_CallDetails
  - Cisco_IP_Telephony_CallDetails_Thresholds (optional)
  - Cisco_IP_Telephony_CallDetails_Location (optional)
  - Cisco_IP_Telephony_CallDetails_Demo (optional)

This procedure is designed for a stand-alone system. If your system is distributed, do not install the datapipe on the central server.

Task 1: Stop OVPI Timer and extract packages from the report pack CD

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/init.d/ovpi_timer stop`**

   Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Insert the report pack CD in the CD-ROM drive. 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.

When the copy to the Packages directory is complete, you have the option of seeing the results by navigating to the Packages directory. If you open the IP_Telephony folder, you will see the following contents:

- Docs
- Gateway_Statistics.ap
- Gateway_Statistics_Demo.ap
- Gateway_Statistics_Location.ap
- Gateway_Statistics_Thresholds.ap
- IPT_Admin.ap
- IPT_CallDetails.ap
- IPT_CallDetails_Demo.ap
- IPT_CallDetails_Location.ap

- IPT_CallDetails_Thresholds.ap
- NNM_Utils
- UPGRADE_Gateway_Statistics_to_32.ap
- UPGRADE_IPT_Admin_to_21.ap
- UPGRADE_IPT_CallDetails_to_3.ap
- UPGRADE_IPT_CallDetails_Location_to_21.ap

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

- CiscoCDR_Datapipe.ap
- Docs

You can ignore the upgrade packages. 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.

Task 2: Upgrade to Common Property Tables 3.6

IP Telephony Call Detail requires Common Property Tables 3.6. If you have not already upgraded to Common Property Tables 3.6, upgrade now. If you need help with the upgrade, refer to the *Common Property Tables User Guide*. When Package Manager indicates that the upgrade is complete, click **Done** to return to the Management Console.

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

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next.** The Package Location window opens.
3. Click **Install**. Approve the default installation directory or select a different directory if necessary.
4. Click **Next.** The Report Deployment window opens. Accept the default for Deploy Reports; accept the defaults for application server name and port; type your user name and password for the OVPI Application Server.
5. Click **Next.** The Package Selection window opens.
6. Click the check box next to the following packages:

   Cisco_IP_Telephony_CallDetails

   Cisco_IP_Telephony_Admin

   Cisco_IP_Telephony_CallDetails_Location

   Cisco-IP_Telephony_CallDetails_Thresholds

   CiscoCDR_Datapipe

   If your system is distributed, the thresholds sub-package belongs on the central server, not on satellite servers. Installing the thresholds sub-package on satellite servers is necessary only if you want to set thresholds against hourly data.

   The Cisco CDR Datapipe must be installed on any server that polls.

7. Click **Next.** The Type Discovery window opens. Disable the default.

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

9 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.

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

11 Restart OVPI Timer.

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

UNIX: As root, do one of the following:

HP-UX: `sh /sbin/init.d/ovpi_timer start`

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

Accessing Deployed Reports

When you installed the Call Detail package, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come with this package) were deployed to the OVPI Application Server. Once reports reside on the OVPI Application Server, you have two ways to view them:

- OVPI client applications
- Web browser

If the client applications are installed on your system, you have access to Report Viewer, Report Builder, and the Management Console. If you don't have the client applications, then using a web browser is the only way you can view reports.

For more information about the clients, refer to the *OVPI Installation Guide*. For details about the Management Console, including how to use the Object/Property Management view to launch reports specific to a selected object, refer to the *OVPI Administration Guide*.

New Objects for the Object Model

An object is any item that has performance data or property information associated with it. Devices, customers, and locations are objects, and all three of these object categories belong to OVPI's default object model. When you select an object in the object model, the right side of the Object/Property Management window refreshes, showing a list of forms under **General Tasks**, a list of forms under **Object Specific Tasks**, and a list of reports under **Object Specific Reports**.

The object tree changes each time you install a new report pack. Some report packs add a new class of objects or services that do not fit within the default model. When this happens, installing the report pack adds a new view. To open the new view, select **View > Change View**.

IP Telephony Call Detail adds the following object categories to the object model:

- Cluster
- CallManager
- Gateway
- GW Endpoint
- Channel
- IP_Phone

Package Removal

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/init.d/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. Click **Uninstall**.
6. Click **Next.** The Report Undeployment window opens. Accept the defaults for Undeploy Reports, Application Server Name, and Port; type your username and password.
7. Click **Next**. The Package Selection window opens.
8. Click the check box next to the following packages:

   Cisco_IP_Telephony_Admin

   Cisco_IP_Telephony_CallDetails

   Cisco_IP_Telephony_CallDetails_Location (if installed)

   Cisco_IP_Telephony_CallDetails_Thresholds (if installed)

   Cisco_IP_Telephony_CallDetails_Demo (if installed)

   CiscoCDR_Datapipe
9. Click **Next.** The Selection Summary window opens.
10. Click **Uninstall**. The Progress window opens and the removal process begins. When removal finishes, a removal complete message appears.
11. Click **Done** to return to the Management Console.
12. Restart OVPI Timer.

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

    UNIX: As root, do one of the following:

    HP-UX: **`sh /sbin/init.d/ovpi_timer start`**

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

4 Post-Install Configuration

This chapter covers the following topics:

- Configuring a data source
- Assigning dial plans to gateways

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

- Integrating the reporting solution with the Cisco IPT SPI
- Modifying default thresholds for CallManagers and gateways
- Modifying users and locations for IP phones
- Modifying QoS parameters

Configuring a Data Source

This section explains how to:

- Configure the preprocessor to FTP CallManager raw data files to your OVPI server
- Collect data from the CallManager 5.x repository server

Using an FTP Session to Transfer Raw Data Files

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 1
   -m <Remote_Host_Name> -u <username> -p <password> -r <remote_directory>
   -v <CDR/CMR_version>
   ```

where options for this command include:

Option	Description
-a	The name of the CallManager to be monitored. The default is all devices are monitored.
-b	The backup option for the Cisco CDR raw data files: **`delete`**, **`keep`**, or **`move`**. The default is to move the CDR data files to the *{DPIPE_HOME}*/data/ImportData/CiscoCDR_Datapipe/backup directory.
-d	The date of the CDR data file (in `yyyymmdd` format) to retrieve. The default is to retrieve all CDR data files (all dates).
-f	The location from which to retrieve the CDR data files: **`0`** or **`1`** where **0** retrieves the CDR files from a local directory (defined by the -l option) and **1** retrieves the CDR files using ftp. The default is 0.
-h	Lists the description of the command options.
-l	The local directory where Cisco CDR data files are located. The default is *{DPIPE_HOME}*/data/ImportData/CiscoCDR_Datapipe
-m	The ftp target machine name.
-p	The password to use for the ftp session
-r	The remote directory on the ftp target machine from which to retrieve the CDR data files.
-u	The username to use for ftp session.
-v	The version of the CCM data definition: **`3.x`**, **`4.x`**, or **`5.x`**. The default is 5.x.

Collecting Data from a CallManager 5.x Repository Server

To collect data from a CallManager 5.x repository server, follow these steps:

1. Open this file:

   {DPIPE_HOME}/scripts/CiscoCDR_Collection.pro

2. Locate this line:

```
{DPIPE_HOME}/bin/CCM5_datapipe -username=abc -password=abc -ccmHost=xx.xxx.xx.xxx
-servicePort=8080 -ftpHost=xyz -ftpUser=xyz -ftpPassword=xyz -ftpDir=/xyz/ -timeZone=PST
```

3. Change that line to:

```
{DPIPE_HOME}/bin/CCM5_datapipe -username=<repository_user> -password=<repository_password>
-ccmHost=<repository_IP_address> -servicePort=<repository_service_port_number>
-ftpHost=<name_of_OVPI_server_running_FTP> -ftpUser=<FTP_user> -ftpPassword=<FTP_password>
-ftpDir=<full_pathname_of_location_of_collected_data> -timeZone=<repository_time_zone>
```

Assigning Dial Plans to Gateways

The IP Telephony Call Detail Report Pack will not operate correctly until you have assigned a dial plan to every gateway. *Do this as soon as possible. As soon as possible is one day after the datapipe's first data collection.* Follow these steps:

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.

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Configure Gateway Dial Plan

This form allows you to configure the dial plan for a given gateway associated with a CallManager. Enter/modify the values. Click the OK button to save the values and close the window. Click the Apply button to update the values in the database and leave the window open for further modifications. Click the Cancel button to cancel.

Gateway Selection

CallManager	Gateway
s1ccm1	s1c1c4k-3
s1ccm1	s1c1c4k-4
s1ccm1	s1c1cat4k-1

Gateway Phone Number

International Call Prefix 011

Local Area Codes 703|301|202

Toll Free Codes 1800|1855|1866|1877|1888

OK Apply Cancel

Integrating with the Cisco IPT SPI

To integrate the reporting solution with the Cisco IPT SPI, you must install and configure files on the NNM server. Complete the following steps after installing the Cisco CDR Datapipe:

1 Run the following script to set the appropriate environment variables on the NNM server:

Windows: **C:\Program Files\HP OpenView\bin\ov.envvars.bat**

UNIX: **. /opt/OV/bin/ov.envvars.sh**

2 Copy the following files from the /CiscoCDR_Datapipe/CiscoCDR_Datapipe.ap/ directory on the OVPI server to the specified location on the NNM server:

Copy this file on OVPI	To this location on NNM
commons-net-1.4.1.jar	*$OV_MAIN_PATH*/java
iptdatapipe.jar	*$OV_MAIN_PATH*/java
ovpi_ipt_datapipe_config.txt	*$OV_MAIN_PATH*/java
ovpi_ipt_datapipe.lrf	*$OV_LRF*
ovpi_ipt_datapipe.ovpl	*$OV_MAIN_PATH*/bin

3 On a UNIX NNM server, change ownership of the files copied in step 1 to **bin:bin**.

4 On a UNIX NNM server, change mode of the files copied in step 1 to **744**.

5 On the NNM server, edit *$OV_MAIN_PATH*/java/ovpi_ipt_datapipe_config.txt. Set the following values (replace the environment variables $OV_DB, $OV_MAIN_PATH, and {DPIPE_HOME} with their actual values):

Variable	Value
ipt_spi_data_folder	***<$OV_DB>*/nnmet**
ftp_server	**OVPI_SERVER_NAME**
ftp_user	**OVPI_FTP_USER_NAME**
ftp_password	**OVPI_FTP_PASSWORD**
remote_directory_path	***<{DPIPE_HOME}>*/data/ImportData/CiscoCDR_Datapipe**
sleep_interval_in_minutes	**60**

If editing the file on a Windows system, backward slashes must be escaped.

6 On the NNM server, edit *$OV_LRF*/ovpi_ipt_datapipe.lrf. In the first line set the full path to (replace the environment variable $OV_MAIN_PATH with its actual value):

***<$OV_MAIN_PATH>*/bin/ovpi_ipt_datapipe.ovpl**

If editing the file on a Windows system, backward slashes (\) and colons (:) must be escaped.

7 On the NNM server, run the following commands to register, start, and check the status of the datapipe process (replace the environment variable $OV_LRF with its actual value):

Windows:

```
ovaddobj "%OV_LRF%/ovpi_ipt_datapipe.lrf"
ovstart -d OVPI_IPT_Datapipe
ovstatus OVPI_IPT_Datapipe
```

UNIX:

```
ovaddobj <$OV_LRF>/ovpi_ipt_datapipe.lrf
ovstart -d OVPI_IPT_Datapipe
ovstatus OVPI_IPT_Datapipe
```

Modifying Default Thresholds

The thresholds sub-package contains a thresholds policy. The thresholds policy imposes six defaults. Three pertain to CallManagers and three pertain to gateways. When performance reaches a default, OVPI sends a trap to the network management system. The following table provides details about the default values and severity levels.

Threshold	Value	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
QoS	3.0	Average QoS value for all calls exceeds the threshold.	Warning

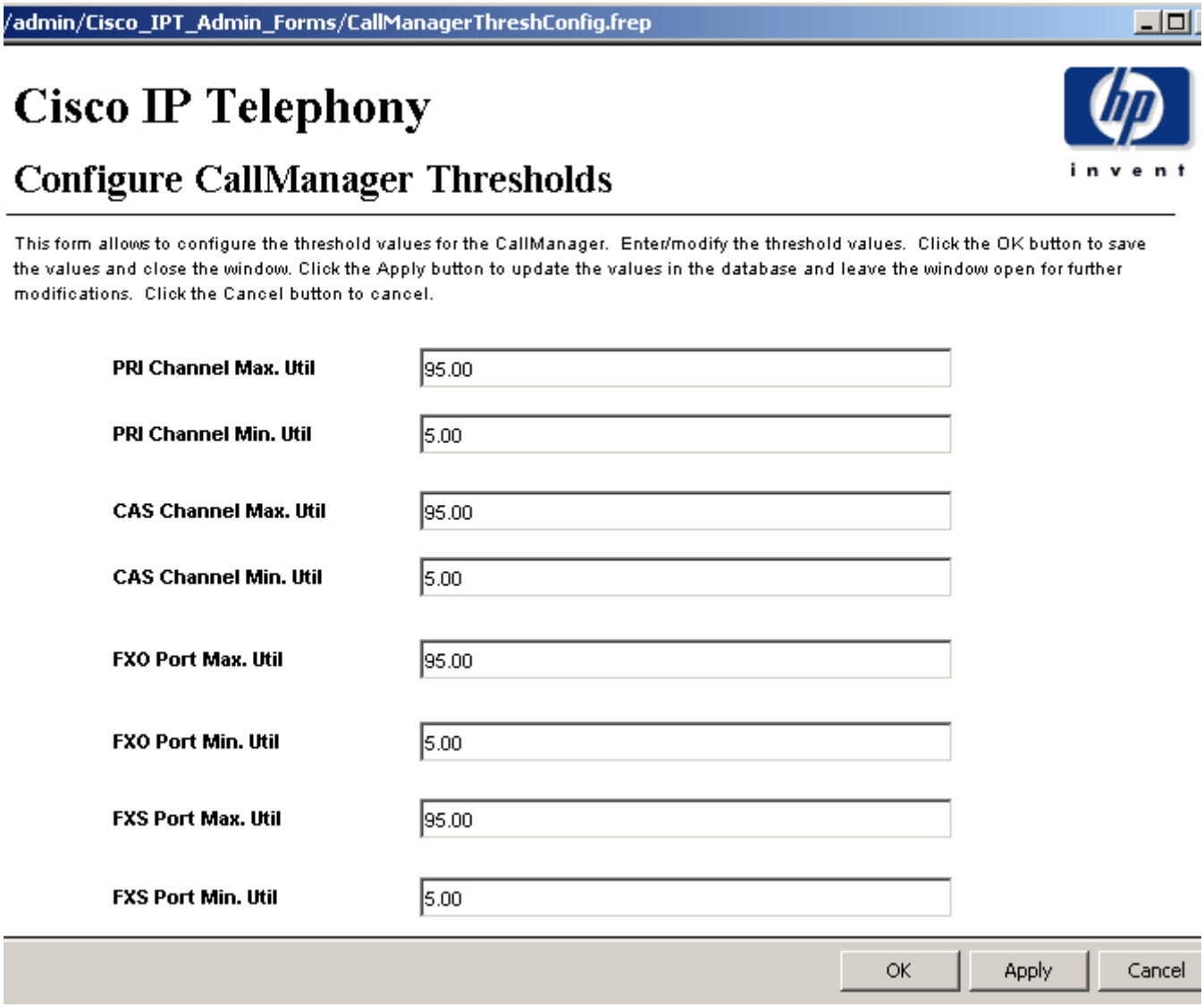
To modify the thresholds in the preceding table, use one or both of these forms:

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

Modifying Default Thresholds for CallManagers

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.

Modifying Default Gateway Thresholds

Follow these steps to modify default thresholds for gateways:

1 Start the Management Console.

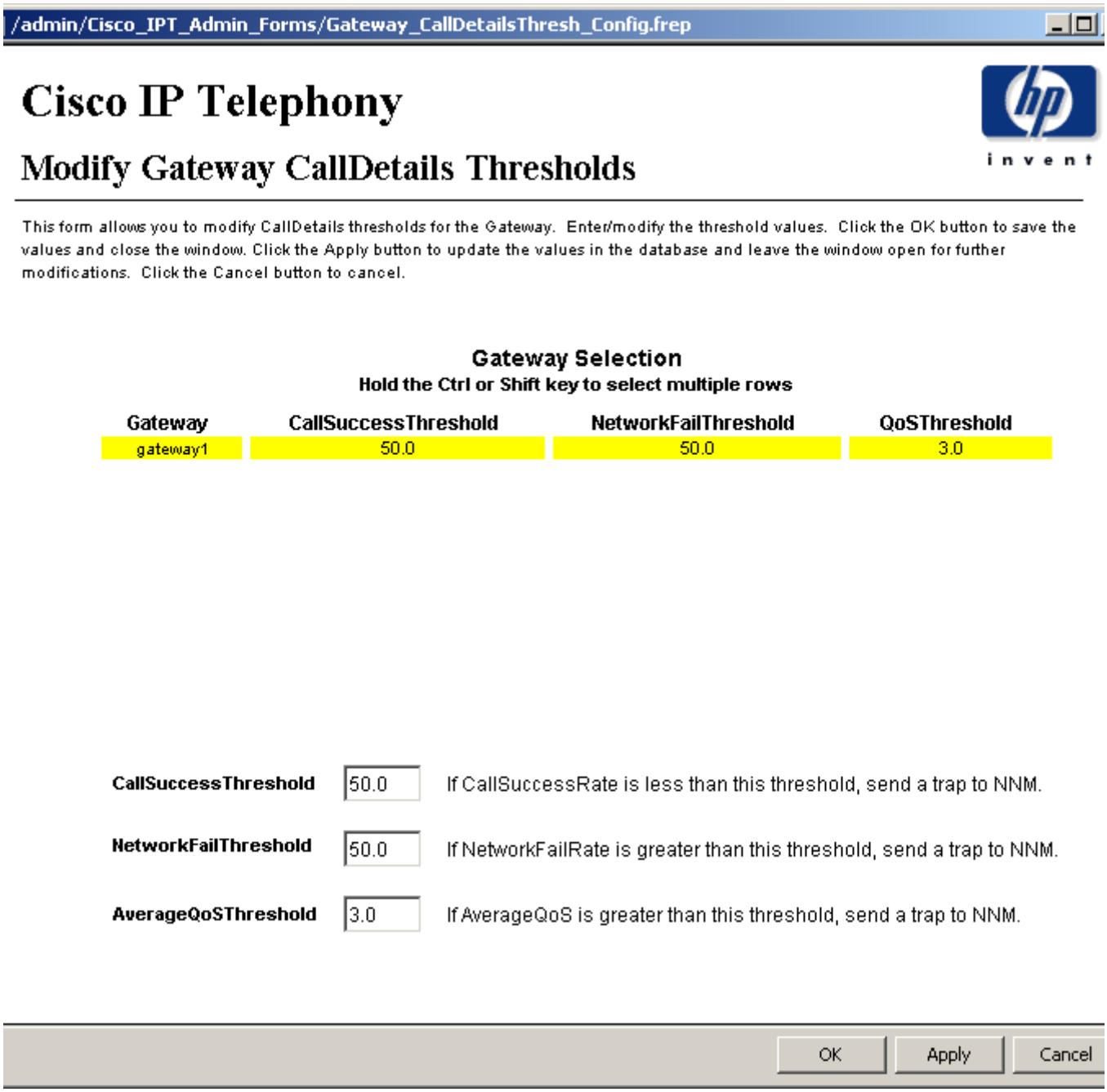
2 Click **Objects**. The Object/Property Management window opens.

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.



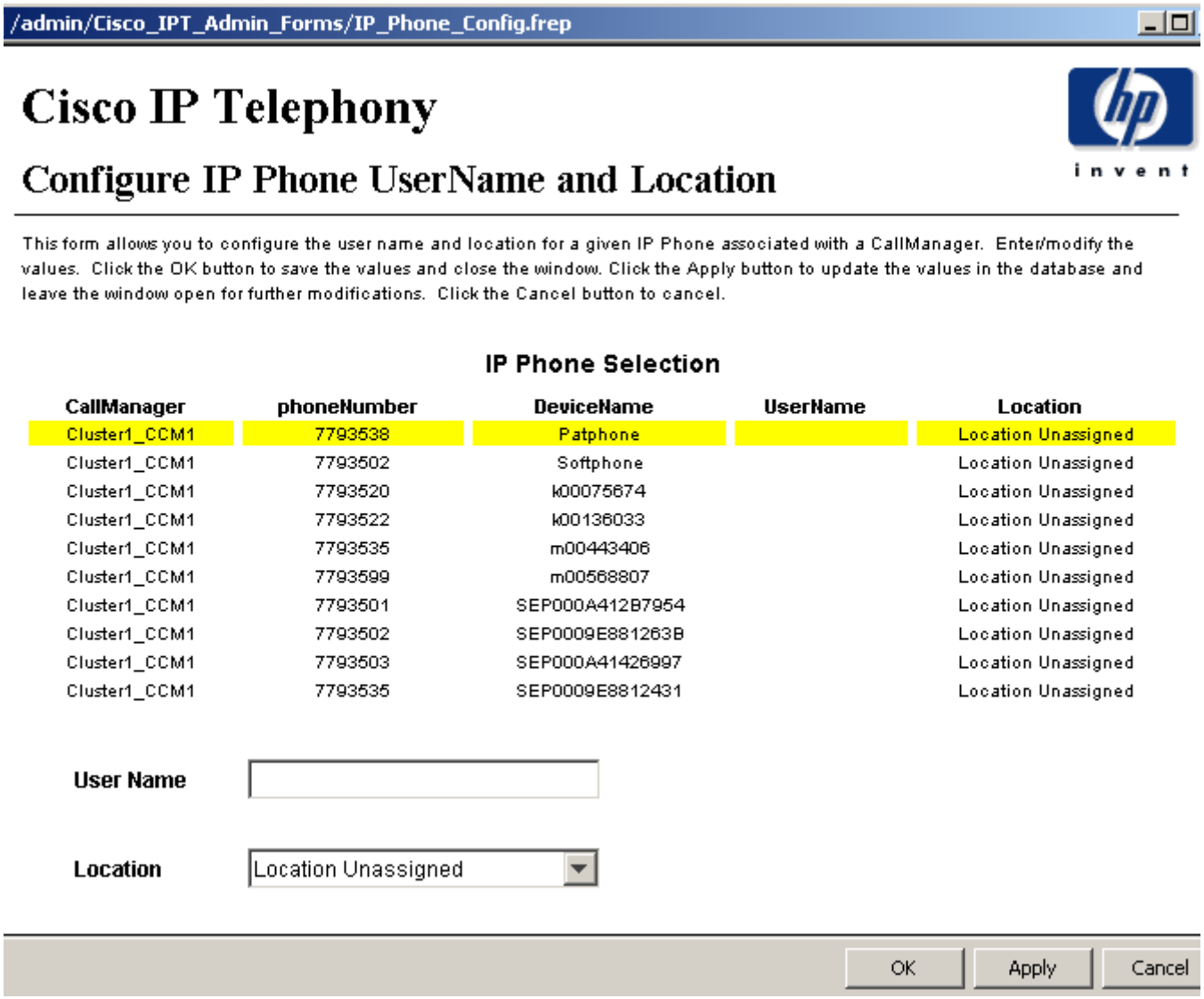
7 Modify one or more defaults.

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 configure IP phone username and location:

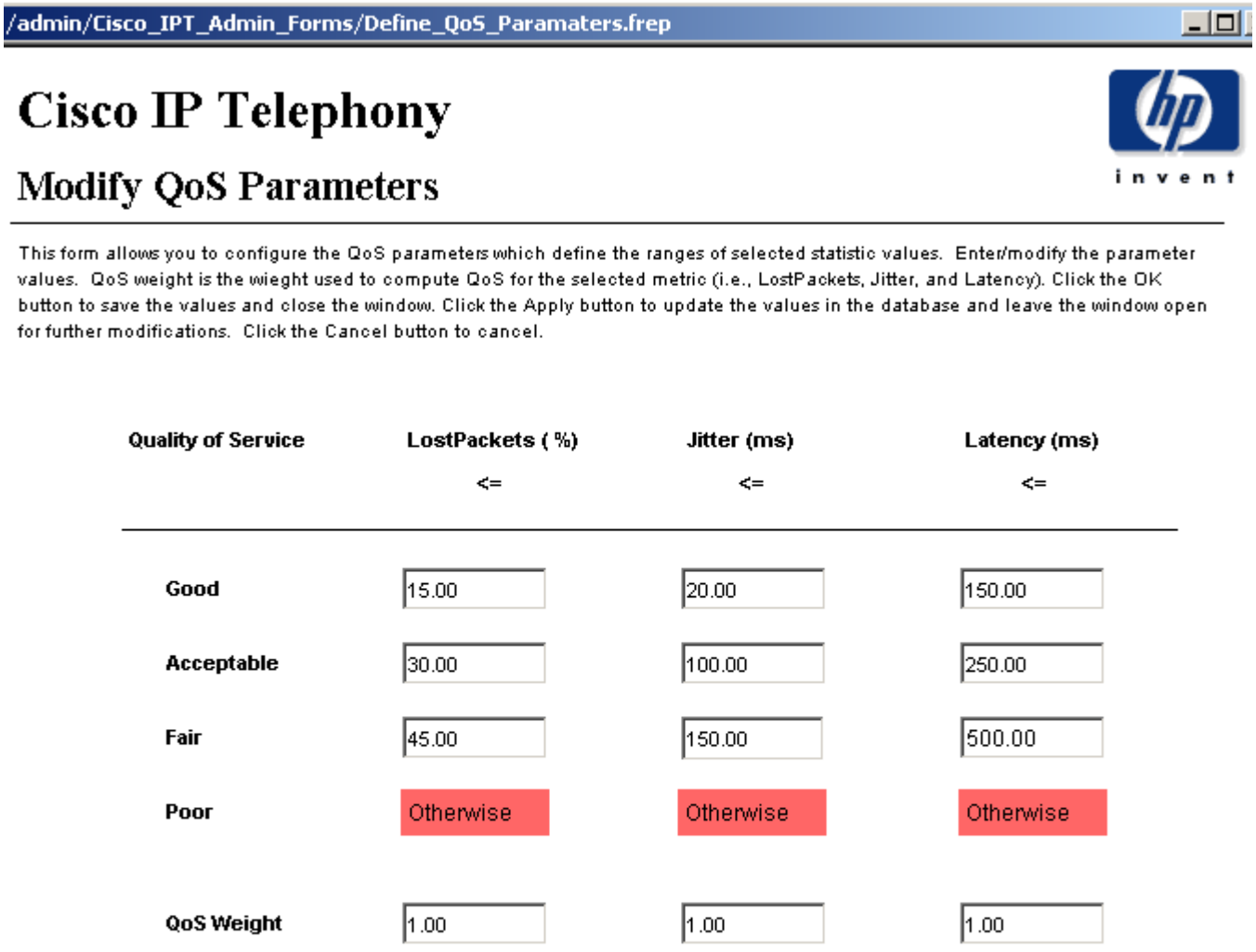
1. Start the Management Console.
2. Click **Objects**. The Object/Property Management window opens.
3. Select **View > Change View > Cluster**.
4. Select a location, then open the CallManager folder.
5. Open the IP phone folder and select an IP phone. You will see the Configure IP Phone User and Location form under **Tasks Specific to the Selected Objects**.
6. Double-click **Configure IP Phone User and Location**. The form opens.
7. Add the user and location for one or multiple IP phones.
8. 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.



5 Setting up a Distributed System

If you intend to run IP Telephony Call Detail as a distributed system, and you followed the instructions in the installation chapter, you installed packages on the central server and each satellite server, as follows:

Central Server

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

Satellite Server:

- IP Telephony Call Detail
- Location Sub-Package (optional)
- Common Property Tables
- 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 command. In addition, you have to disable daily aggregations on each satellite server.

Configuring the Central Server

To configure the central server, perform the following tasks:

- Task 1: Register the satellite server by setting the database role
- Task 2: Enable LIR
- Task 3: Add LIR mappings
- Task 4: Verify the automatically generated copy policies

Task 1: Register the satellite server by setting the database role

1. Start the Management Console (log on with Administrator privileges).
2. Click the **Systems** icon in the navigation pane.
3. Navigate to the OVPI Databases folder and select the database system.
4. Click **Database Properties**.
5. From the Database Role list, select the Satellite Server role.

6 Enter any information necessary to configure the Satellite Server role.

To add a new database reference, you can use the Add Database Reference Wizard in the System and Network Administration application.

Task 2: Enable LIR

1 Start the Management Console (log on with Administrator privileges).

2 Click the **Systems** icon in the navigation pane.

3 Navigate to the OVPI Databases folder and select the central server.

4 Click **LIR Configuration**.

5 Select the **LIR enabled** check box.

Task 3: Add LIR mappings

Configure LIR mappings for the following categories (for the CallDetails and sub-package you have installed): Cisco_IP_Telephony_CallDetails and Cisco_IP_Telephony_CallDetails_Location.

1 Start the Management Console (log on with Administrator privileges).

2 Click the **Systems** icon in the navigation pane.

3 Navigate to the OVPI Databases folder and select the central server.

4 Click **LIR Configuration**.

5 Click **Add Mapping**.

6 From the Select Satellite Server list, select a satellite server to which to add a mapping.

7 Select the **Category** data table option.

8 Select **Cisco_IP_Telephony_CallDetails** from the drop down list.

9 Select the **`rate`** data type.

10 Click **Add to List**.

11 To add an additional LIR mapping for the location sub-package, click **Add to list** and repeat step 6 through step 10.

12 Click **OK**.

13 Click **Apply**.

A copy policy is automatically generated for the hourly data and for each LIR mapping that you add. The data type selected when adding an LIR mapping (in step 9 above) determines the type of data copied (defined in the generated copy policy). The type of data copied (defined in the generated copy policy) is one summarization level greater than the data type selected in the LIR mapping. For example, if you select an hourly data type, a daily data copy policy is generated.

Task 4: Verify the automatically generated copy policies

