

HP OpenView Performance Insight

Report Pack for Cisco IP Telephony Statistics User Guide

Software Version: 2.0

Reporting and Network Solutions



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- Downloadable documentation
- Troubleshooting information
- Patches and updates
- Problem reporting
- Training information
- Support program information

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Overview

This chapter covers the following topics

- [OVPI and Cisco IP Telephony Resources](#)
- [Folders and Reports](#)
- [Role of the Cisco GSU Datapipe](#)
- [Editing Parameters, Tables, and Graphs](#)
- [The Cisco IP Telephony Call Detail Report Pack](#)
- [Related Documents](#)

OVPI and Cisco IP Telephony Resources

The Cisco IP Telephony Statistics Report Pack provides a series of reports designed to highlight underutilized or imbalanced IP Telephony resources. This view of performance is produced by HP OpenView Performance Insight (OVPI), the core platform responsible for collecting data, summarizing data by hour, day, and month, and performing numerous calculations. OVPI is the platform for numerous reporting solutions produced by HP OpenView, and the Cisco IP Telephony Statistics Report Pack is one such solution.

The Cisco IP Telephony Statistics Report Pack displays statistics for the following metrics:

- CAS channel usage
- PRI channel usage
- FXO port usage
- FXS port usage
- Total call volume handled by an instance of a CallManager
- Time spent in different states by channels of a given gateway

Folders and Reports

Cisco IP Telephony Statistics Report Pack includes thirty two reports. If you are logging into the Application Server, you see four folders: CallManager Cluster, CallManager, Gateway, and Location. The reports in the folders represent aggregation of data at various levels.

CallManager Cluster Folder

The reports in the CallManager Cluster folder present data aggregated for a group of CallManagers that belong to a particular cluster. These reports allow you to drill down from a given CallManager Cluster to view usage patterns and trends. In addition, these reports allow a user to correlate the usage patterns of the CallManagers in a cluster.

The CallManager Cluster folder contains the following reports:

- Cluster Busy Hour Utilization Correlation
- Cluster CAS Channel Activity Summary
- Cluster Call Activity Summary
- Cluster Call Activity Top Ten
- Cluster FXO Port Activity Summary
- Cluster FXS Port Activity Summary
- Cluster Forecast
- Cluster PRI Channel Activity Summary
- Cluster Peak Utilization Correlation
- Cluster Port Utilization Top Ten

CallManager Folder

The reports in the CallManager folder present data aggregated at the CallManager level. These reports allow you to drill down from a given CallManager cluster to view usage patterns and trends.

The CallManager folder contains the following reports:

- CallManager CAS Channel Activity Summary
- CallManager Call Activity Summary
- CallManager Call Activity Top Ten
- CallManager FXO Port Activity Summary
- CallManager FXS Port Activity Summary
- CallManager Forecast
- CallManager PRI Channel Activity Summary
- CallManager Port Utilization Top Ten

Gateway Folder

The reports in the Gateway folder provide gateway summarization and reporting features, allowing you to drill down from a given gateway to view usage patterns and trends at the following levels: gateway, DS1, and DS0.

The Gateway folder contains the following reports:

- CAS Channel Activity Summary
- DS0 Usage Summary
- DS1 Usage Summary
- FXO Port Activity Summary
- FXS Port Activity Summary
- Gateway Forecast
- PRI Channel Activity Summary

Location Folder

The reports in the Location folder summarize the above data based on the geographic location or a user-defined group.

The Location folder contains the following reports:

- Channel Usage Summary By Location
- DS1 Usage Summary Correlation By Location
- Gateway Forecast By Location
- Gateway Summary By Location
- Location Forecast
- Location Summary
- Location/Gateway Top Ten

Report Types

The following types of reports are available:

Top Ten reports identify the heavily utilized CallManager Clusters, CallManagers, gateways or locations based on yesterday's resource utilization levels.