Verify that a copy policy has been generated for the following tables and that the copy type is set correctly (to Property and Data):

1 Start the Management Console (log on with Administrator privileges).

2 Click the **Copy Policy** icon in the navigation pane to start the Copy Policy Manager.

3 Find the following tables (for IP Telephony Call Detail and sub-packages you have installed) and verify the copy type is set to Property and Data for each table:

CallDetails	Location Sub-package
SHIPT_QoS_phoneNum	SHIPT_QoS_gateway_loc
SHIPT_QoS_gateway	SHIPT_QoS_loc
SHIPT_QoS_CManager	SHIPT_Hist_gateway_loc
SHIPT_QoS_Cluster	SHIPT_Hist_loc
SHIPT_Hist_phoneNum	
SHIPT_Hist_gateway	
SHIPT_Hist_CManager	
SHIPT_Hist_Cluster	

If a copy policy has not been generated for a table, do the following:

1 Click the **New Copy Policy** icon or select **File > New Copy Policy** from the Copy Policy Manager. The Copy Policy Wizard displays.

2 Click **Next**. The Satellite Server and Copy Policy Selection Page displays.

3 Select a satellite server from the pull down list. This is the satellite server from which data is copied to the central server.

4 Select **Single Table** and select the table from the pull down list.

5 Click **Next**. The Copy Type Selection Page displays.

6 Select **Property and Data**.

7 Click **Next**. The Summary page displays.

8 Verify the information in the summary window. If the information is not correct, you can modify it by clicking Back.

9 Click **Finish**.

10 Repeat step 4 - step 9 for all missing tables.

If only the copy type is not set to Property and Data, do the following:

1 Double-click the copy policy.

2 Select the **Property and Data** copy type.

3 Click **OK**.

Configuring a Satellite Server

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

1. Modify the *{DPIPE_HOME}*/scripts/IPT_CallDetails_trendcopy.pro file (where *{DPIPE_HOME}* is the directory in which OVPI is installed):

   Uncomment all of block0, including the begin and end lines.

2. Modify the *{DPIPE_HOME}*/scripts/IPT_CallDetails_Location_Daily.pro file:

   If you installed the Location sub-package, comment out the begin and end lines of blocks 2 - 5.

3. Modify the *{DPIPE_HOME}*/scripts/IPT_CallDetails_Loc_trendcopy.pro file):

   If you installed the Location sub-package, uncomment all of block0, including the begin and end lines.

4. Verify that the system clock is synchronized with the system clock on the central server.

6 Call History Summary

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

- Cluster
- CallManager
- Gateway by CallManager and by Location
- Location
- Phone number
- Gateway Endpoint by CallManager and by Location
- Gateway Endpoint Channel by CallManager and by Location
- Voice Service by CallManager and by Site

The focus of this report, regardless of the 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
  - Outgoing Local; Long Distance; International
  - Tandem
- 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

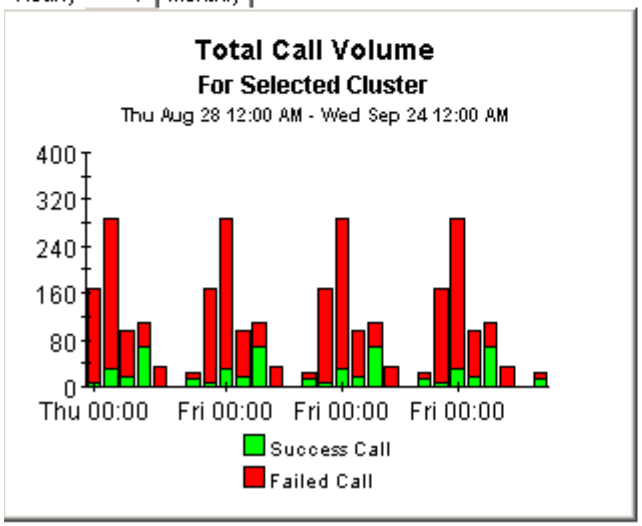
The Cluster History Summary Report presents call history metrics aggregated for a given Call Manager Cluster. This report can be used to view call history statistics and identify device performance issues.

Cluster Selection

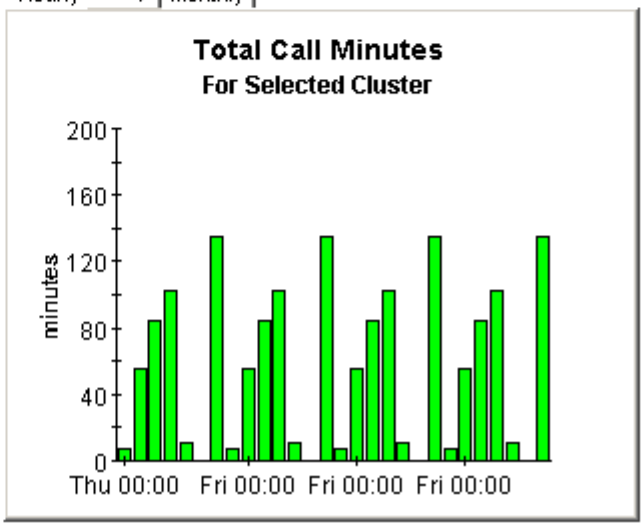
Wed Sep 24 12:00 AM

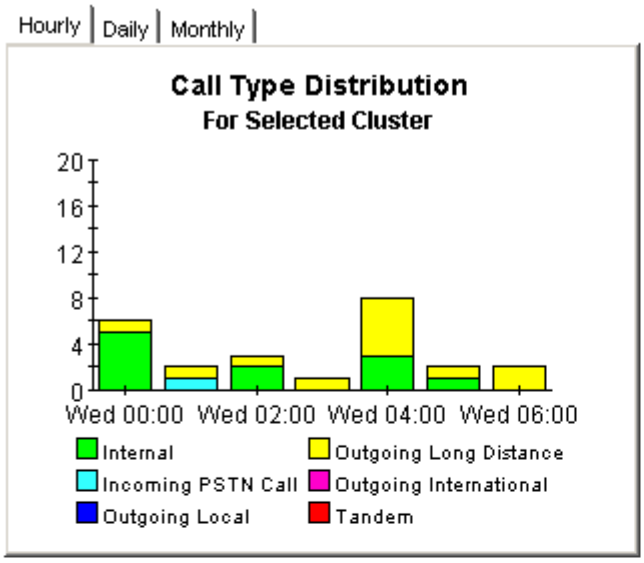
ClusterName	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1	24	52.2	134.4	13

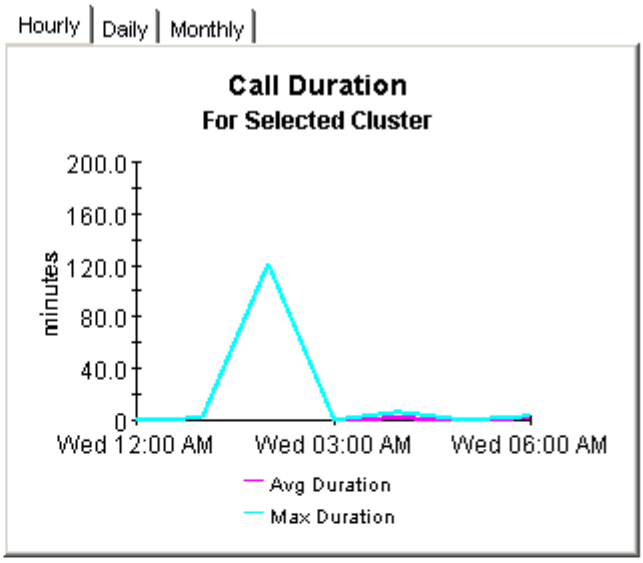
Hourly | Daily | Monthly

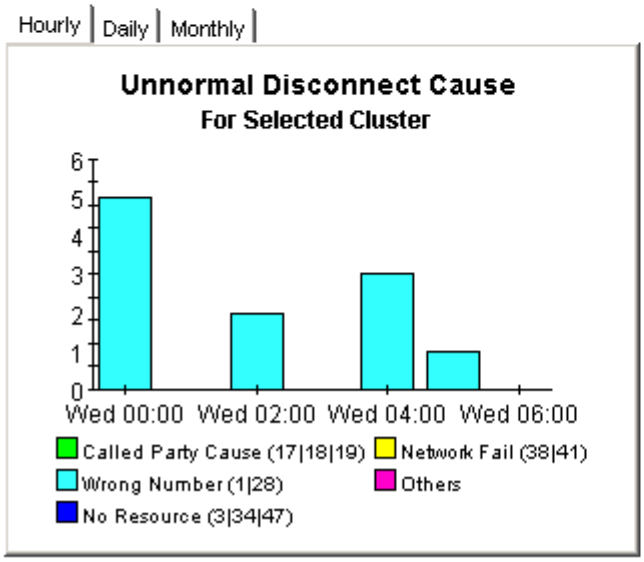


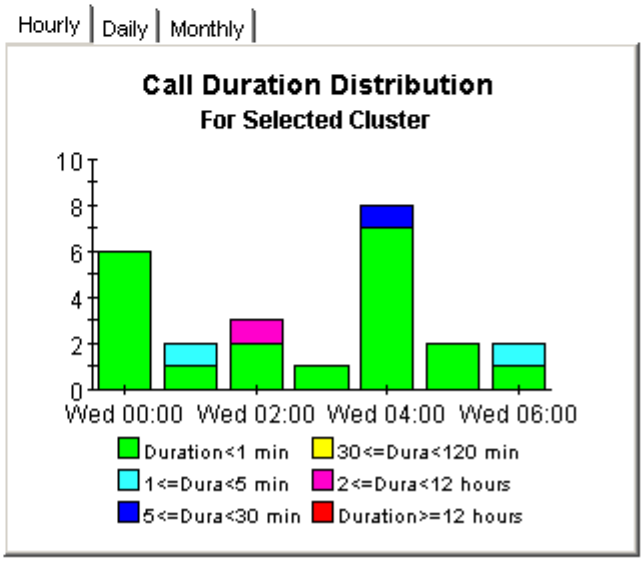
Hourly | Daily | Monthly




Hourly
Daily
Monthly
Call Type Distribution
For Selected Cluster
20
16
12
8
4
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
Internal
Outgoing Long Distance
Incoming PSTN Call
Outgoing International
Outgoing Local
Tandem


Hourly
Daily
Monthly
Call Duration
For Selected Cluster
200.0
160.0
120.0
80.0
40.0
0
minutes
Wed 12:00 AM
Wed 03:00 AM
Wed 06:00 AM
Avg Duration
Max Duration


Hourly
Daily
Monthly
Unnormal Disconnect Cause
For Selected Cluster
6
5
4
3
2
1
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
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
For Selected Cluster
10
8
6
4
2
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
Duration<1 min
30<=Dura<120 min
1<=Dura<5 min
2<=Dura<12 hours
5<=Dura<30 min
Duration>=12 hours

Cisco IP Telephony Call Details

CallManager History Summary

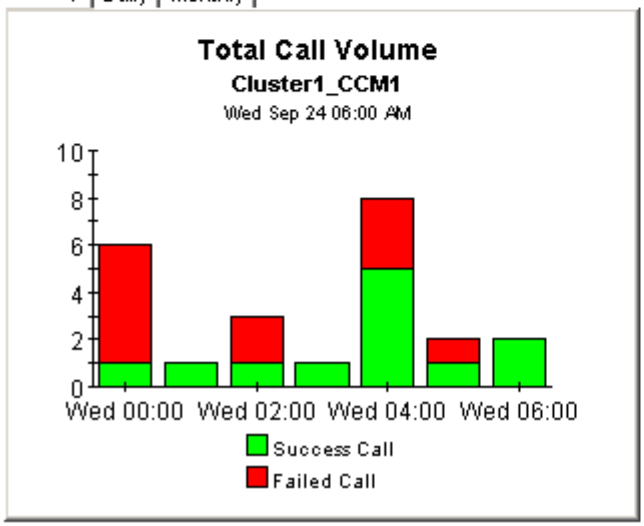
The CallManager History Summary Report presents call history metrics aggregated for a given Call Manager. This report can be used to view call history statistics and identify device performance issues.

CallManager Selection

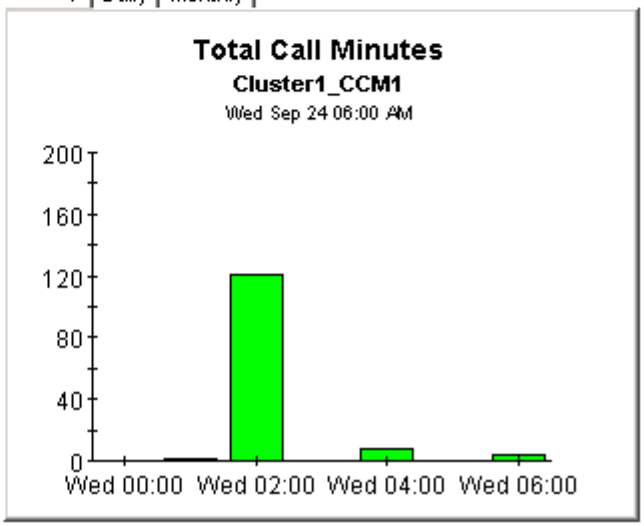
Wed Sep 24 12:00 AM

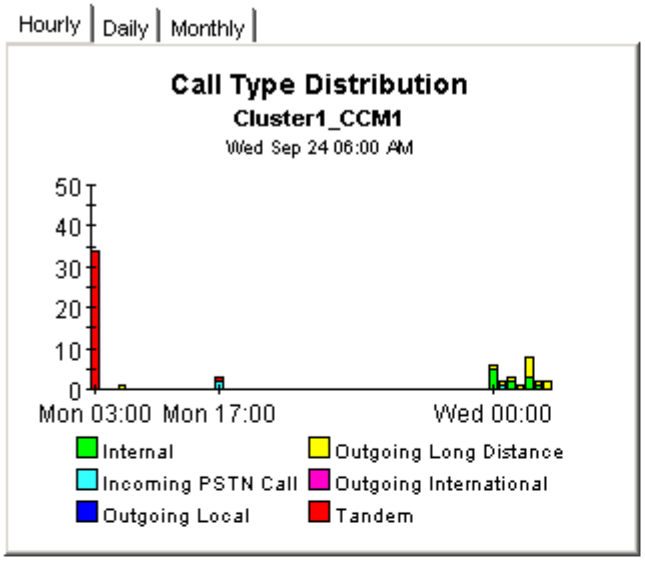
Cluster_CallManager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

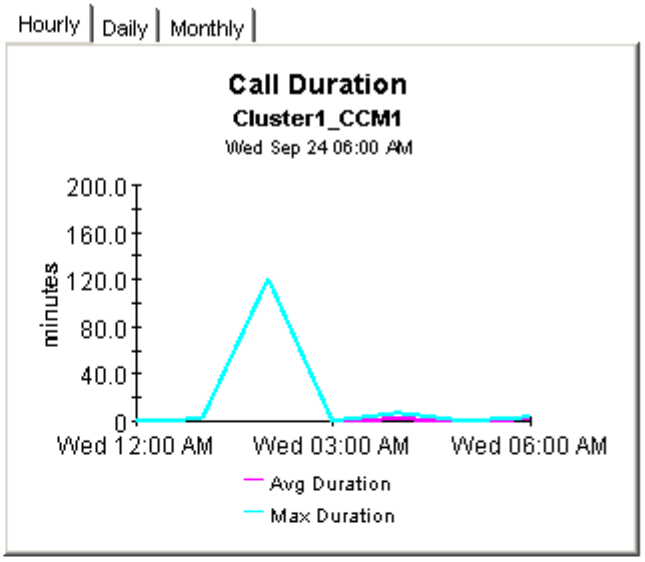
Hourly | Daily | Monthly

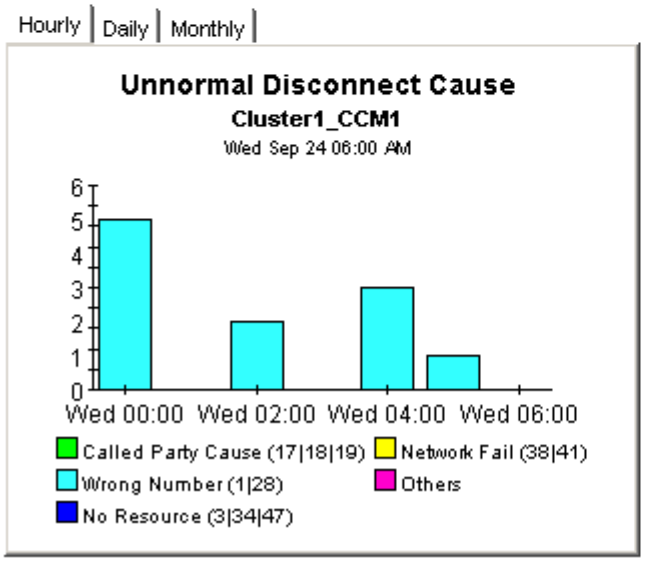


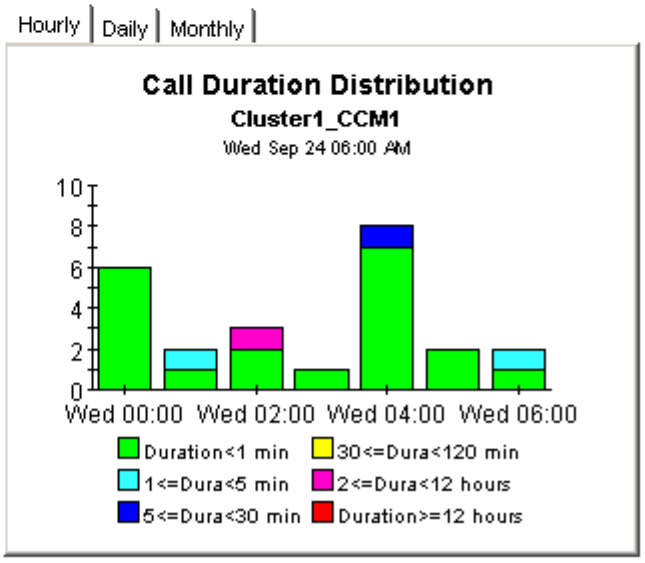
Hourly | Daily | Monthly




Hourly
Daily
Monthly
Call Type Distribution
Cluster1_CCM1
Wed Sep 24 06:00 AM
50
40
30
20
10
0
Mon 03:00
Mon 17:00
Wed 00:00
Internal
Outgoing Long Distance
Incoming PSTN Call
Outgoing International
Outgoing Local
Tandem


Hourly
Daily
Monthly
Call Duration
Cluster1_CCM1
Wed Sep 24 06:00 AM
minutes
200.0
160.0
120.0
80.0
40.0
0
Wed 12:00 AM
Wed 03:00 AM
Wed 06:00 AM
Avg Duration
Max Duration


Hourly
Daily
Monthly
Unnormal Disconnect Cause
Cluster1_CCM1
Wed Sep 24 06:00 AM
6
5
4
3
2
1
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
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
Cluster1_CCM1
Wed Sep 24 06:00 AM
10
8
6
4
2
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
Duration<1 min
30<=Dura<120 min
1<=Dura<5 min
2<=Dura<12 hours
5<=Dura<30 min
Duration>=12 hours

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

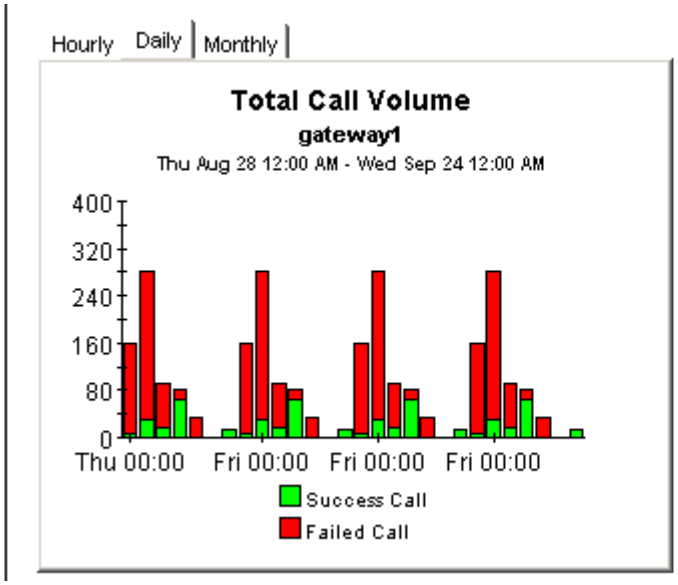
Wed Sep 24 12:00 AM

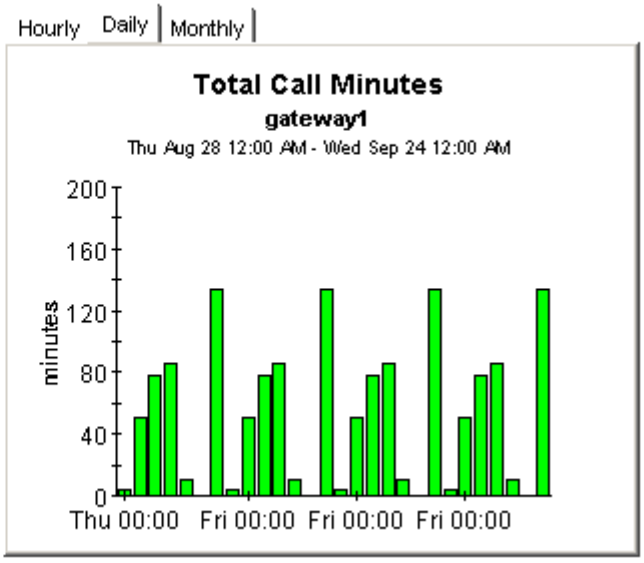
Call Manager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

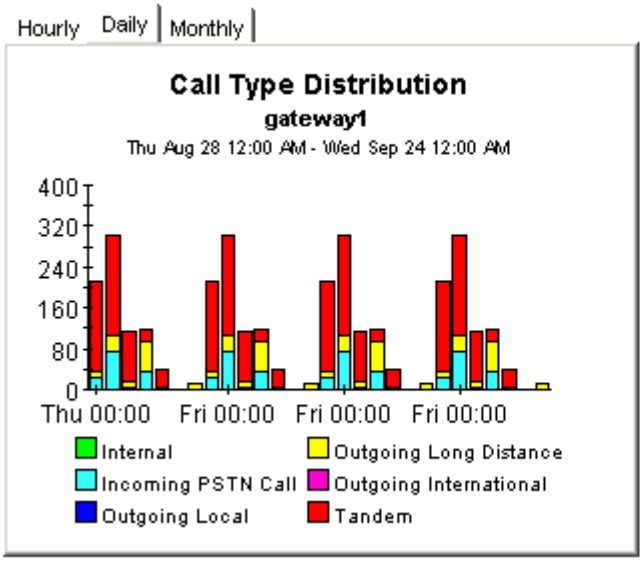
Gateway Selection

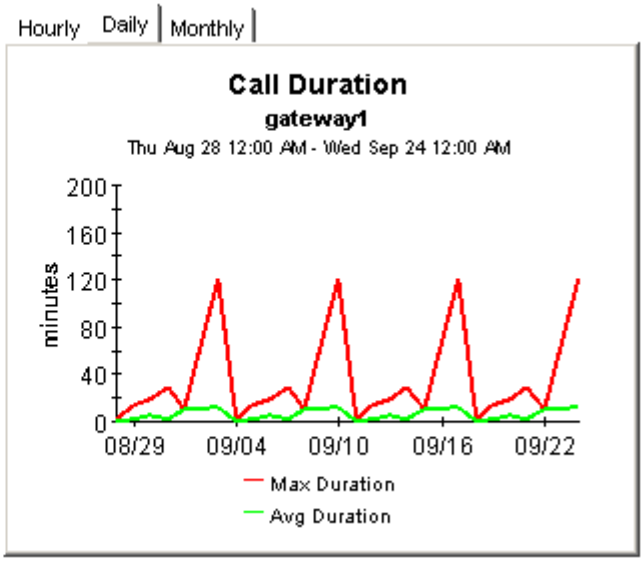
Wed Sep 24 12:00 AM

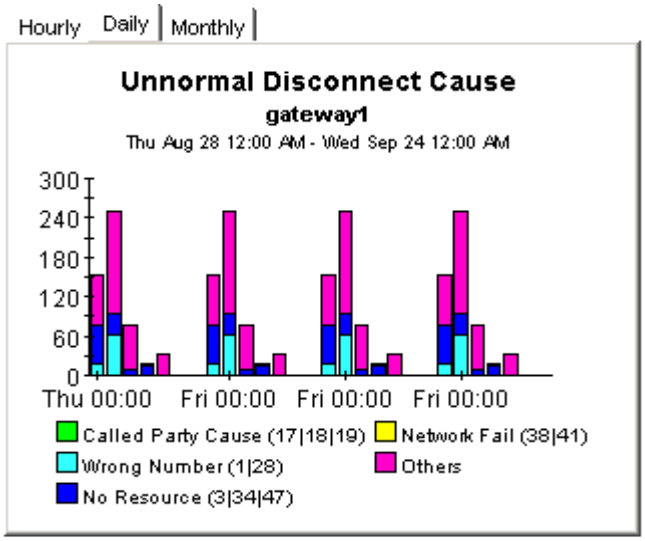
Gateway	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
gateway1	13	100.0	134.4	13

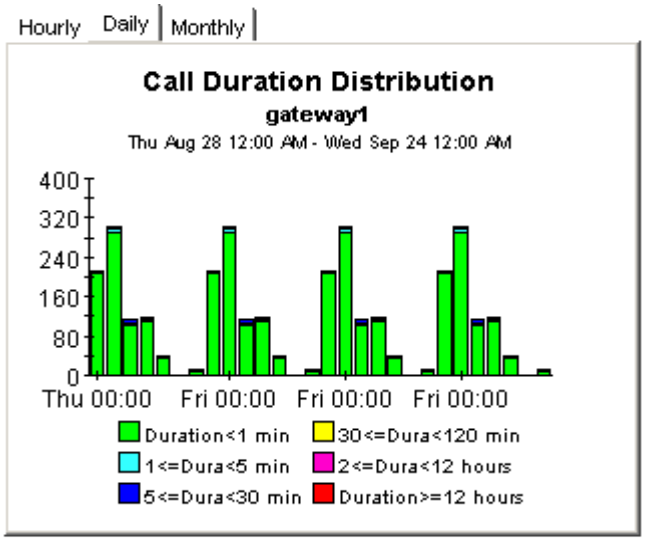





Hourly
Daily
Monthly
Call Type Distribution
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
400
320
240
160
80
0
Thu 00:00
Fri 00:00
Fri 00:00
Fri 00:00
Internal
Outgoing Long Distance
Incoming PSTN Call
Outgoing International
Outgoing Local
Tandem


Hourly
Daily
Monthly
Call Duration
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
200
160
120
80
40
0
minutes
08/29
09/04
09/10
09/16
09/22
Max Duration
Avg Duration


Hourly
Daily
Monthly
Unnormal Disconnect Cause
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
300
240
180
120
60
0
Thu 00:00
Fri 00:00
Fri 00:00
Fri 00:00
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
gateway1
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
400
320
240
160
80
0
Thu 00:00
Fri 00:00
Fri 00:00
Fri 00:00
Duration<1 min
30<=Dura<120 min
1<=Dura<5 min
2<=Dura<12 hours
5<=Dura<30 min
Duration>=12 hours

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

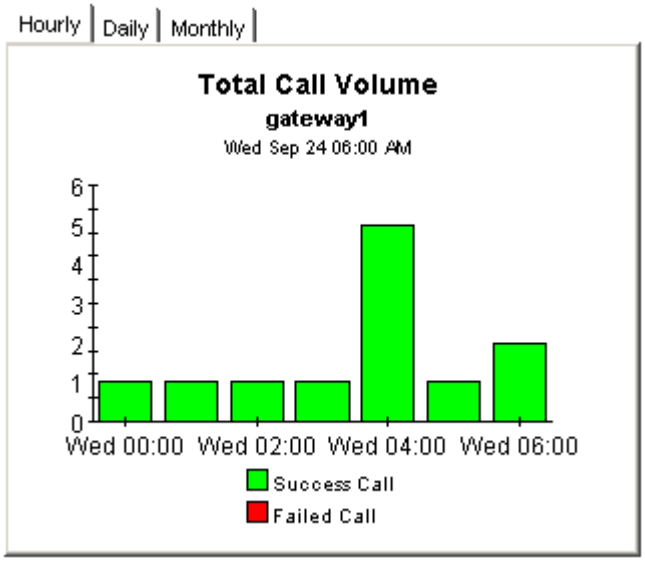
Wed Sep 24 12:00 AM

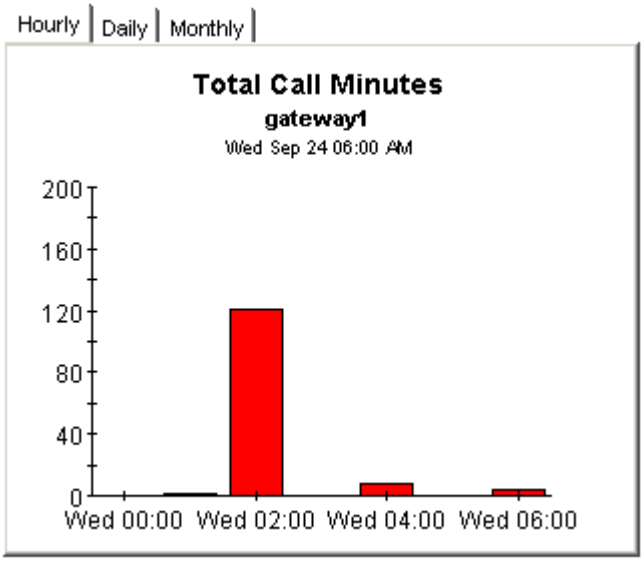
Location	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Location Unassigned	23	52.2	134.4	12

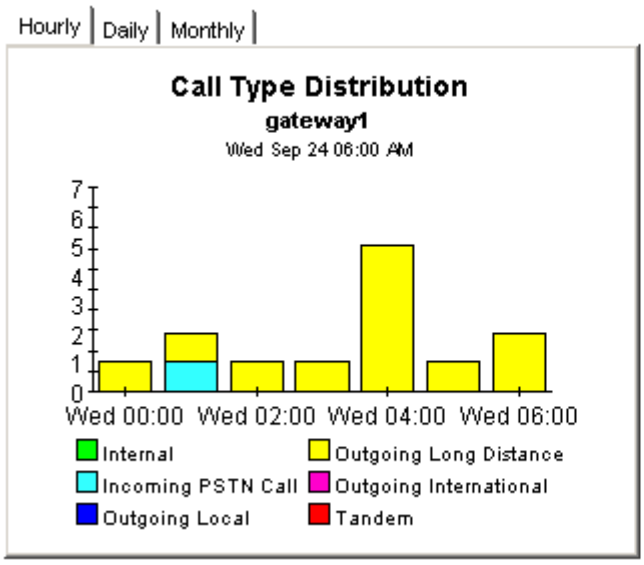
Gateway Selection

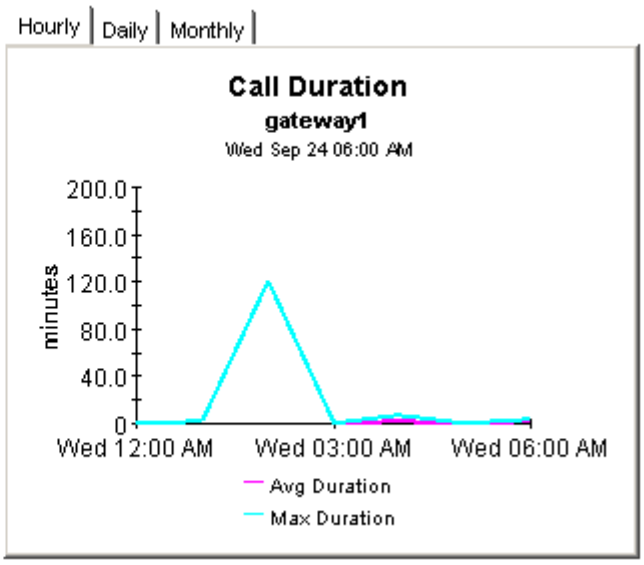
Wed Sep 24 12:00 AM

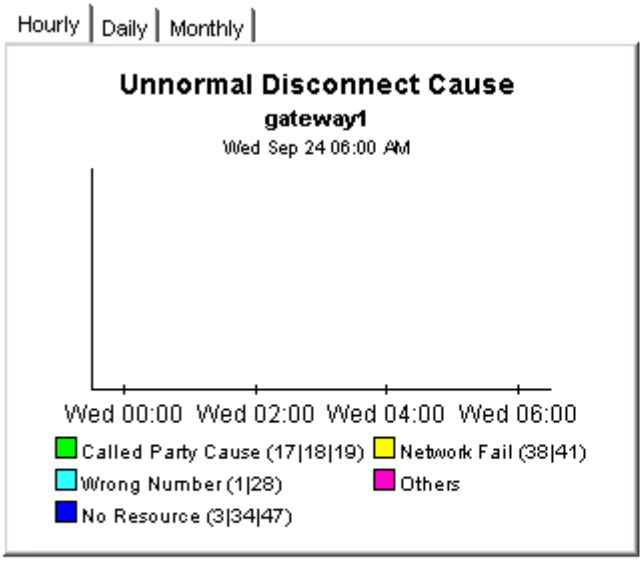
Gateway	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
gateway1	13	100.0	134.4	13

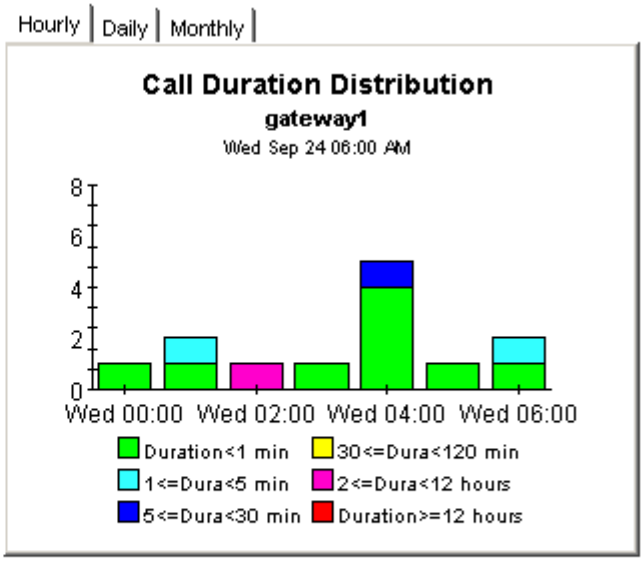





Hourly
Daily
Monthly
Call Type Distribution
gateway1
Wed Sep 24 06:00 AM
7
6
5
4
3
2
1
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
Internal
Outgoing Long Distance
Incoming PSTN Call
Outgoing International
Outgoing Local
Tandem


Hourly
Daily
Monthly
Call Duration
gateway1
Wed Sep 24 06:00 AM
200.0
160.0
120.0
80.0
40.0
0
minutes
Wed 12:00 AM
Wed 03:00 AM
Wed 06:00 AM
Avg Duration
Max Duration


Hourly
Daily
Monthly
Unnormal Disconnect Cause
gateway1
Wed Sep 24 06:00 AM
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
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
gateway1
Wed Sep 24 06:00 AM
8
6
4
2
0
Wed 00:00
Wed 02:00
Wed 04:00
Wed 06:00
Duration<1 min
30<=Dura<120 min
1<=Dura<5 min
2<=Dura<12 hours
5<=Dura<30 min
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

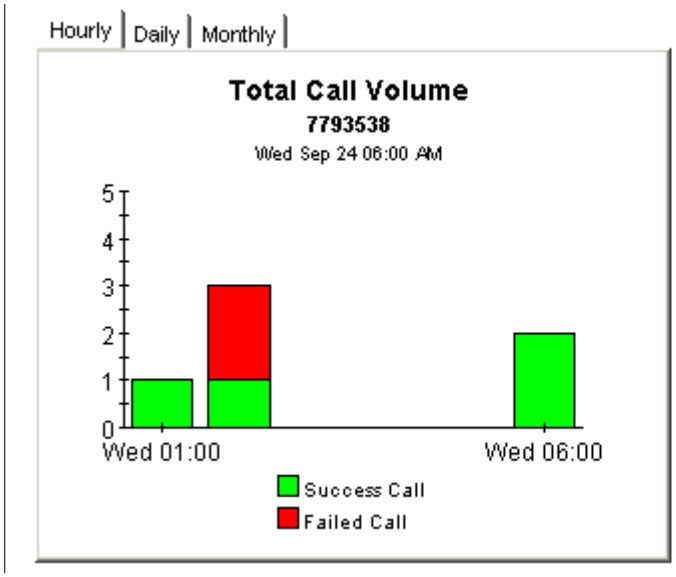
Wed Sep 24 12:00 AM

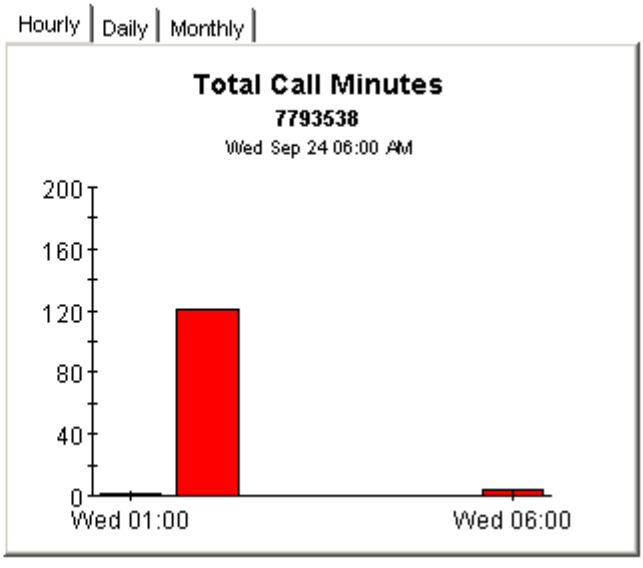
Call Manager	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
Cluster1_CCM1	24	52.2	134.4	13

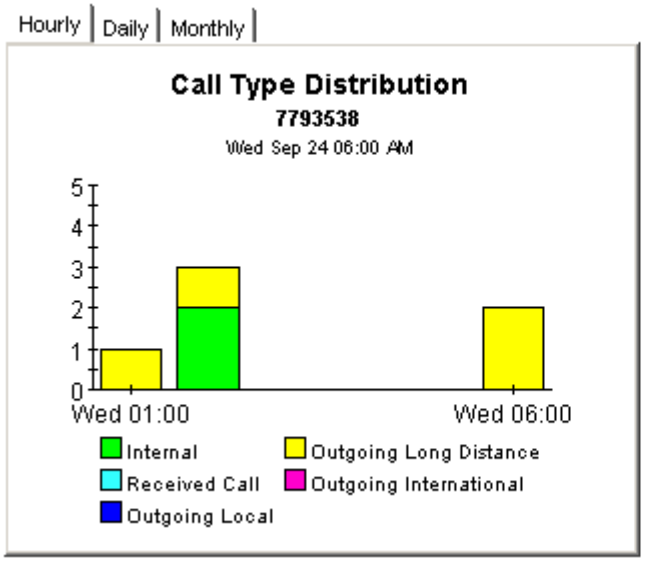
Phone Number Selection

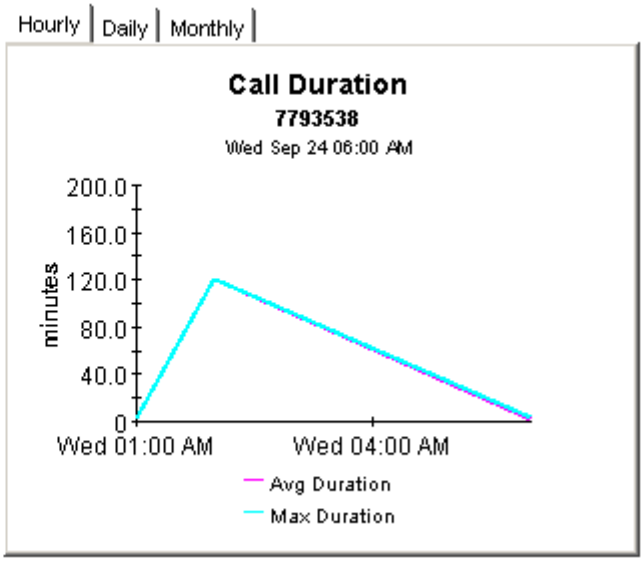
Wed Sep 24 12:00 AM

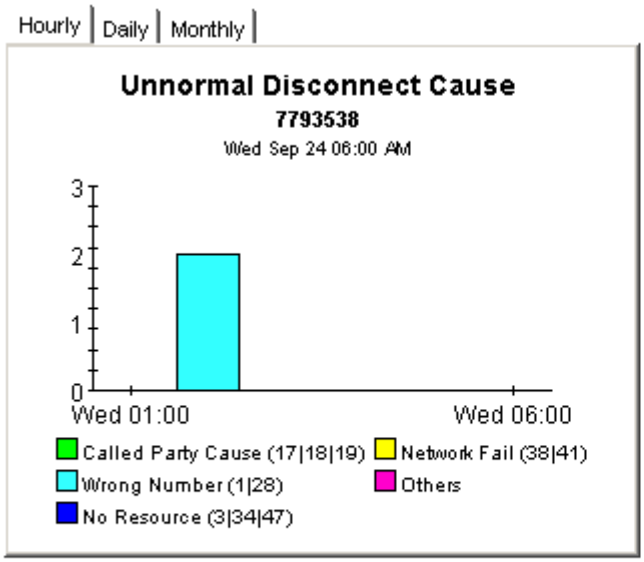
Phone Number	Total Calls	CSR (%)	Total Call Minutes	Total Normal Disconnections
7793538	6	66.7	125.8	4
7793520	8	62.5	8.0	5
7793535	2	50.0	0.2	1
7793599	6	16.7	0.3	1
7793535	1	100.0	0.1	1

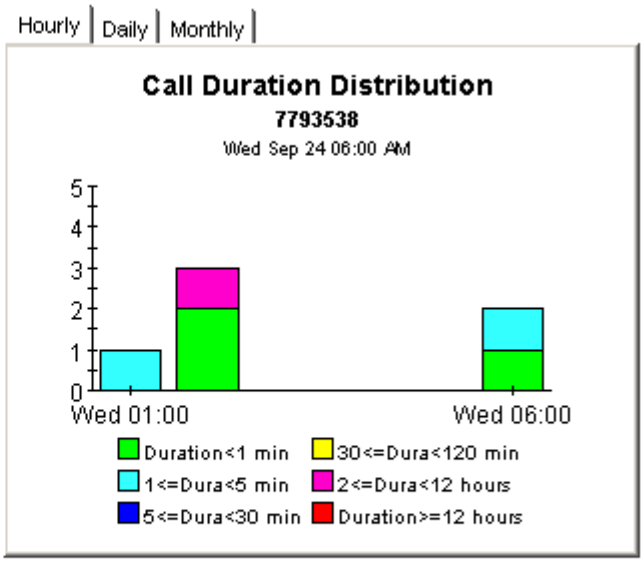





Hourly
Daily
Monthly
Call Type Distribution
7793538
Wed Sep 24 06:00 AM
5
4
3
2
1
0
Wed 01:00
Wed 06:00
Internal
Outgoing Long Distance
Received Call
Outgoing International
Outgoing Local


Hourly
Daily
Monthly
Call Duration
7793538
Wed Sep 24 06:00 AM
200.0
160.0
120.0
80.0
40.0
0
minutes
Wed 01:00 AM
Wed 04:00 AM
Avg Duration
Max Duration


Hourly
Daily
Monthly
Unnormal Disconnect Cause
7793538
Wed Sep 24 06:00 AM
3
2
1
0
Wed 01:00
Wed 06:00
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
5
4
3
2
1
0
Wed 01:00
Wed 06:00
Duration<1 min
30<=Dura<120 min
1<=Dura<5 min
2<=Dura<12 hours
5<=Dura<30 min
Duration>=12 hours

Cisco IP Telephony Call Details

Gateway EndPoint History Summary by CallManager

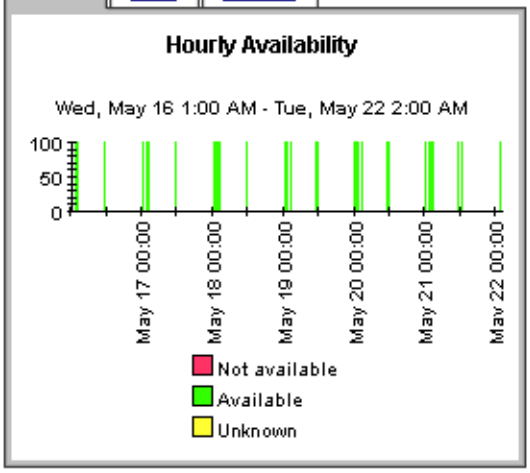
The Gateway EndPoint History Summary Report presents endpoint history metrics aggregated for a given Call Manager. This report can be used to view endpoint availability and usage statistics and identify endpoint performance issues.

Choose CallManager | Choose Gateway

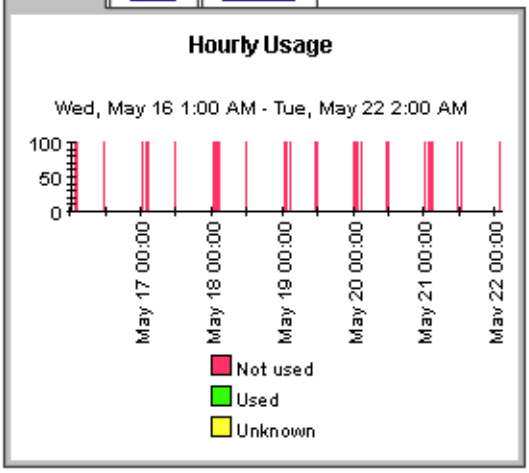
End Points