Summary reports provide historical data for groups of devices organized by CallManager Cluster, CallManagers, gateways, DS1 and other user-defined groups. Use these reports to determine if recent excess traffic was a short-lived anomaly or a longer-standing trend that requires corrective action.

Forecast reports show estimates of future port utilization. These reports highlight items that are trending toward over-utilization and under-utilization. Use these reports to find out which CallManager Clusters, CallManagers, gateways, and locations may be over- or under-utilized in the near future.

Correlation reports display the usage metrics for various devices (or group of devices) on a single graph. Use these reports to determine if traffic is distributed evenly among the members of the group.

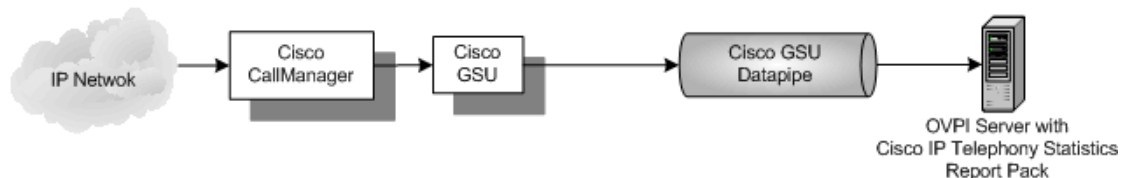
Role of the Cisco GSU Datapipe

The Cisco Gateway Statistics Utility, or GSU, is a drop-in module for CiscoWorks IP Telephony Environment Monitor (ITEM). The GSU collects performance and behavior statistics about Media Gateway Control Protocol (MGCP) gateways controlled by Cisco CallManager.

The Cisco GSU Datapipe functions as the interface between the Cisco GSU and the Cisco IP Telephony Statistics Report Pack. The Cisco GSU Datapipe has two functions:

- Reformat output from the Cisco GSU
- Import the results into OVPI

Reformatting output from the Cisco GSU and importing the results takes place once a day, at night. If desired, the default run time can be changed.



Editing Parameters, Tables, and Graphs

You can easily change the contents of a report and you can easily change the look of tables and graphs. For more information about view options for tables and graphs, see [Chapter 9, Editing Tables and Graphs](#)

To change report contents, edit one or more parameters. When you edit a parameter, you apply a constraint to the report and thereby eliminate the data that does not interest you. For example, if you edit the Gateway parameter, data for all gateways except the gateway you typed in the Gateway field drop from the report. Similarly, if you edit Gateway Location, data for all locations except the location you typed in the Gateway Location field drop from the report.

Constraining the contents of a report by editing parameters is completely optional and you may apply multiple constraints at the same time. The Cisco IP Telephony Statistics Report Pack supports the following parameters:

- CallManager Cluster Name
- CallManager Name
- Gateway Name
- Gateway Location

Most reports support a subset of these parameters. To edit a parameter, click the **Edit Parameters** icon at the bottom right-hand corner of the report. When the Edit Parameters window opens, type the constraint in the appropriate field and then click **Submit**.

The Cisco IP Telephony Call Detail Report Pack

If you install both the Cisco IP Telephony Call Detail and Statistics Report Packs, they are automatically integrated to share property data for objects they have in common. By sharing data, duplication of information is eliminated and administration is simplified.

- ▶ Both report packs operate independently (neither report pack is required by the other to operate).

Related Documents

For information regarding the latest enhancements and any known issues, refer to the following document:

Cisco IP Telephony Statistics Report Pack 2.0 Release Statement

HP OpenView distributes a demo package and release statement with each package. Manuals for report packs and datapipes are posted to the following website:

<http://support.openview.hp.com/support>

Select **Technical Support** → **Product Manuals** to reach the Product Manuals Search page. The user guides for the core product, OVPI, are listed under **Performance Insight**. The user guides for report packs, datapipes, preprocessors, and correlators are listed under **Reporting and Network Solutions**.