EndPointName	Protocol
FXSPort_2_1_1	MGCP
EANDMPort_2_0_0	MGCP
EANDMPort_2_0_1	MGCP
EANDMPort_2_0_0	MGCP
T1CAS_1_0	MGCP
FXSPort_2_1_0	MGCP
EANDMPort_2_0_1	MGCP

Hourly | Daily | Monthly



Hourly | Daily | Monthly



Back to Top

7 Top Ten and Top 100 Reports

There are 14 top ten reports (related to call history, call QoS, gateway endpoint, and gateway endpoint channel) and one top 100 report (phone number MOS).

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

Gateway Endpoint	Gateway Endpoint Channel
Gateway EndPoint Top Ten by CallManager	Gateway EndPoint Channel Top Ten by CallManager

Phone Number MOS
Top Hundred Offenders by MOS

Every top ten/100 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

The gateway endpoint report contains these tables:

- Worst Hourly Usage
- Worst Daily Usage
- Worst Monthly Usage

The gateway endpoint channel report contains these tables:

- Worst Hourly
- Worst Daily
- Worst Monthly

The top hundred offenders by MOS report contains this table:

- Top 100 offenders based on lowest MOS values

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

Cisco IP Telephony Call Details

Gateway EndPoint TopTen by CallManager

The Gateway EndPoint TopTen Report presents top ten endpoints that have the Lowest Availability and Lowest Usage aggregated for a given Call Manager. This report can be used to identify the top bad performing end points.

Choose Call Manager

Hourly | Daily | Monthly

TopTen Hourly

GatewayName	EndPointName	Protocol	Not Available
c3745-2.india.hp.com	EANDMPort	MGCP	233.00
c3745-2.india.hp.com	EANDMPort	MGCP	231.00
c3745-2.india.hp.com	EANDMPort	MGCP	231.00
c3745-2.india.hp.com	EANDMPort	MGCP	230.00
c3745-2.india.hp.com	EANDMPort	MGCP	229.00
c3745-2.india.hp.com	EANDMPort	MGCP	228.00
c3745-2.india.hp.com	EANDMPort	MGCP	226.00
c3745-2.india.hp.com	EANDMPort	MGCP	223.00
c3745-1.india.hp.com	EANDMPort	MGCP	222.00

Hourly | Daily | Monthly

Hourly Usage TopTen

GatewayName	EndPointName	Protocol	Not Used
c3745-2.india.hp.com	EANDMPort	MGCP	233.00
c3745-2.india.hp.com	EANDMPort	MGCP	231.00
c3745-2.india.hp.com	EANDMPort	MGCP	231.00
c3745-2.india.hp.com	EANDMPort	MGCP	230.00
c3745-2.india.hp.com	EANDMPort	MGCP	229.00
c3745-2.india.hp.com	EANDMPort	MGCP	228.00
c3745-2.india.hp.com	EANDMPort	MGCP	226.00
c3745-2.india.hp.com	FXSPort	MGCP	224.00
c3745-2.india.hp.com	FXSPort	MGCP	224.00

Cisco IP Telephony Call Details

Gateway EndPoint Channel TopTen by CallManager

The Gateway EndPoint Channel TopTen Report presents top ten endpoint channels that have the Lowest Availability and Lowest Usage aggregated for a given Call Manager. This report can be used identify the top bad performing channels.

Choose Call Manager

Hourly | Daily | Monthly

Hourly Availability TopTen

GatewayName	EndPointName	Protocol	ChannelName	Not Available
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	0.00

Hourly | Daily | Monthly

Hourly Availability TopTen

GatewayName	EndPointName	Protocol	ChannelName	Not Used
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2808.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2808.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2808.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2808.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2808.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2784.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2784.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	2784.00
c3745-1.india.hp.com	T1CAS_1_0	MGCP	DS0	1344.00

8 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

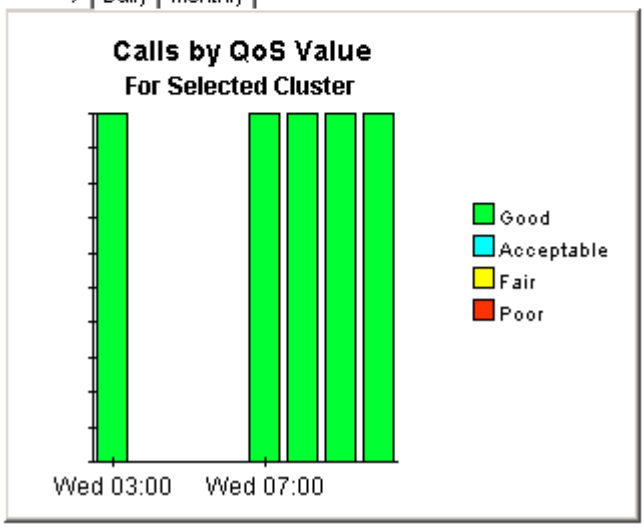
The Cluster QoS Report presents QoS metrics aggregated for a given Cluster. This report can be used to view QoS statistic metrics and identify device performance issues. QoS value is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: 1=Good,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

Cluster Selection

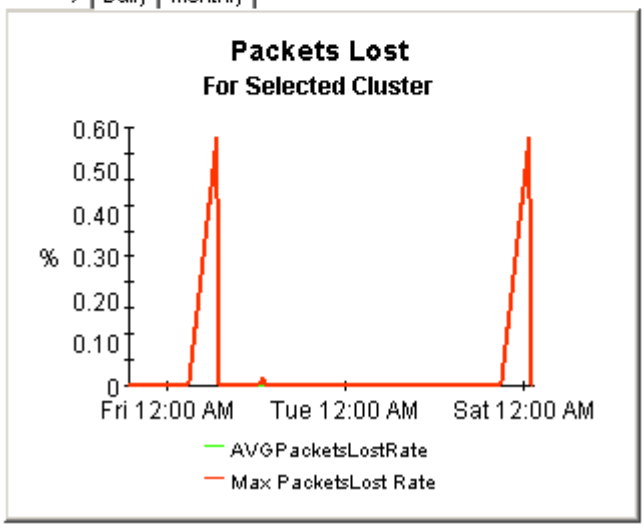
Wed Sep 24 12:00 AM

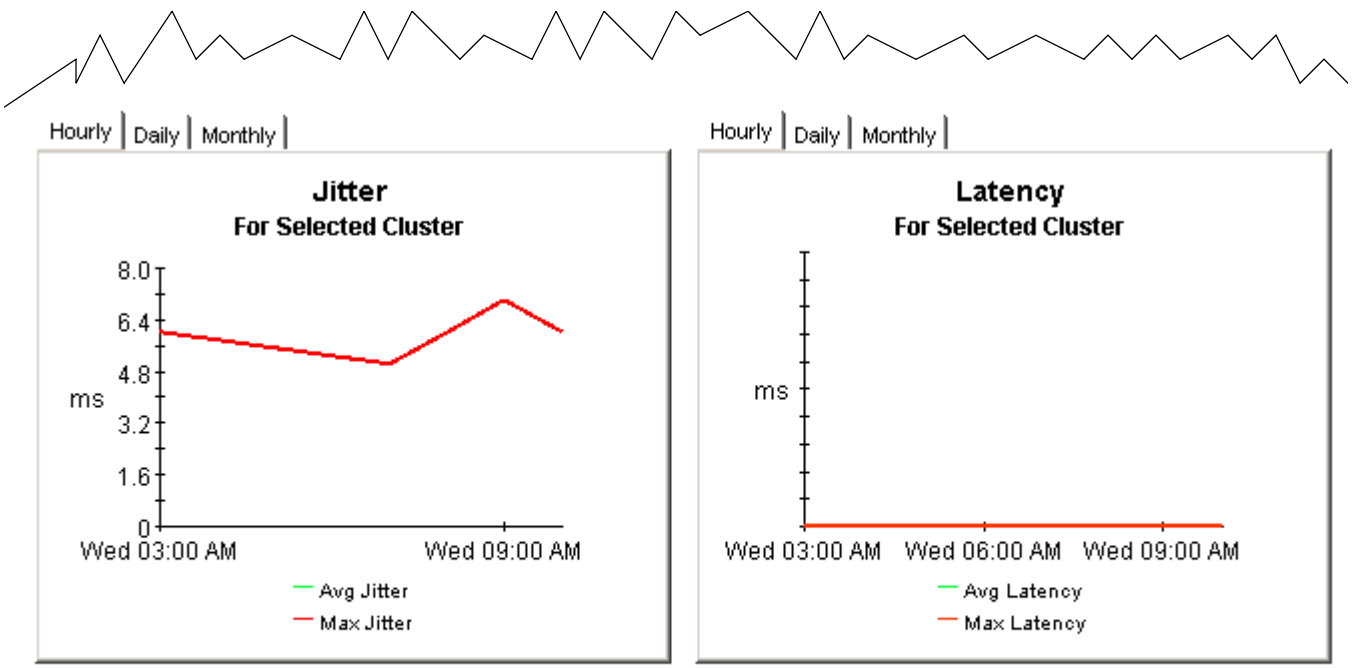
Cluster Name	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1	5	0.0	6.0	0.0	1.0

Hourly | Daily | Monthly



Hourly | Daily | Monthly




Hourly
Daily
Monthly
Jitter
For Selected Cluster
8.0
6.4
4.8
3.2
1.6
0
ms
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

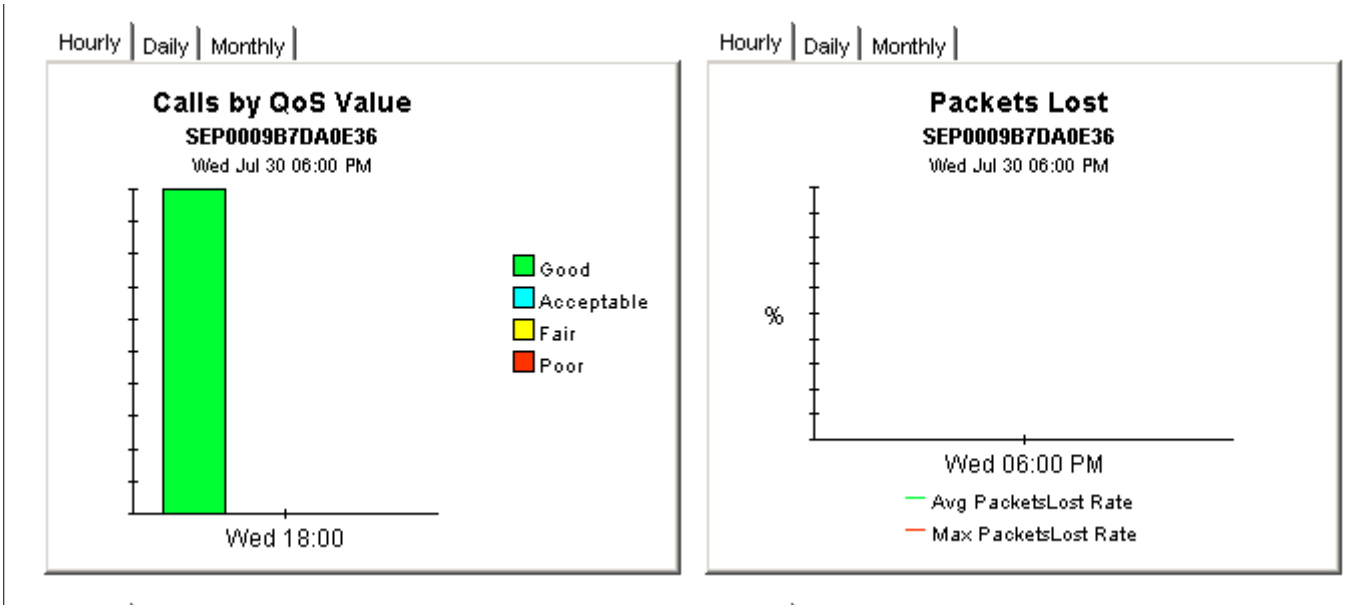
Wed Jul 30 12:00 AM

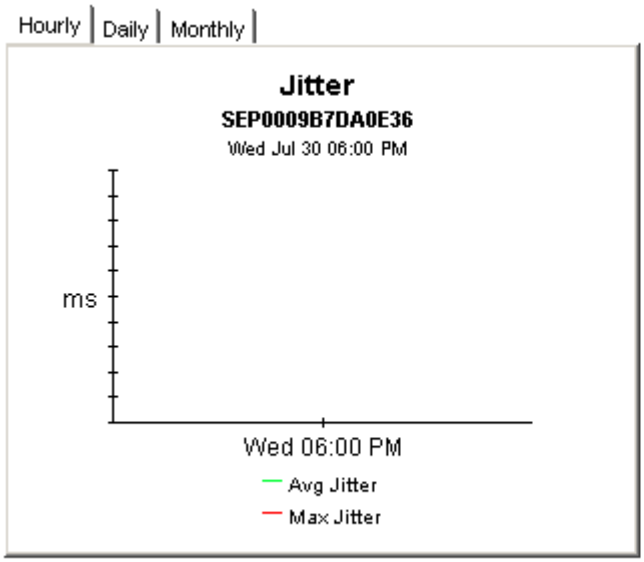
Location	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Location Unassigned	1.00	0.0	0.0	0.0	1.0

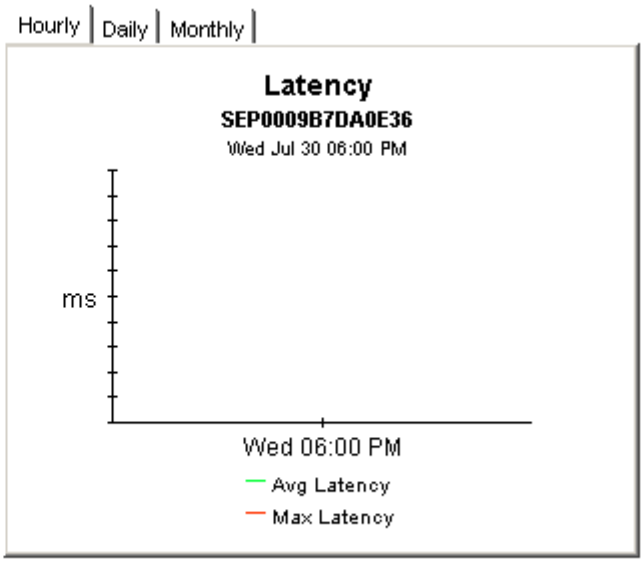
Gateway Selection

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
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

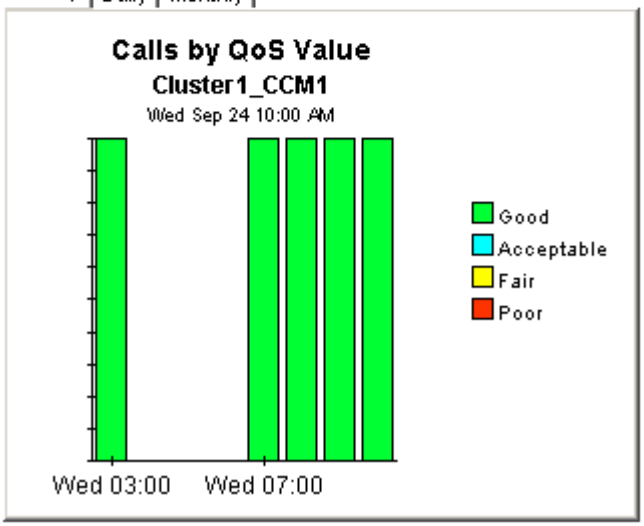
The CallManager QoS Report presents QoS metrics aggregated for a given CallManager. This report can be used to view QoS statistic metrics and identify device performance issues. QoS value is derived from the Packet Lost, Jitter, and Latency metrics based on the pre-defined value ranges. QoS definition: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

CallManager Selection

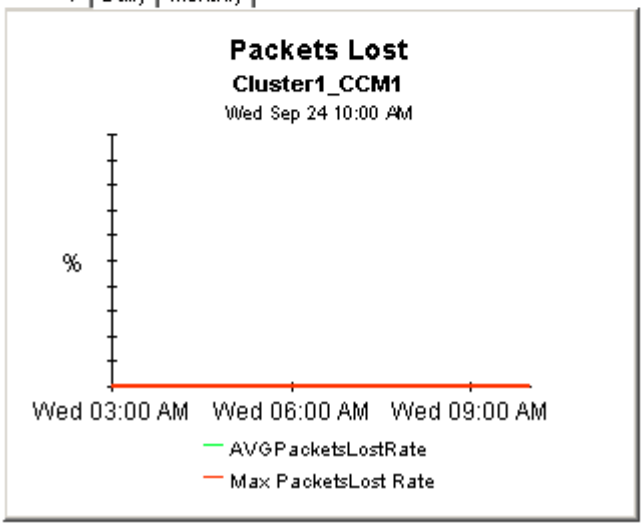
Wed Sep 24 12:00 AM

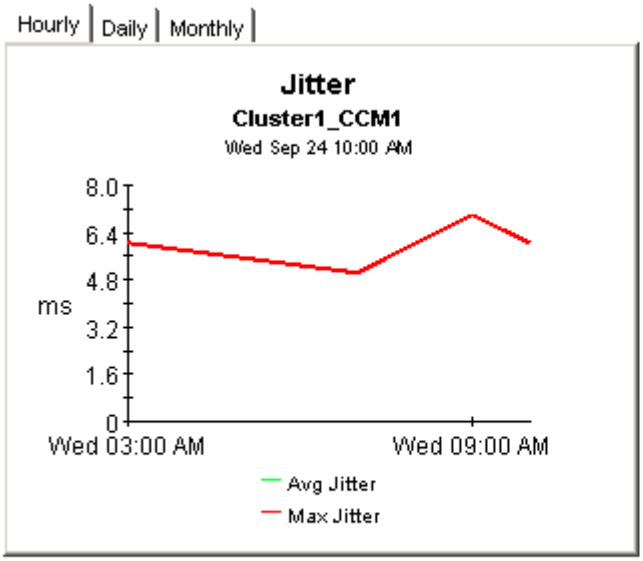
Call Manager	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1_CCM1	5	0.0	6.0	0.0	1.0

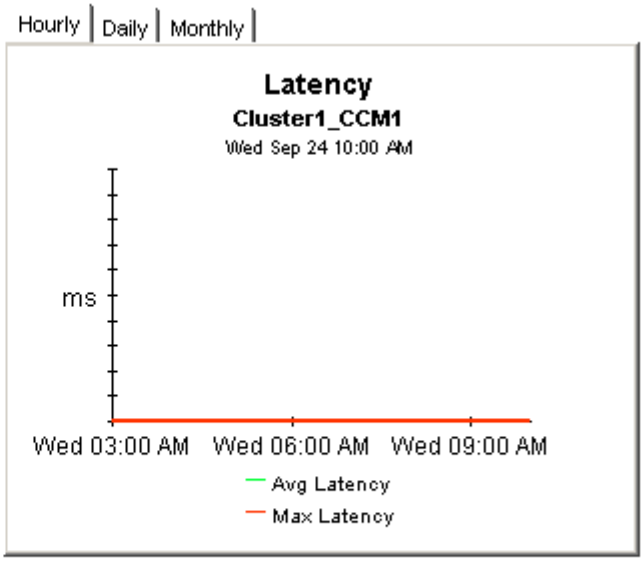
Hourly | Daily | Monthly



Hourly | Daily | Monthly




Hourly
Daily
Monthly
Jitter
Cluster1_CCM1
Wed Sep 24 10:00 AM
8.0
6.4
4.8
3.2
1.6
0
ms
Wed 03:00 AM
Wed 09:00 AM
Avg Jitter
Max Jitter


Hourly
Daily
Monthly
Latency
Cluster1_CCM1
Wed Sep 24 10:00 AM
ms
Wed 03:00 AM
Wed 06:00 AM
Wed 09:00 AM
Avg Latency
Max Latency

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

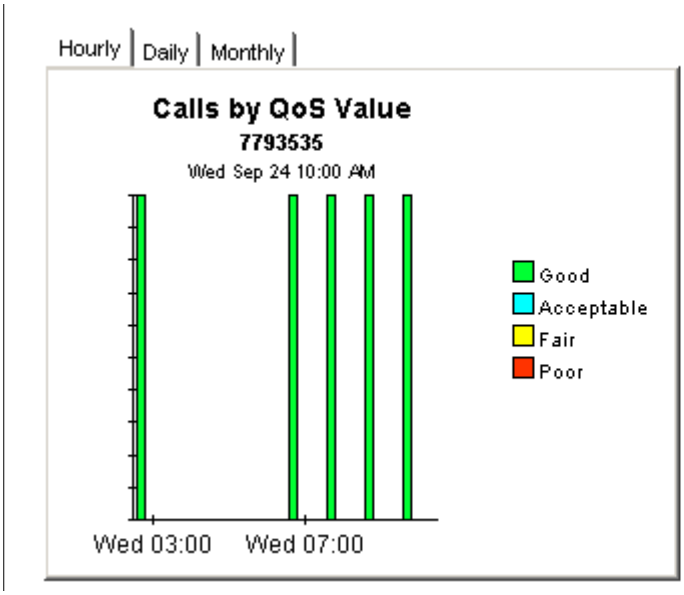
Wed Sep 24 12:00 AM

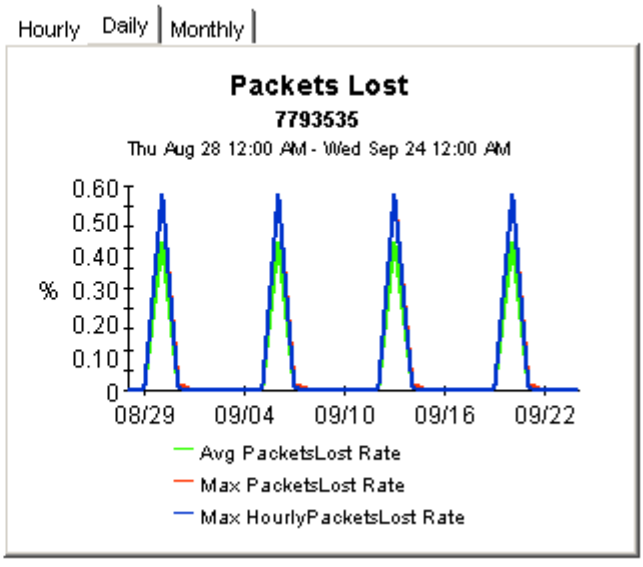
Call Manager	Total Calls	Avg PacketsLost (%)	Avg Jitter (ms)	Avg Latency (ms)	Avg QoS
Cluster1_CCM1	5.00	0.0	6.0	0.0	1.0

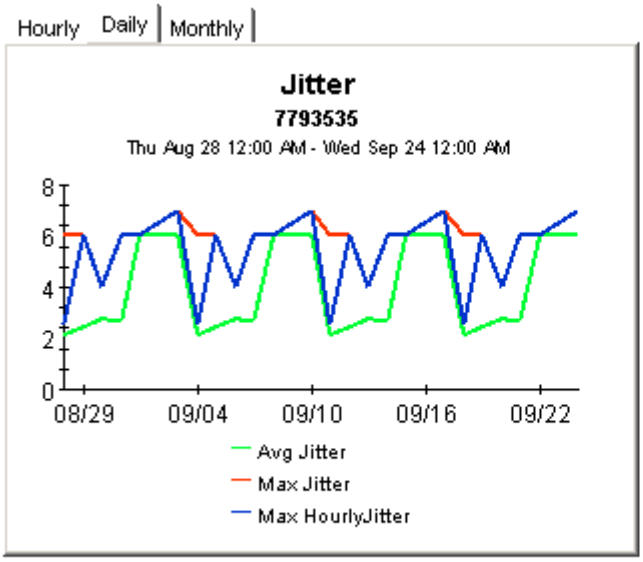
Phone Number Selection

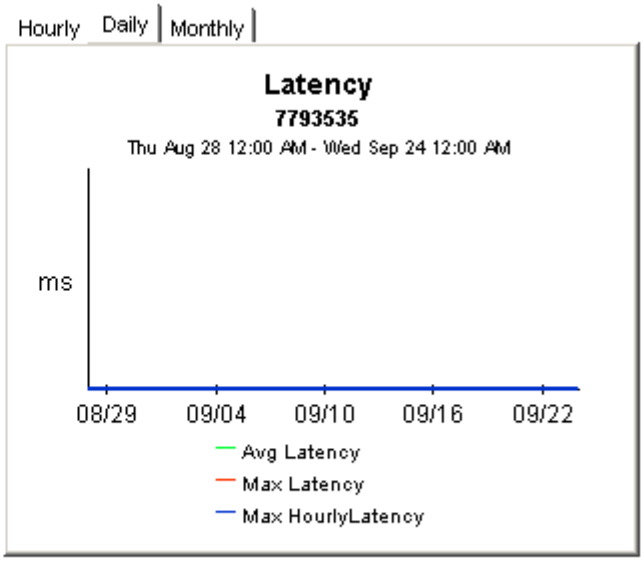
Wed Sep 24 12:00 AM

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
Jitter
7793535
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
8
6
4
2
0
08/29
09/04
09/10
09/16
09/22
Avg Jitter
Max Jitter
Max HourlyJitter


Hourly
Daily
Monthly
Latency
7793535
Thu Aug 28 12:00 AM - Wed Sep 24 12:00 AM
ms
08/29
09/04
09/10
09/16
09/22
Avg Latency
Max Latency
Max HourlyLatency

9 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 the following forecast reports:

- CallManager forecast
- Cluster forecast
- Gateway forecast by CallManager
- Phone number forecast
- Gateway forecast by location
- Location forecast
- Performance Monitor Forecast by CallManager
- Phone Number MOS Forecast
- Process CallManager Forecast
- Process Site Forecast
- System Resource Metrics Forecast by Call Manager
- System Resource Metrics Forecast by Site

CallManager, cluster, gateway, phone number, and location reports begin 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

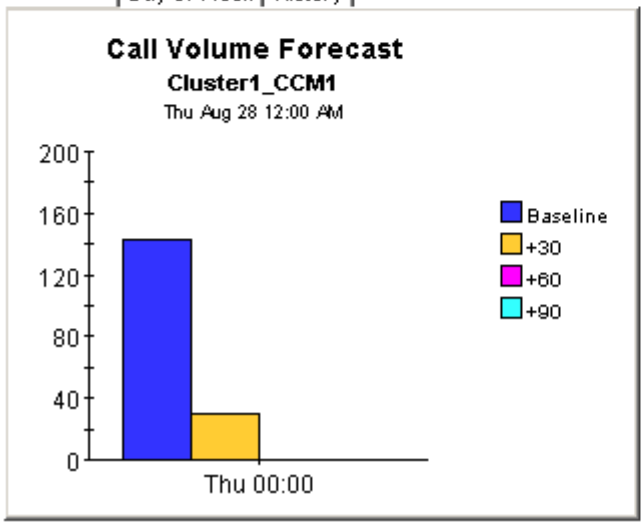
The CallManager Forecast Report enables the user to quickly identify CallManagers with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. CallManagers are sorted by rate of increase in number of calls processed. Drill down charts present forecasted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

CallManager Selection

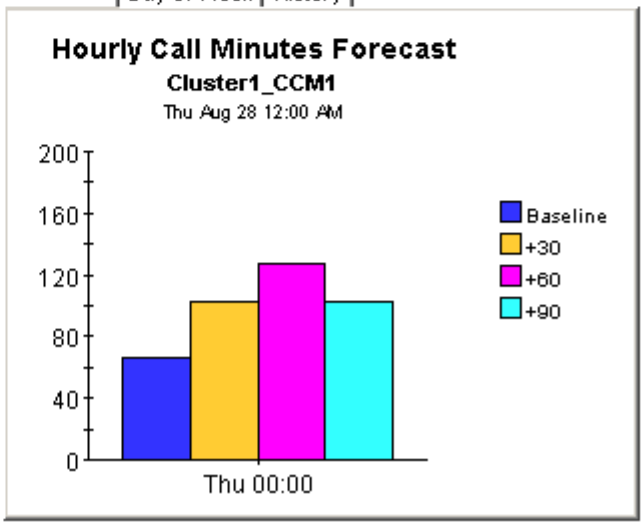
Thu Aug 28 12:00 AM

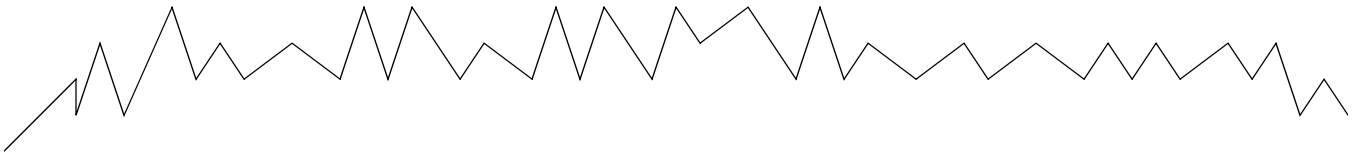
Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

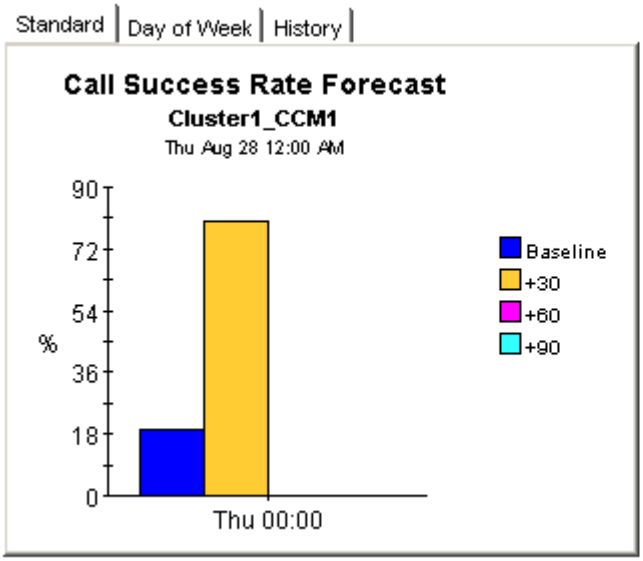
Standard | Day of Week | History

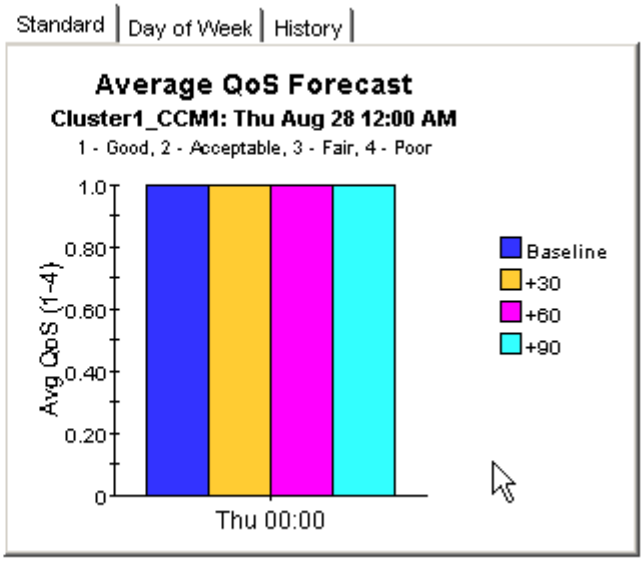


Standard | Day of Week | History






Standard
Day of Week
History
Call Success Rate Forecast
Cluster1_CCM1
Thu Aug 28 12:00 AM
90
72
54
36
18
0
%
Thu 00:00
Baseline
+30
+60
+90


Standard
Day of Week
History
Average QoS Forecast
Cluster1_CCM1: Thu Aug 28 12:00 AM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor
1.0
0.80
0.60
0.40
0.20
0
Avg QoS (1-4)
Thu 00:00
Baseline
+30
+60
+90

Cisco IP Telephony Call Details

Cluster Forecast

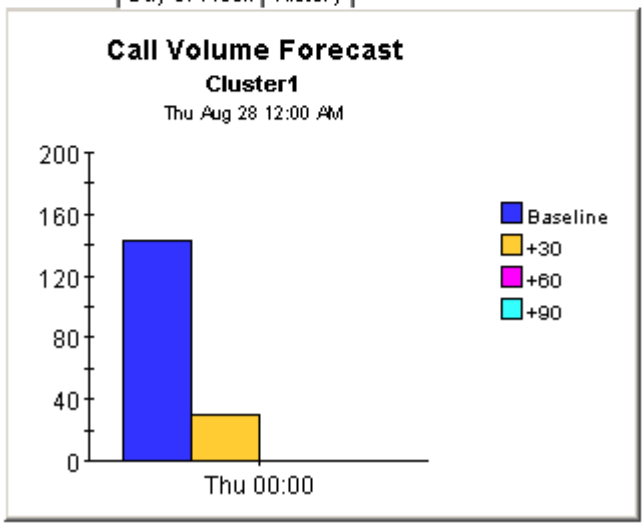
The Cluster Forecast Report enables the user to quickly identify Cluster with the greatest projected increase in call volume, call minutes, call success rate, and average QoS grade. Clusters are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call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

Cluster Selection

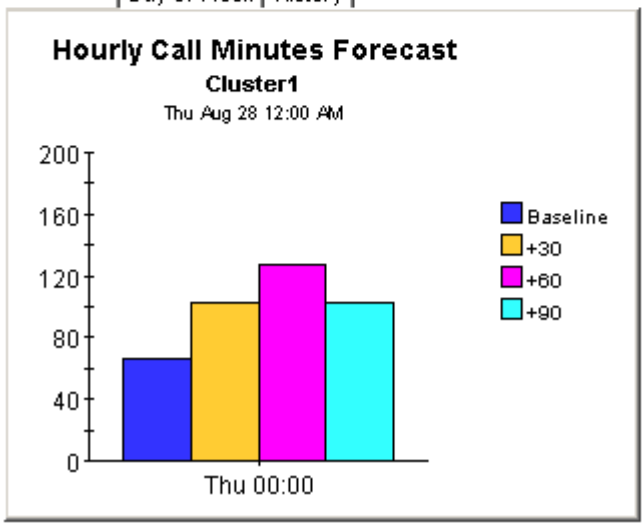
Thu Aug 28 12:00 AM

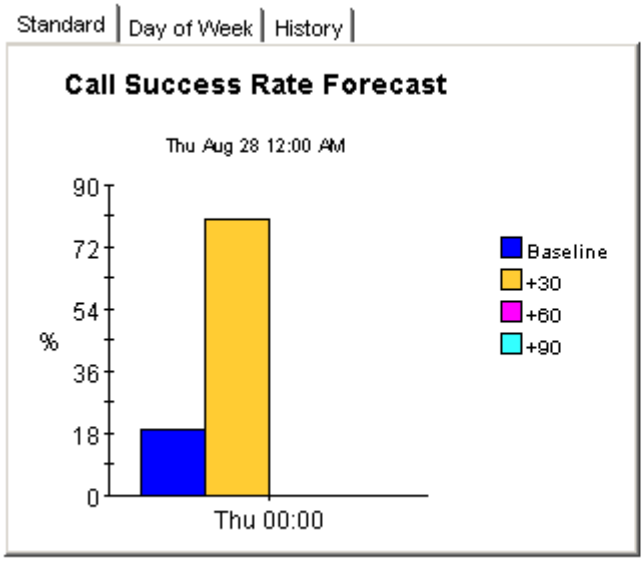
ClusterName	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1	142	30	-47	-124

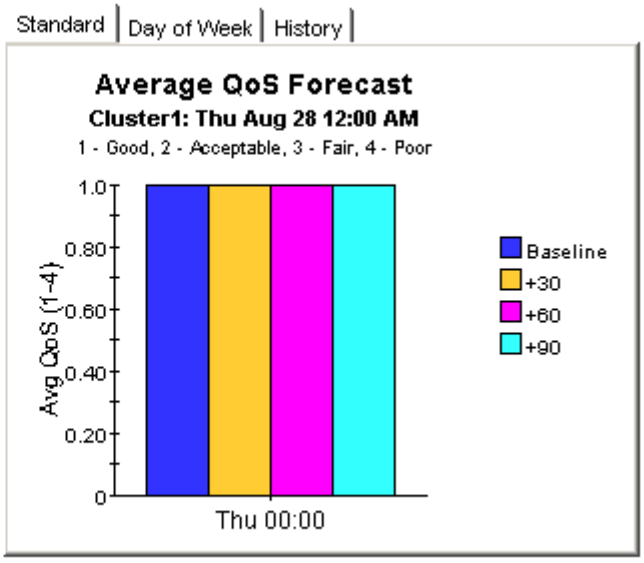
Standard | Day of Week | History



Standard | Day of Week | History




Standard
Day of Week
History
Call Success Rate Forecast
Thu Aug 28 12:00 AM
90
72
54
36
18
0
%
Thu 00:00
Baseline
+30
+60
+90


Standard
Day of Week
History
Average QoS Forecast
Cluster1: Thu Aug 28 12:00 AM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor
1.0
0.80
0.60
0.40
0.20
0
Avg QoS (1-4)
Thu 00:00
Baseline
+30
+60
+90

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

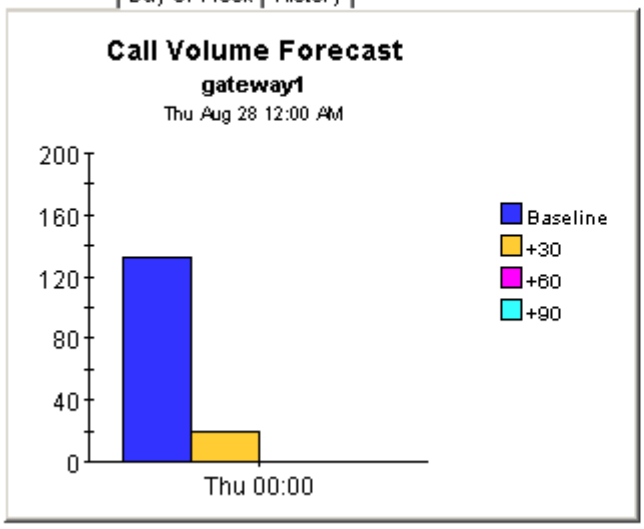
Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

Gateway Selection

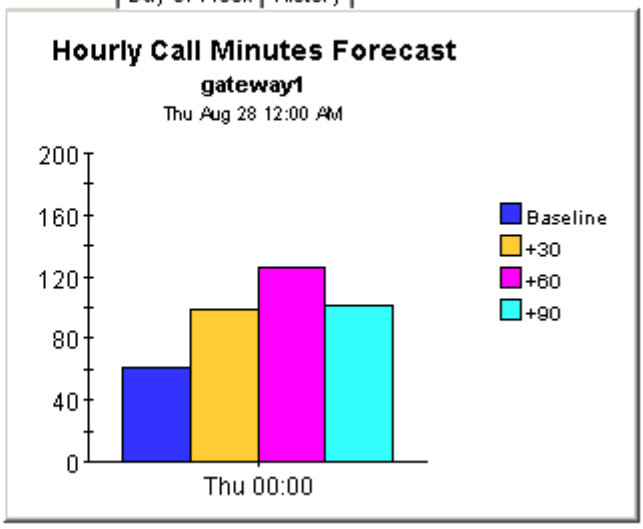
Thu Aug 28 12:00 AM

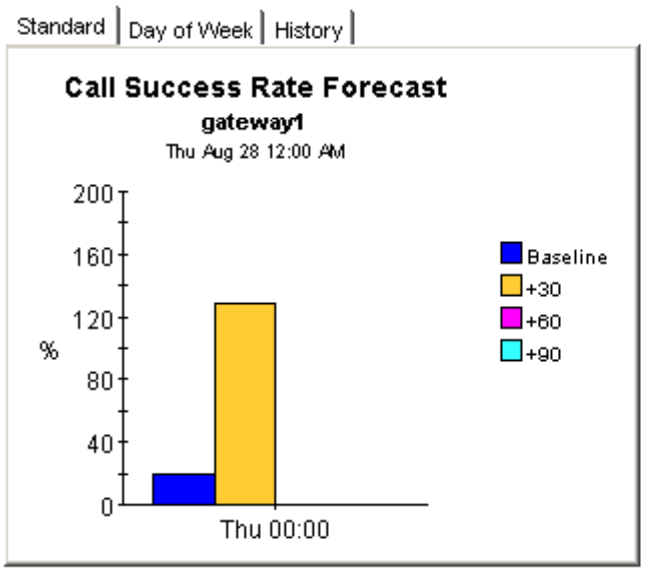
Gateway	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
gateway1	132	20	-57	-134

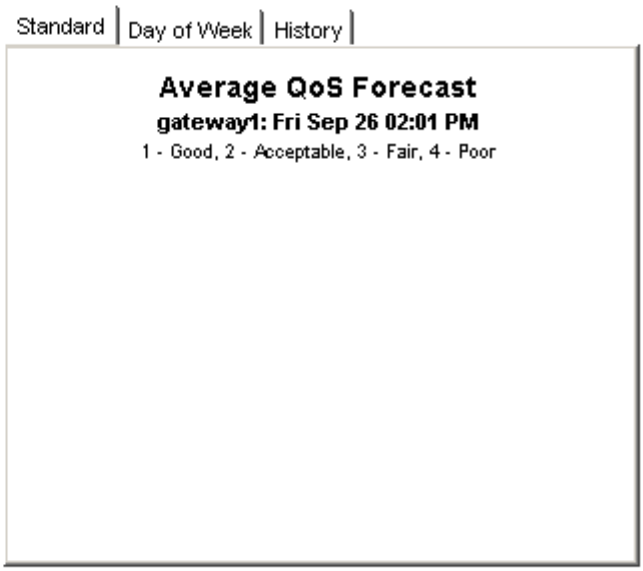
Standard | Day of Week | History



Standard | Day of Week | History




Standard
Day of Week
History
Call Success Rate Forecast
gateway1
Thu Aug 28 12:00 AM
200
160
120
80
40
0
%
Thu 00:00
Baseline
+30
+60
+90


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

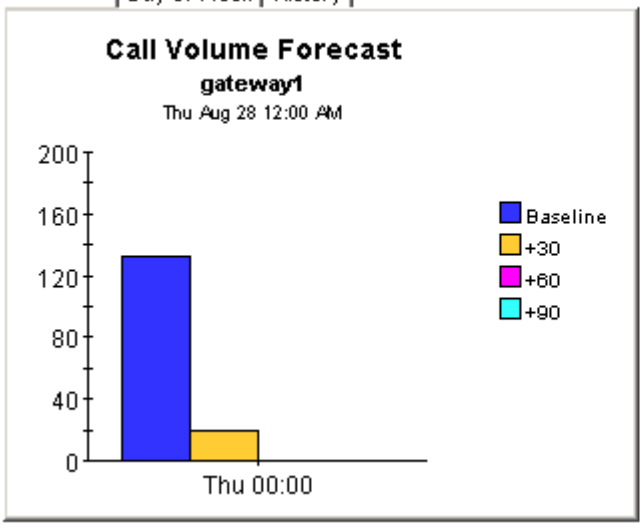
Location	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Location Unassigned	37	31	27	24

Gateway Selection

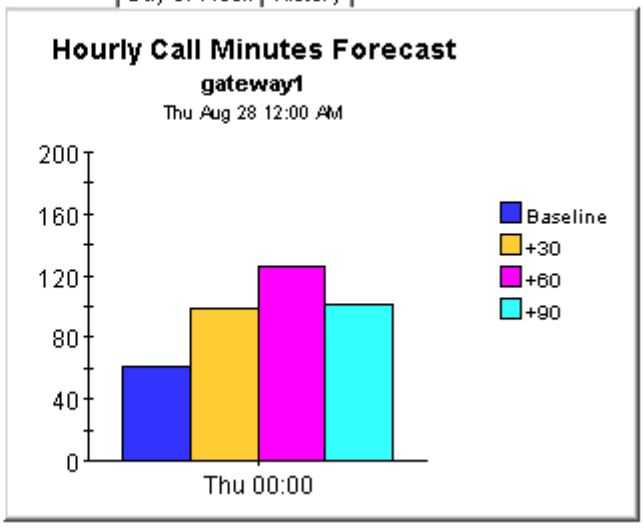
Thu Aug 28 12:00 AM

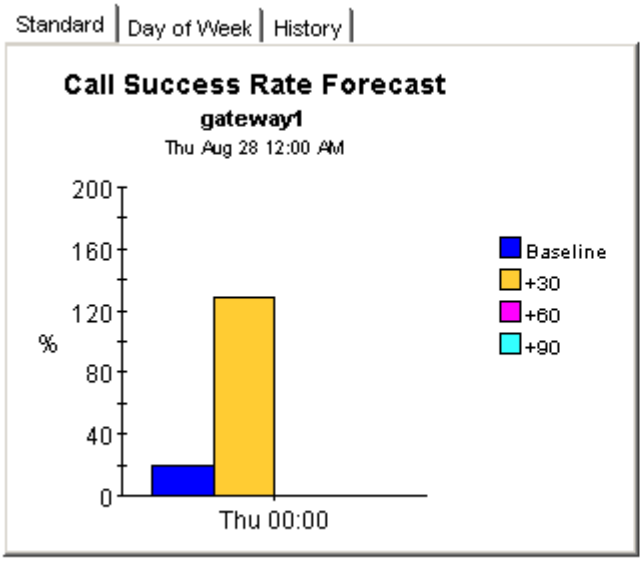
Gateway	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
gateway1	132	20	-57	-134

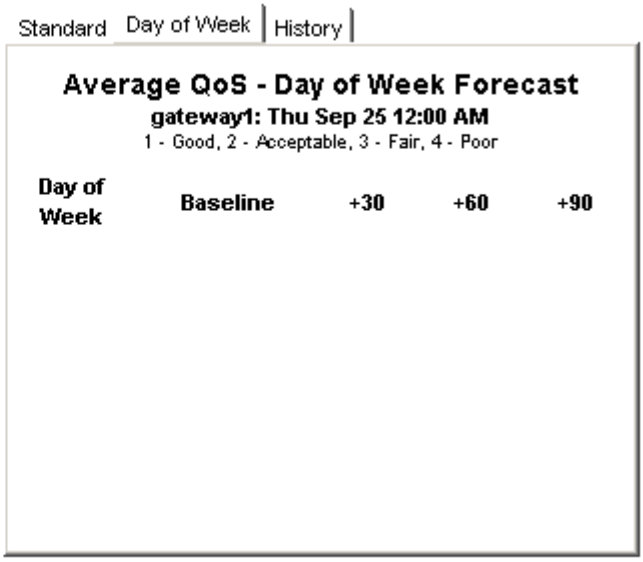
Standard | Day of Week | History



Standard | Day of Week | History




Standard
Day of Week
History
Call Success Rate Forecast