Prerequisites

Before you can upgrade or install the Cisco IP Telephony Statistics Report Pack, do the following:

- 1 Review the software requirements.
- 2 Review NNM integration requirements.
- 3 Review the guidelines for distributed systems.
- 4 Complete the prerequisite tasks.

Software Requirements

The Cisco IP Telephony Statistics Report Pack 2.0 requires the following:

- OVPI 5.0 and Common Property Tables 3.0



Although OVPI 5.0 supports both Sybase Adaptive Server and Oracle database management systems, the Cisco IP Telephony Statistics Report Pack only supports the Sybase Adaptive Server database management system.

Integration with NNM

OVPI and the Cisco IP Telephony Statistics Report Pack can be integrated with Network Node Manager (NNM) allowing you to launch threshold-oriented reports from NNM in response to an alarm.

If you want to integrate OVPI and NNM, you must install the following:

- On the NNM server, install the integration package. The integration package synchronizes devices, managed interfaces, and unmanaged interfaces between NNM and OVPI and modifies various menu options on NNM, allowing the NNM operator to perform context-based report launching. Refer to the *NNM/OVPI Integration Module User Guide* for more information.
- On the OVPI system, install the Thresholds Module (version 5.0) and the `Cisco_IP_Telephony_Statistics_Thresholds` sub-package.

The `Cisco_IP_Telephony_Statistics_Thresholds` sub-package contains default thresholds. For a description of these defaults, see [Resource Utilization Thresholds on page 33](#).

Guidelines for Distributed Systems

Follow these guidelines when upgrading/installing the Cisco IP Telephony Statistics Report Pack on a distributed system.

On the central server:

- 1 Upgrade/Install OVPI.
- 2 Disable trendcopy. When you have completed the upgrade or installation, enable trendcopy.
- 3 Complete the prerequisite tasks (see [Prerequisite Tasks on page 14](#)).
- 4 Upgrade/Install the Cisco IP Telephony Statistics Report Pack (including the Thresholds Module and the `Cisco_IP_Telephony_Statistics_Thresholds` sub-package if you are integrating OVPI with NNM) and deploy reports.
- 5 Upgrade/Install the Cisco GSU Datapipe on every server that receives data from the Cisco GSU. If the central server does not process data from preprocessors, do not install the datapipe on the central server.

On every satellite server:

- 1 Upgrade/Install OVPI.
- 2 Complete the prerequisite tasks (see [Prerequisite Tasks on page 14](#)).
- 3 Upgrade/Install the Cisco IP Telephony Statistics Report Pack (you do not need to install the Thresholds Module and the `Cisco_IP_Telephony_Statistics_Thresholds` sub-package).
- 4 Upgrade/Install the Cisco GSU Datapipe on every server that receives data from the Cisco GSU.

Prerequisite Tasks

Complete the following tasks before upgrading or installing the Cisco IP Telephony Statistics Report Pack:

- [Task 1: Extract the Packages](#)
- [Task 2: Upgrade to Common Property Tables 3.0](#)
- [Task 3: Remove the Thresholds Module](#)

Task 1: Extract the Packages

To extract the Cisco IP Telephony Statistics Report Pack and all other OVPI packages from the RNS CD to the Packages directory on your system, do the following:

- 1 Log on to the system. On UNIX[®] systems, log on as root.
- 2 Stop OVPI Timer and wait for processes to terminate.

Windows: Do the following:

- a From the Control Panel, select **Administrative Tools** → **Services**
- b Select OVPI Timer from the list of services.
- c From the Action menu, select **Stop**.

UNIX: As root, do one of the following:

- HP-UX: `sh /sbin/ovpi_timer stop`
- Sun: `sh /etc/init.d/ovpi_timer stop`

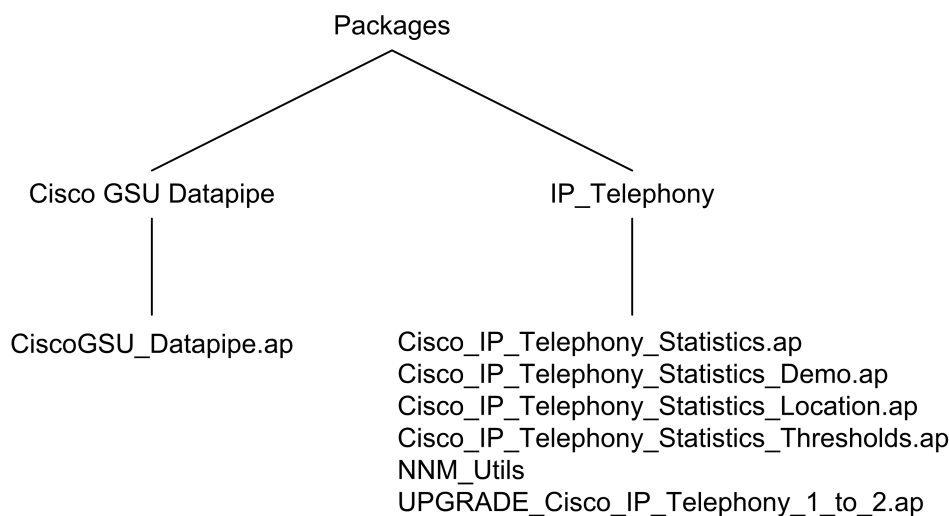
- 3 Insert the RNS CD.

Windows: The Main Menu automatically displays.

UNIX:

- a Mount the CD (if the CD does not mount automatically)
 - b Navigate to the top level directory on the CD
 - c Run `./setup`
- 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.

The following folder structure is created in the Packages directory:



Task 2: Upgrade to Common Property Tables 3.0

The Cisco IP Telephony Statistics Report Pack requires Common Property Tables 3.0. Upgrade to Common Property Tables 3.0 before upgrading the Cisco IP Telephony Statistics Report Pack. For more information about upgrading the Common Property Tables, refer to the *Common Property Tables 3.0 User Guide*.

If this is a new installation of the Cisco IP Telephony Statistics Report Pack, install Common Property Tables 3.0 with the report pack (this task is completed in section [Installing Packages on page 23](#)).

Task 3: Remove the Thresholds Module

If you are integrating OVPI and the Cisco IP Telephony Statistics Report Pack with NNM **and** you are running Thresholds Module 4.0 or earlier, you must upgrade to Thresholds Module 5.0.

If you have not installed the Thresholds Module or if Thresholds Module 5.0 is already installed, you can skip this task.

To upgrade to Thresholds Module 5.0, you must first remove the installed Thresholds Module:

- 1 Log on to the system if you are not logged on. On UNIX systems, log on as root.
- 2 Start Package Manager.
 - a Launch Performance Insight and select **Management Console**.
 - b Select **Tools** → **Package Manager**
The Welcome window opens.
- 3 Click **Next**. The Packages Location window opens.
- 4 Click the **Uninstall** radio button.
- 5 Click **Next**. The Report Undeployment window opens.
- 6 Click **Next**. The Package Selection window opens.
- 7 Click the check box next to the following package:
 - Thresholds
- 8 Click **Next**. The Selection Summary window opens
- 9 Click **Uninstall**. When the uninstall process is complete, a removal complete message appears.
- 10 Click **Done** to return to the main window.

Steps to install Thresholds Module 5.0 are included in the upgrade and installation tasks in the “[Package Upgrade](#)” and “[Package Installation](#)” sections in the next chapter.

For more information about the Thresholds Module, refer to the *Thresholds Module 5.0 User Guide*.

Upgrade, Installation, and Removal

This chapter covers the following topics:

- Package Upgrade
- Package Installation
- Package Removal

Package Upgrade

You must have completed the tasks in [Chapter 2, Prerequisites](#) before you can successfully upgrade the Cisco IP Telephony Statistics Report Pack.