gateway1
Thu Aug 28 12:00 AM
200
160
120
80
40
0
%
Thu 00:00
Baseline
+30
+60
+90


Standard
Day of Week
History
Average QoS - Day of Week Forecast
gateway1: Thu Sep 25 12:00 AM
1 - Good, 2 - Acceptable, 3 - Fair, 4 - Poor
Day of Week
Baseline
+30
+60
+90

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

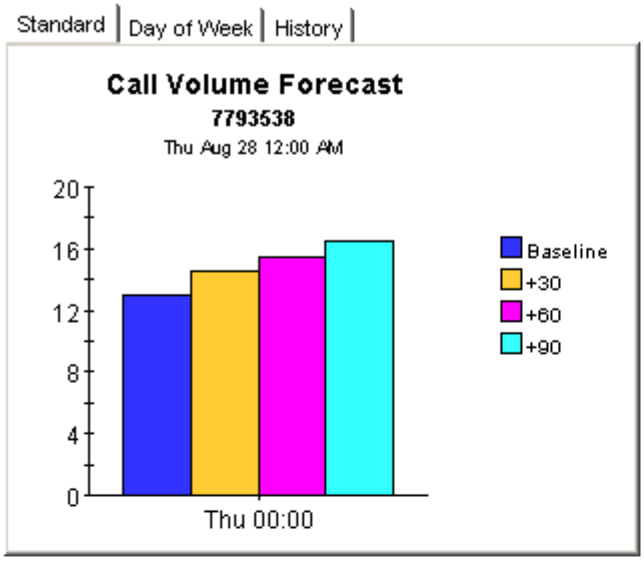
Thu Aug 28 12:00 AM

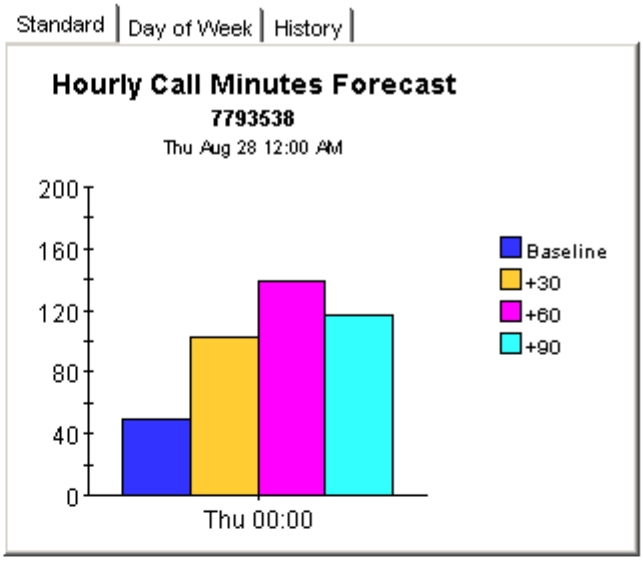
Call Manager	AVGTOTCalls	F30TOTCalls	F60TOTCalls	F90TOTCalls
Cluster1_CCM1	142	30	-47	-124

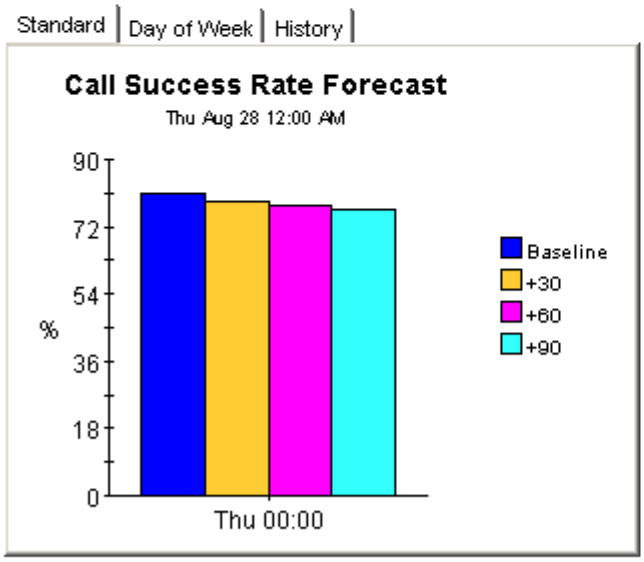
Phone Number Selection

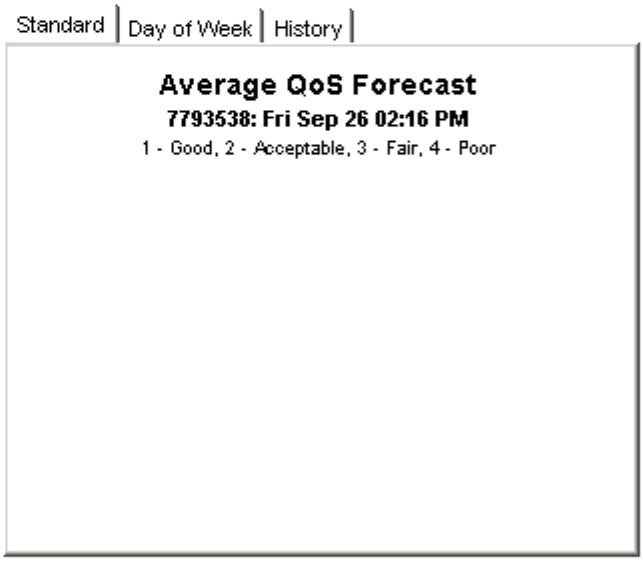
Sun Aug 31 12:00 AM

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
20
16
12
8
4
0
Thu 00:00
Baseline
+30
+60
+90


Standard
Day of Week
History
Hourly Call Minutes Forecast
7793538
Thu Aug 28 12:00 AM
200
160
120
80
40
0
Thu 00:00
Baseline
+30
+60
+90


Standard
Day of Week
History
Call Success Rate Forecast
Thu Aug 28 12:00 AM
90
72
54
%
36
18
0
Thu 00:00
Baseline
+30
+60
+90


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

Cisco IP Telephony Call Details

Performance Monitor Forecast by CallManager

The Performance Monitor Forecast Report enables the user to quickly identify Objects and Metircs with the greatest projected increase in values. Metrics are sorted by increase in number of values. Drill down charts present forecasted overall performance monitor metrics for the selected object and metric.

CManager Selection

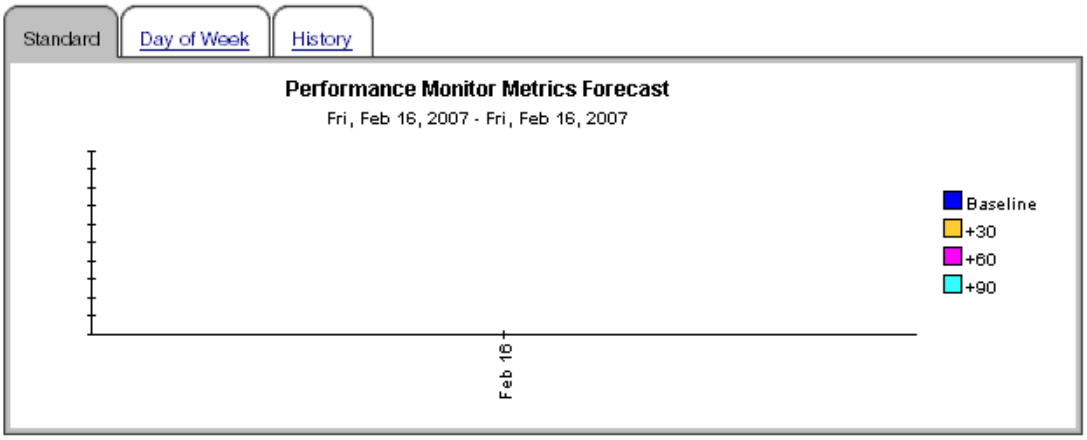
Node Name
15.106.79.100
15.106.79.67
15.106.79.46

Object Selection

Object Name
Cisco CTI Manager
Cisco CallManager
Cisco CallManager Attendant Console
Cisco CallManager System Performance
Cisco Dual-Mode Mobility

Metrics Selection

Attribute Name	AVG	+30	+60	+90
##TranscoderResourceActive	0	0	0	0



Cisco IP Telephony Call Details

Process Forecast - CallManager

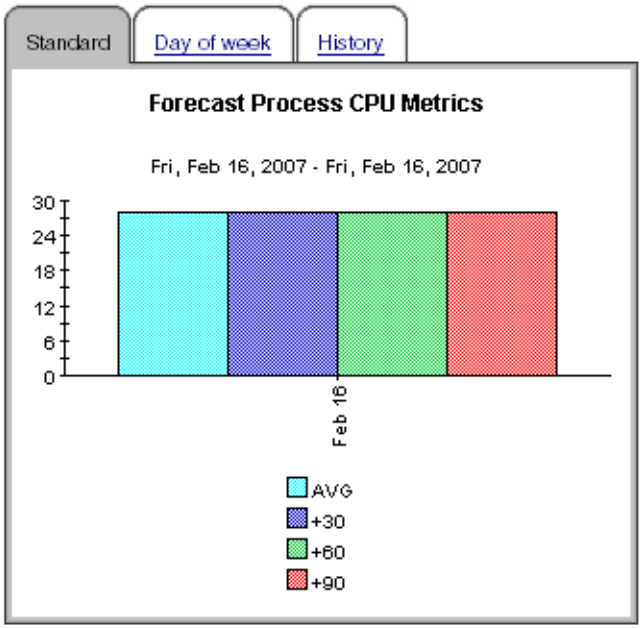
The process forecast report will give various process system level metrics reports of the selected object type associated with a callamanger. It will display CPU,memory,file number,normal and abnormal status number metrics.

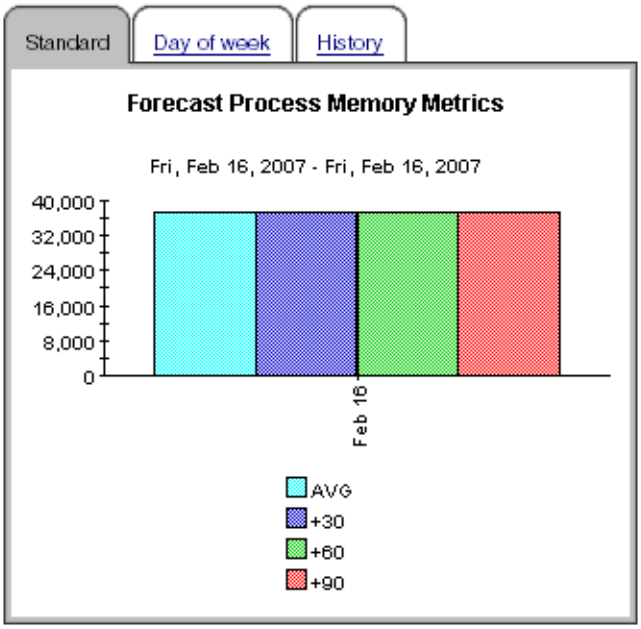
CallManager Selection

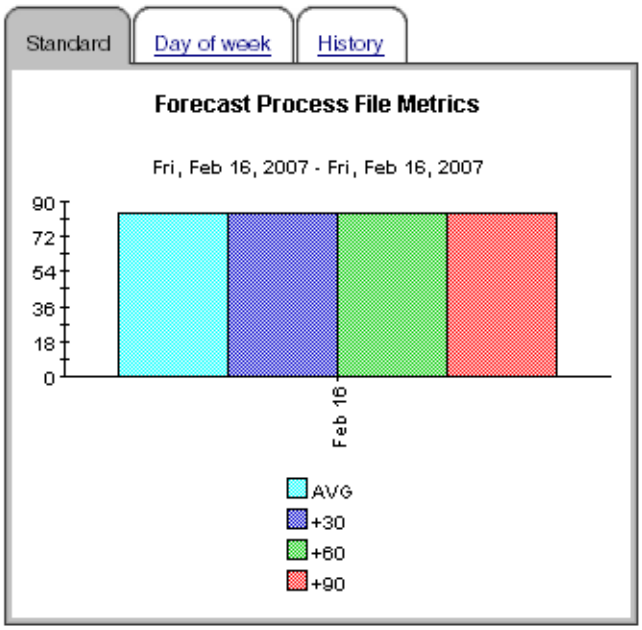
CallManager Name
15.106.79.100
15.106.79.67
15.106.79.46

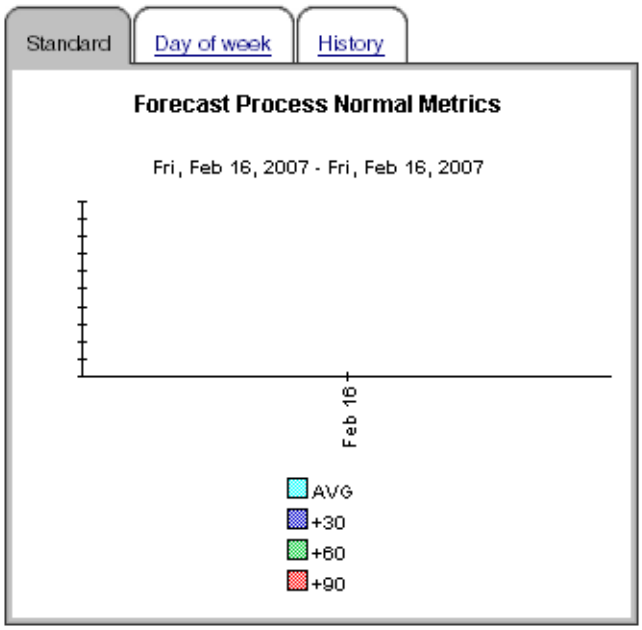
Process selection

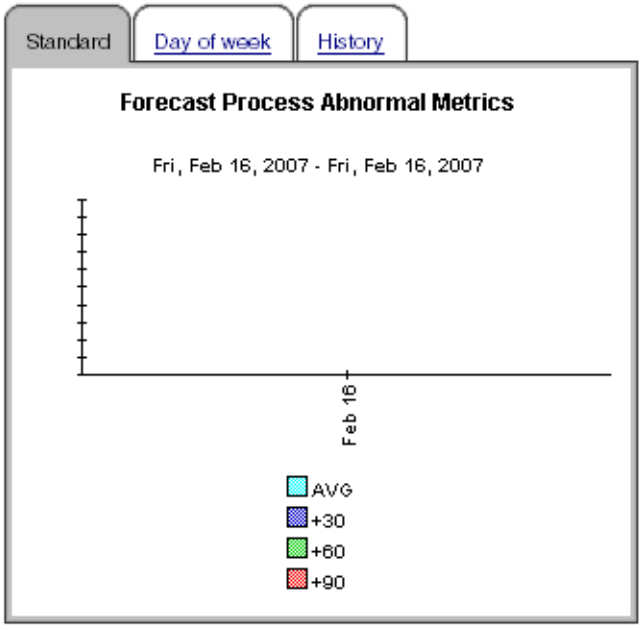
Process Name
/usr/local/platform/bin/CiscoLicenseMgr






Standard
Day of week
History
Forecast Process File Metrics
Fri, Feb 16, 2007 - Fri, Feb 16, 2007
90
72
54
36
18
0
Feb 16
AVG
+30
+60
+90


Standard
Day of week
History
Forecast Process Normal Metrics
Fri, Feb 16, 2007 - Fri, Feb 16, 2007
Feb 16
AVG
+30
+60
+90


Standard
Day of week
History
Forecast Process Abnormal Metrics
Fri, Feb 16, 2007 - Fri, Feb 16, 2007
Feb 16
AVG
+30
+60
+90

10 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 Cisco 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

11 Summary Reports

There are five summary reports that show summary views by phone number, CallManager, or site:

Phone Number MOS Summary - presents MOS metrics aggregated for a given phone number associated with a CallManager. This report can be used to view MOS statistic metrics and identify device performance issues.

Process CallManager Summary - gives various process system level metrics reports of the selected object type associated with a CallManager.

Process Site Summary - gives various process system level metrics reports of the selected object type associated with a site.

System Resource Metrics Summary by CallManager - gives various system resource system level metrics reports of the selected object type associated with a CallManager.

System Resource Metrics Summary by Site - gives various system resource system level metrics summary reports of the selected object type associated with a site.

Cisco IP Telephony Call Details

Process Summary - CallManager

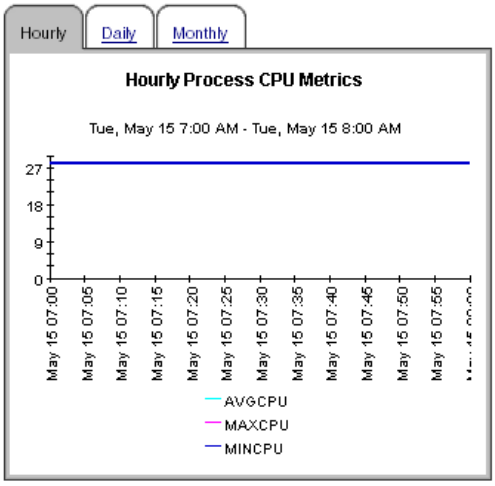
The process summary report will give various process system level metrics reports of the selected object type associated with a CallManager.

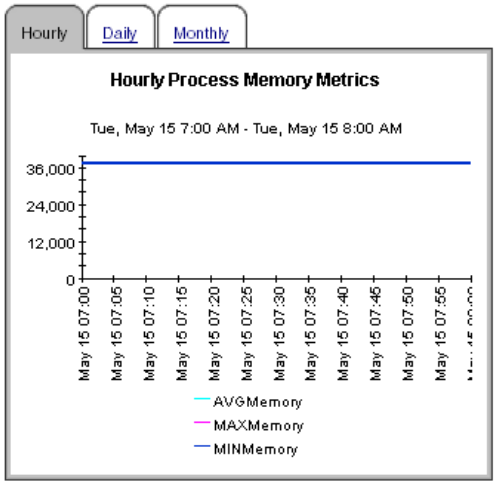
Call Manager Selection

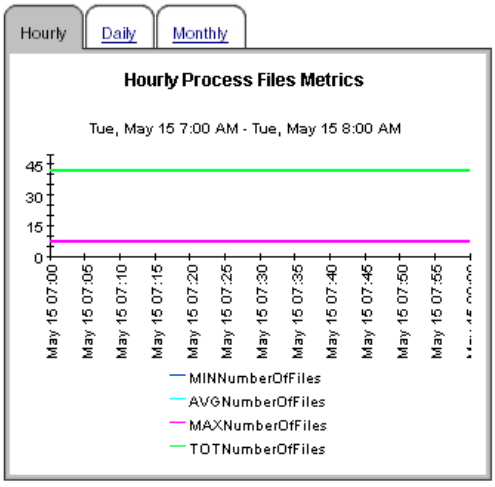
Call Manager Name
15.106.79.100
15.106.79.67
15.106.79.46

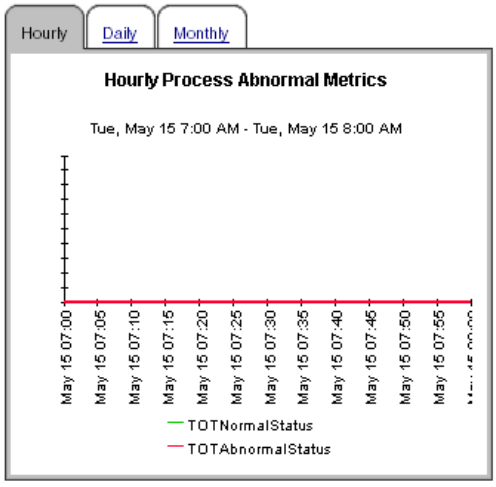
Process selection

Process Name
/usr/local/platform/bin/CiscoLicenseMgr









Cisco IP Telephony Call Details

Process Summary - Location

The process summary report will give various process system level metrics reports of the selected object type associated with a location.

Location Selection

Location Name

Shanghai

Process selection

Process Name

/usr/local/platform/bin/CiscoLicenseMgr

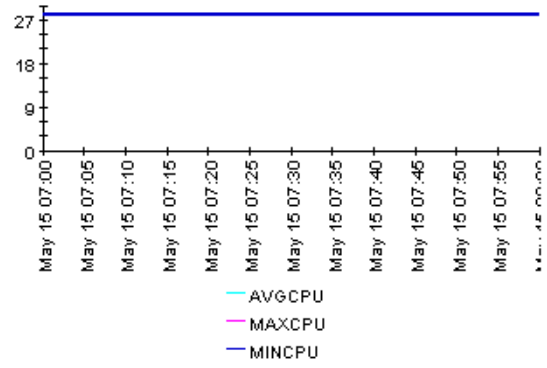
logread.exe

dllhost.exe

Hourly | Daily | Monthly

Hourly Process CPU Metrics

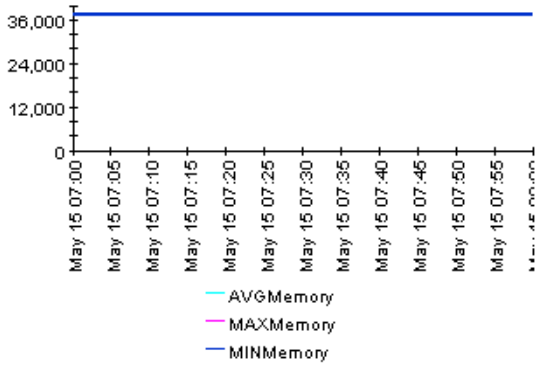
Tue, May 15 7:00 AM - Tue, May 15 8:00 AM



Hourly | Daily | Monthly

Hourly Process Memory Metrics

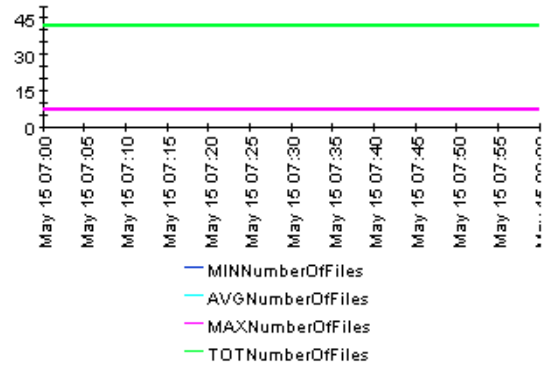
Tue, May 15 7:00 AM - Tue, May 15 8:00 AM



Hourly | Daily | Monthly

Hourly Process Files Metrics