To upgrade version 1.0 to version 2.0, do the following (Cisco IP Telephony Statistics must be upgraded before the datapipe is installed):

- [Task 1: Upgrade the Cisco IP Telephony Statistics Package](#)
- [Task 2: Remove the Cisco GSU Datapipe](#)
- [Task 3: Install the Cisco GSU Datapipe](#)

Task 1: Upgrade the Cisco IP Telephony Statistics Package

Follow these steps to upgrade the Cisco IP Telephony Statistics package:

- 1 Log on to the system if you are not logged on. On UNIX systems log on as root.
- 2 Start Package Manager. The Welcome window opens.
- 3 Click **Next**. The Packages Location window opens.
- 4 Click the **Install** radio button.
- 5 Approve the default installation directory or select a different directory if necessary.
- 6 Click **Next**. The Report Deployment window opens.
- 7 Accept the default for Deploy Reports.
- 8 Enter the user name and password for the OVPI Application Server.
- 9 Click **Next**. The Package Selection window opens.

- 10 Click the check box next to the following package:
 - UPGRADE_Cisco_IP_Telephony_Statistics_1_to_2
 - Thresholds (optional)

 If you are upgrading the Thresholds Module, you should have deleted the older version before installing this newer version of the module. Refer to [Task 3: Remove the Thresholds Module on page 16](#) for more information.

- 11 Click **Next**. The Type Discover window opens.
- 12 Disable the default and click **Next**. The Selection Summary window opens.
- 13 Verify that the contents of this window are correct.
- 14 Click **Install** to begin the installation process. The Installation Progress window opens.
- 15 When installation is complete, the following message appears: Report Package: Completed.
- 16 Click **Done** to return to the main window.

 Once you install the upgrade package, Package Manager displays what you have just installed as *Cisco IP Telephony Statistics 2.0*.

Task 2: Remove the Cisco GSU Datapipe

Follow these steps to remove the old version of the Cisco GSU datapipe:

- 1 Log on to the system if you are not logged on. On UNIX systems, log on as root.
- 2 If OVPI Timer is running, stop OVPI Timer and wait for processes to terminate.

Windows: Do the following:

- a From the Control Panel, select **Administrative Tools** → **Services**
- b Select OVPI Timer from the list of services.
- c From the Action menu, select **Stop**.

UNIX: As root, do one of the following:

- HP-UX: `sh /sbin/ovpi_timer stop`
- Sun: `sh /etc/init.d/ovpi_timer stop`

- 3 Start Package Manager.
 - a Launch Performance Insight and select **Management Console**.
 - b Select **Tools** → **Package Manager**
The Welcome window opens.
- 4 Click **Next**. The Packages Location window opens.
- 5 Click the **Uninstall** radio button.
- 6 Click **Next**. The Report Undeployment window opens.
- 7 Click **Next**. The Package Selection window opens.

- 8 Click the check box next to the following package:
 - CiscoGSU_Datapipe
- 9 Click **Next**. The Selection Summary window opens.
- 10 Click **Uninstall**. The Progress window opens. When the uninstall process is complete, a removal complete window appears.
- 11 Click **Done** to return to the main window.
- 12 Restart OVPI Timer:

Windows: Do the following:

 - a From the Control Panel, select **Administrative Tools** → **Services**
 - b Select OVPI Timer from the list of services.
 - c From the Action menu, select **Start**.

UNIX: As root, do one of the following:

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

Task 3: Install the Cisco GSU Datapipe

Follow these steps to install the latest version of the Cisco GSU datapipe:

- 1 Log on to the system if you are not logged on. On UNIX systems log on as root.
- 2 Start Package Manager. The Welcome window opens.
- 3 Click **Next**. The Packages Location window opens.
- 4 Click the **Install** radio button.
- 5 Approve the default installation directory or select a different directory if necessary.
- 6 Click **Next**. The Report Deployment window opens.
- 7 Disable the default for Deploy Reports and click **Next**. The Package Selection window opens.
- 8 Click the check box next to the following packages:
 - CiscoGSU_Datapipe
- 9 Click **Next**. The Type Discover window opens.
- 10 Disable the default and click **Next**. The Selection Summary window opens.
- 11 Verify that the contents of this window are correct.
- 12 Click **Install** to begin the installation process. The Installation Progress window opens.
- 13 When installation is complete, the following message appears: `Report Package: Completed.`
- 14 Click **Done** to return to the main window.

Package Installation

Complete this section if you are installing the Cisco IP Telephony Statistics Report Pack for the first time.

You must have completed the tasks in [Chapter 2, Prerequisites](#) before you can successfully install the Cisco IP Telephony Statistics Report Pack.

This section covers the following topics:

- [Cisco Prerequisites](#)
- [Installing Packages](#)

Cisco Prerequisites

The Cisco IP Telephony Statistics Report Pack requires the following:

- a functioning CallManager environment
- CiscoWorks and Cisco GSU installed
- Cisco GSU configured

A Functioning CallManager Environment

A functioning CallManager environment consists of CallManager systems, MGCP gateways, and phones.

Installing CiscoWorks and Cisco GSU

CiscoWorks is available on *Cisco CD One, Fifth Edition for Windows*. Please refer to documentation published by Cisco for more information about installing, configuring, and troubleshooting CiscoWorks.

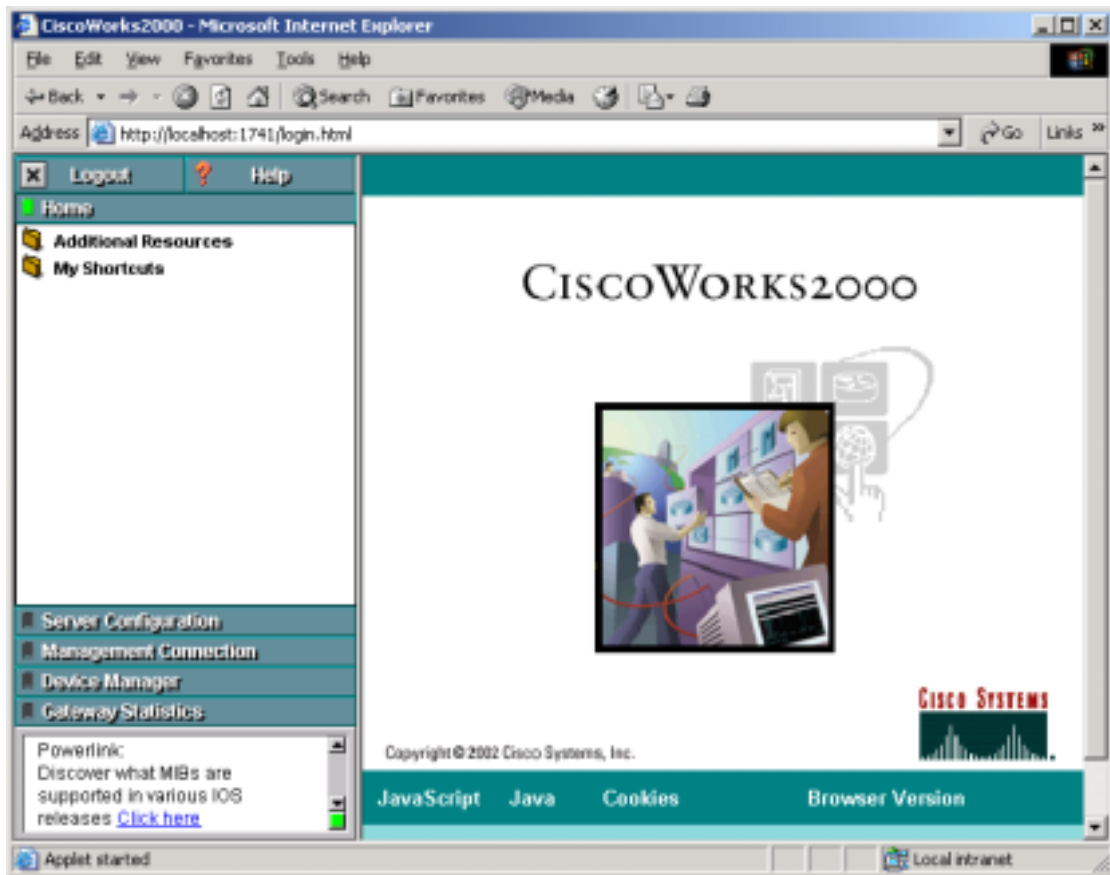
Cisco GSU can be downloaded from the following URL:

`http://www.cisco.com/cgi-bin/tablebuild.pl/cw-gtwystat-util`

You need a Cisco CCO login to download Cisco GSU. If you do not have a login, contact your local Cisco representative.

Download both the Cisco GSU readme and the executable installation file.

Read the readme and run the GSU installation file. The CiscoWorks menu window opens.



Configuring Cisco GSU

To configure Cisco GSU, do the following:

- 1 Create a data collection file.
- 2 Import the data collection file.
- 3 Schedule data collection.

Creating a Data Collection File

Create a data collection file that includes a list of the gateways you want to monitor. Use the following syntax rules:

Field	Description
Device Name	Required. The device name or IP address for the CCM system.
Device Capabilities	Required. The only valid value is "CCM".

Field	Description
Device Family	Optional. Describes the CCM platform.
Software Version	Required. The version number of the CCM software. Valid values are “3.1” and “3.2”.
HTTP Server	Optional. The DNS name or IP address of the HTTP server in the CCM cluster. If this field is not specified, the address or the name of the CCM system is used.

An example entry is:

```
CCMSys1 , CCM , MCS , 3 . 1 ,
```

For more information, refer to the online help.

Importing the Data Collection File

To import the data collection file:

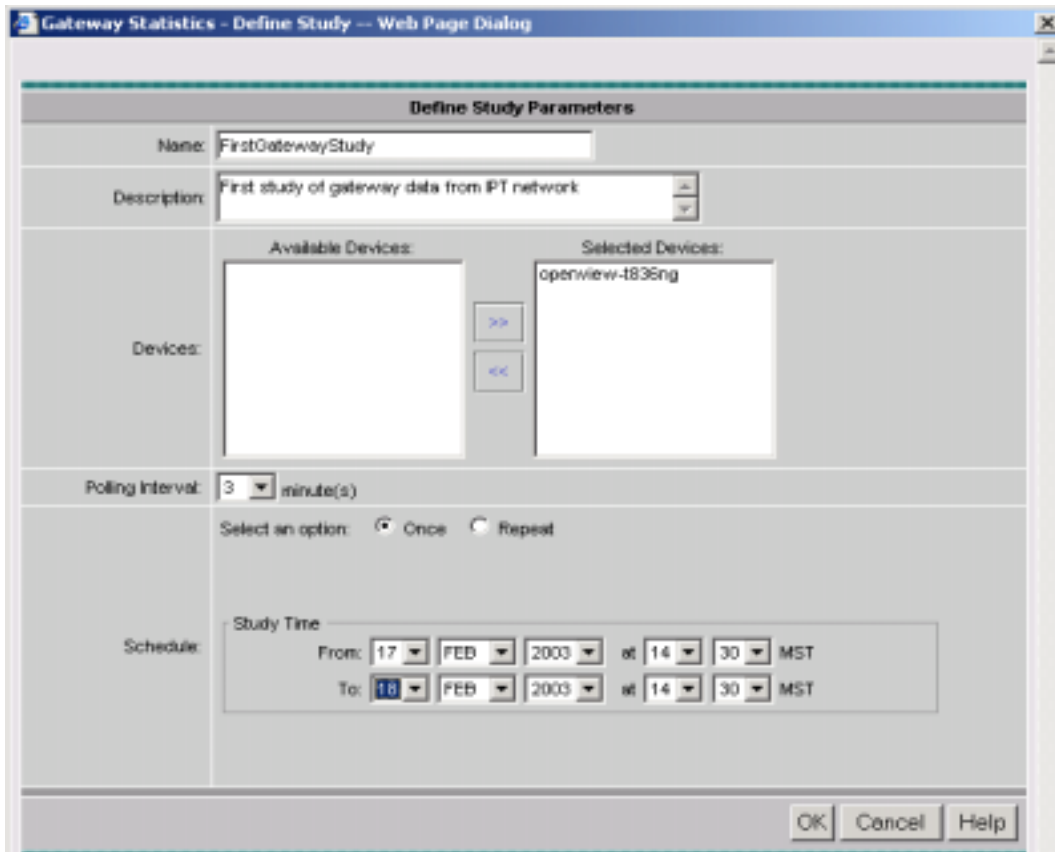
- 1 From the CiscoWorks menu, select **Gateway Statistics**.
- 2 From the Gateway Statistics menu, select **Device Management**.
- 3 From the Device Management menu, select **Device Import**. When you are prompted, enter the path and name of the data collection file you created.
- 4 Close the Device Import window.