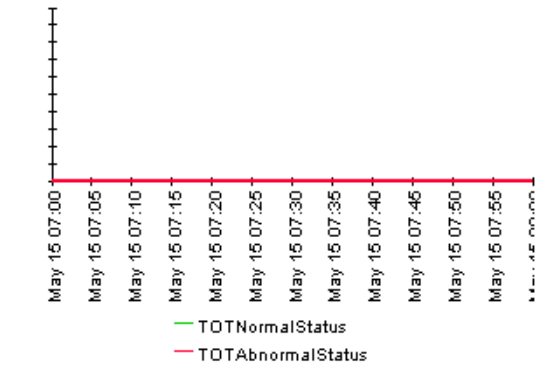
Tue, May 15 7:00 AM - Tue, May 15 8:00 AM



Hourly | Daily | Monthly

Hourly Process Abnormal Metrics

Tue, May 15 7:00 AM - Tue, May 15 8:00 AM



Cisco IP Telephony Call Details

System Resource Metrics Summary - Call Manager

The system resource summary report will give various system resource system level metrics reports of the selected object type associated with a CallManager.

Call Manager Selection

Call Manager Name
ABCD_CM_DBN_CCM2
ABCD_CM_DBN_CCM3
ABCD_CM_DBN_CCM7
CCM3

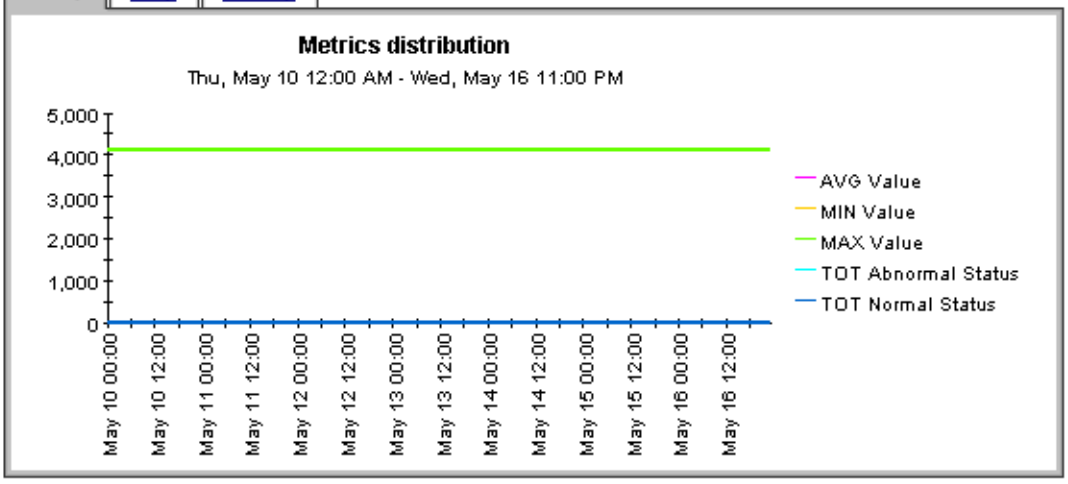
System Resource Object Selection

Object Type	Object Name
Processor	.0.0
LOGICAL_STORAGE_AREA	/
LOGICAL_STORAGE_AREA	/common
PHYSICAL_DEVICE	/dev/cciss/c0d0
PHYSICAL_DEVICE	/dev/hda DV-28E-N
LOGICAL_STORAGE_AREA	/dev/pts
LOGICAL_STORAGE_AREA	/dev/shm

System Resource - Metrics selection

Object Type	Attribute Name
LOGICAL_STORAGE_AREA	StorageAllocFailures
LOGICAL_STORAGE_AREA	StorageAllocUnit
LOGICAL_STORAGE_AREA	StorageSize
LOGICAL_STORAGE_AREA	StorageUsed

Hourly | Daily | Monthly



A Version History

Version	Release Date	Features/Enhancements
1.0	October 2003	• 30 call detail reports, 1 inventory report • Sybase support • OVPI Object Manager support • Cisco CallManager 3.3 support • CiscoCDR_Datapipe 1.0
2.0	August 2004	• Oracle support • Cisco CallManager 4.0 support • CiscoCDR_Datapipe 2.0
2.0	June 2005	*new upgrade packages:* • UPGRADE_Cisco_IP_Telephony_Admin_to_2 • UPGRADE_Cisco_IP_Telephony_CallDetails_to_2 • UPGRADE_Cisco_IPT_CallDetails_Location_to_2 CiscoCDR_Datapipe 2.1 (defect fix)
3.0	April 2007	*new features:* • LIR configuration (copy policies modified) • Integration with the Cisco IPT SPI • CCM 5.0 support (MOS data) *new reports* • Gateway EndPoint Channel Top Ten by CM • Gateway EndPoint Channel History Summary by CM • Gateway EndPoint History Summary by CM • Gateway EndPoint Channel Forecase by CM • Gateway EndPoint Top Ten by CM • Gateway EndPoint Channel History Summary by Location • Gateway EndPoint History Summary by Location • Gateway EndPoint Forecase by CM • PerfMon Forecast • PerfMon Summary

Version	Release Date	Features/Enhancements
3.0	April 2007	• Phone Number MOS Forecast • Phone Number MOS Summary • Phone Number MOS Top100Offender • Process CallManager Forecast • Process CallManager Summary • Process Site Forecast • Process Site Summary • System Resource Site Forecast • System Resource Site Summary • System Resource CallManager Forecast • System Resource CallManager Summary • Voice Application Site History Summary • Voice Application CallManagerHistory Summary *new upgrade packages:* • UPGRADE_IPT_CallDetails_Location_to_21 • UPGRADE_IPT_Admin_to_21 • UPGRADE_IPT_CallDetails_to_3 *revised datapipe:* • Cisco CDR Datapipe 3.0 *defect fix:* • QXCR1000352040

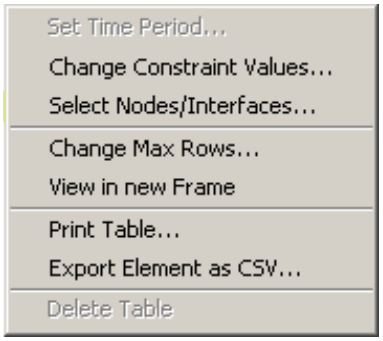
B Editing Tables and Graphs

Any table or graph can be viewed in several ways. Although the default view is usually adequate, you can easily change to a different view. If you are using Report Viewer, right-click the object to open a list of view options. If you are using the Web Access Server, follow these steps to change the default view of a table or graph:

1. Click **Preferences** on the links bar.
2. Expand **Reports** in the navigation frame.
3. Click **Viewing**.
4. Select the **Allow element editing** box.
5. Click **Apply**.
6. Click the Edit icon next to the table or graph.

View Options for Tables

Right-clicking a table, or selecting the Edit Table icon if you are using the Web Access Server, opens a list of table view options.



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.

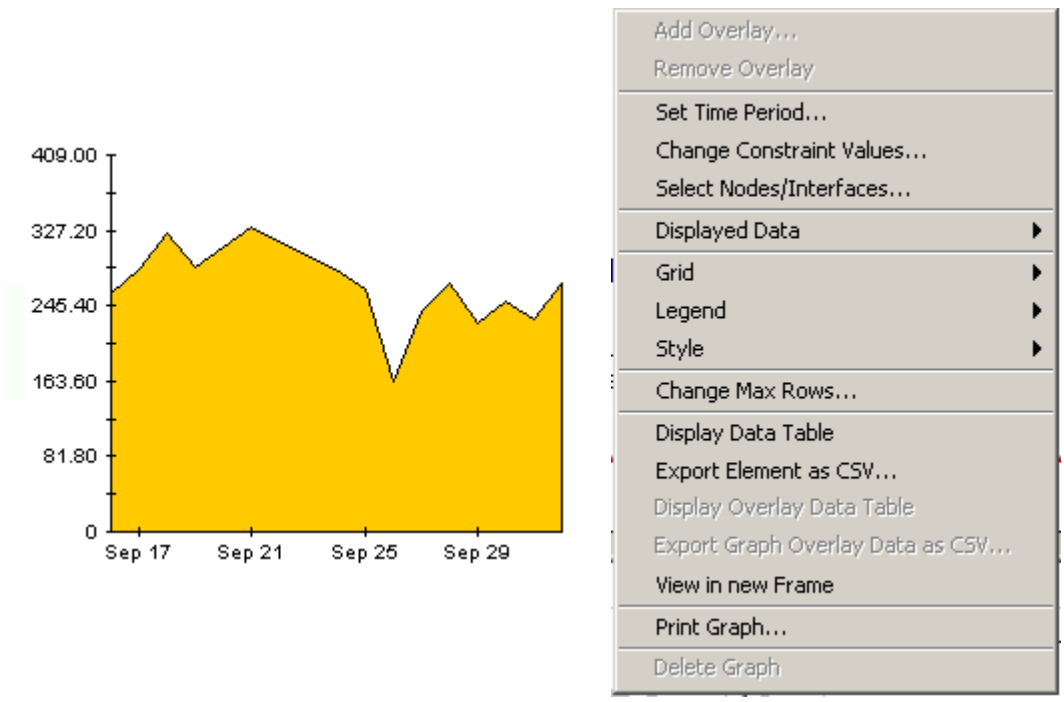
Table Viewer

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

View Options for Graphs

Right-clicking a graph, or clicking the Edit Graph icon if you are using the Web Access Server, opens the following list of view options.

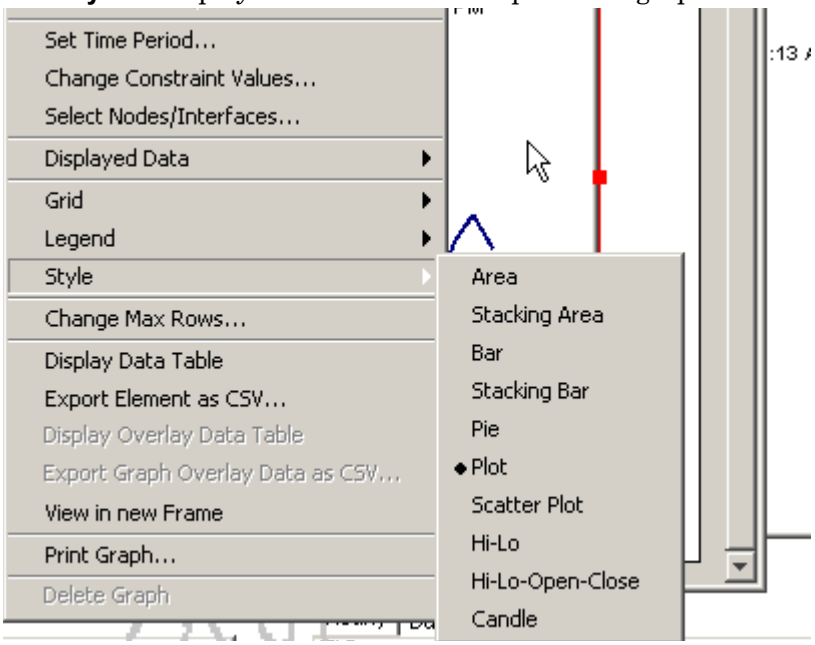


The following table provides details about each option.

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.
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.

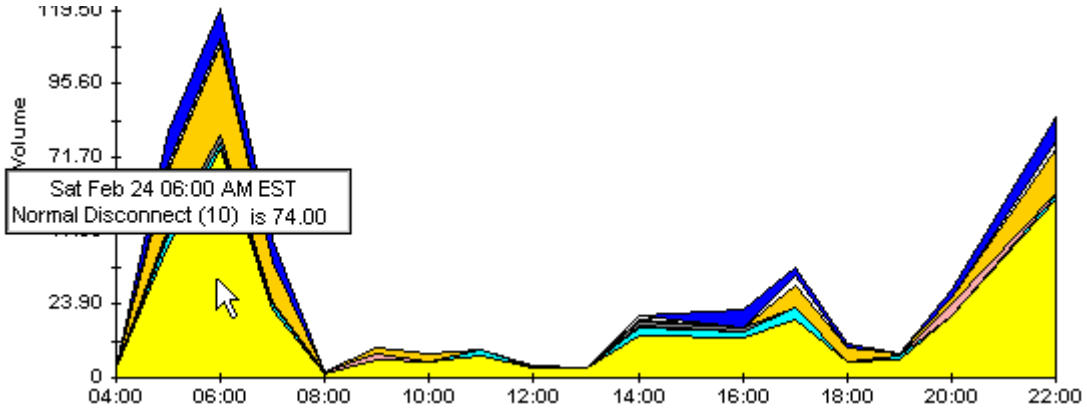
Style Options

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



Style > Area

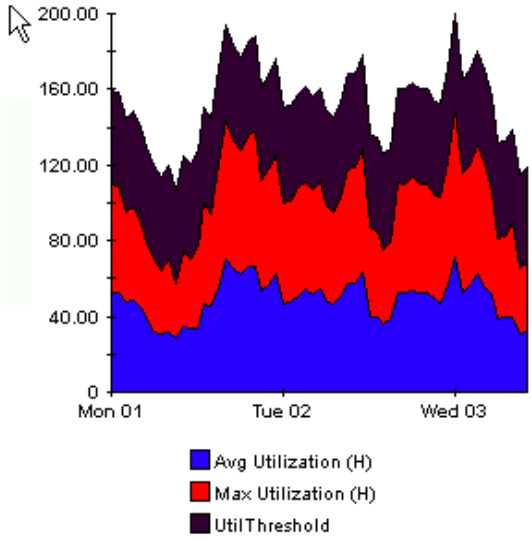
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

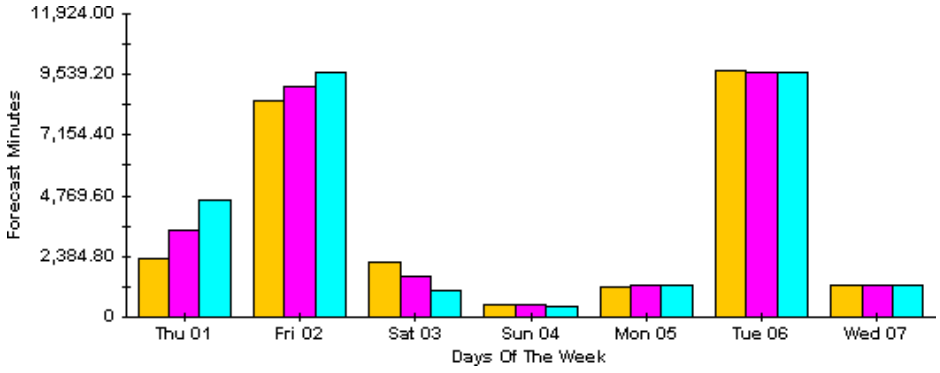
Style > Stacking Area

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



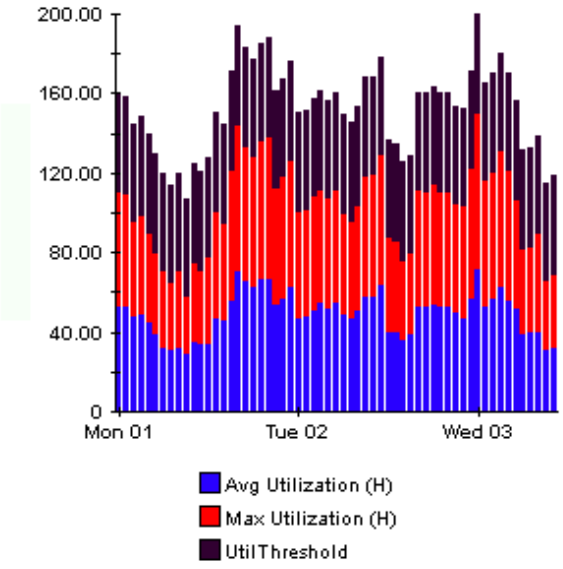
Style > Bar

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.



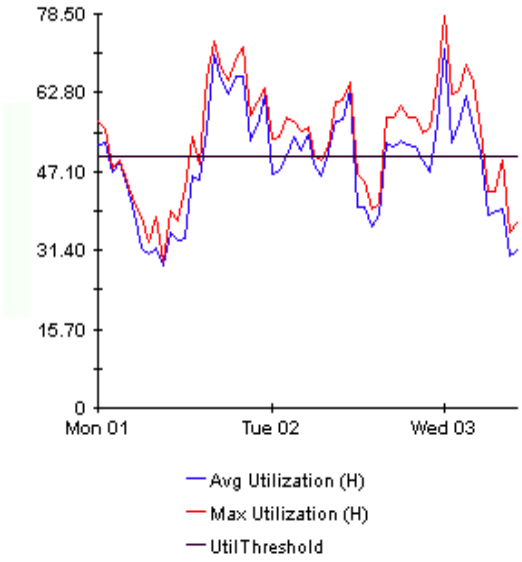
Style > Stacking Bar

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.



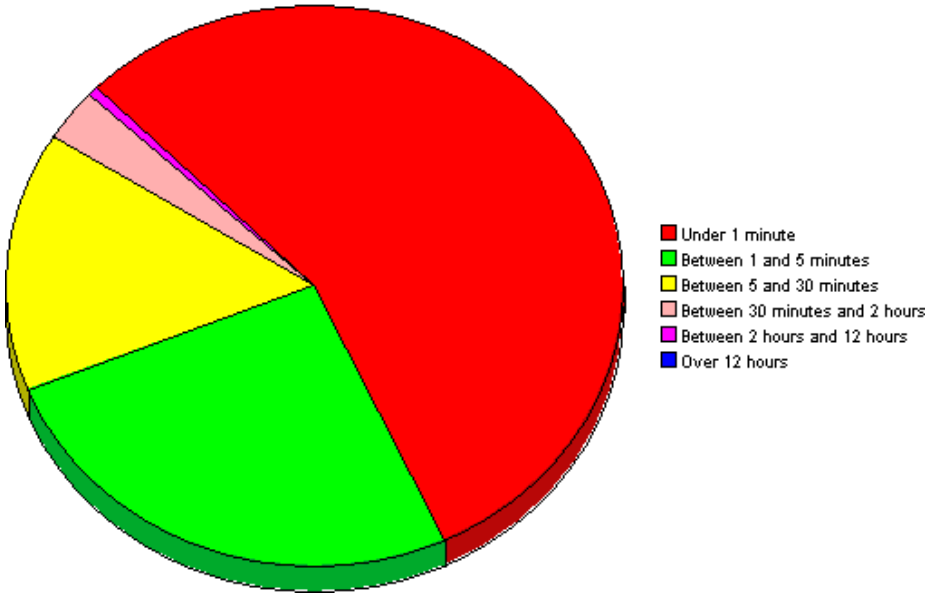
Style > Plot

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

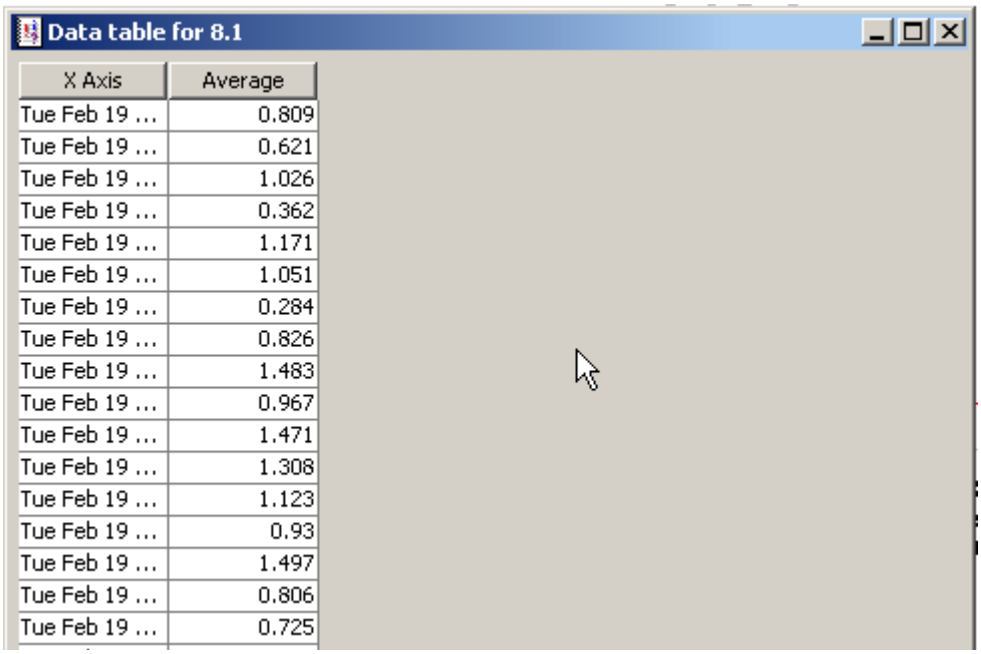
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.



If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

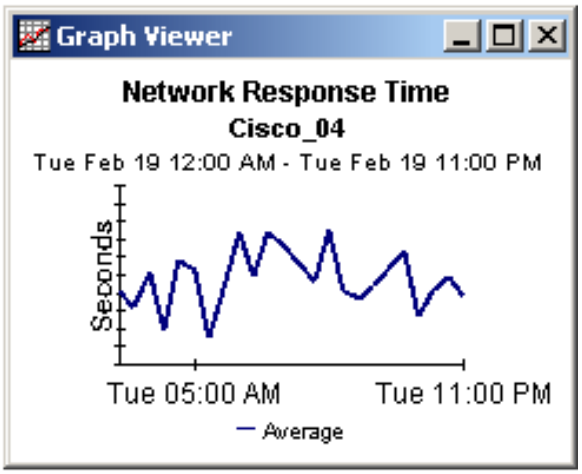
Display Data Table

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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