Scheduling Data Collection

Schedule data collection by defining study parameters:

- 1 From the CiscoWorks menu, select **Gateway Statistics**.

- From the Gateway Statistics menu, select **Study Management**. The Define Study Parameters window opens.



- Schedule data collection by accepting or modifying the defaults for polling interval and schedule.
- Click **OK**.

Installing Packages

Follow these steps to install the Cisco IP Telephony Statistics Report Pack and Cisco GSU Datapipe:

- Log on to the system if you are not logged on. On UNIX systems, log on as root.
- Launch Performance Insight and select **Management Console**.
- Select **Tools** → **Package Manager**. The Welcome window opens
- Click **Next**. The Packages Location window opens.
- Click the **Install** radio button.
- Approve the default installation directory or select a different directory if necessary. Use the browse feature to select a different directory.
- Click **Next**. The Report Deployment window opens.
- Accept the default for Deploy Reports.
- Enter your user name and password for the OVPI Application Server.

- 10 Click **Next**. The Package Selection window opens.
- 11 Click the check box next to the following packages:
 - Common Property Tables 3.0 (if not installed)
 - Cisco_IP_Telephony_Statistics
 - Cisco_IP_Telephony_Statistics_Location
 - CiscoGSU_Datapipe
 - Cisco_IP_Telephony_Statistics_Thresholds (optional)
 - Thresholds (optional)
 - Cisco_IP_Telephony_Statistics_Demo (optional)
 - ▶ If you are upgrading the Thresholds Module, you should have deleted the older version before installing this newer version of the module. Refer to [Task 3: Remove the Thresholds Module on page 16](#) for more information.
 - ▶ If you want to see samples of fully populated reports, install the Demo Package (Cisco_IP_Telephony_Statistics_Demo.ap). The reports in the Demo Package are interactive and you are free to experiment with various options for viewing tables and graphs. The data in a demo report is static and does not change from day to day.
 - ▶ Installing the Demo Package can add significant time to the installation process.
- 12 Click **Next**. The Type Discover window opens.
- 13 Discovery is not required for Cisco IP Telephony Statistics and CiscoGSU_Datapipe. If no other packages are to be installed at the same time, clear the Discover check box and click **Next**. The Selection Summary window opens.
- 14 Verify that the contents of this window are correct. Click **Install** to begin the installation process. The Installation Progress window opens.

When installation is complete, the following message appears: Report Package:
Completed.
- 15 Click **Done** to return to the main window.
- 16 Restart OVPI Timer.

Windows: Do the following:

 - a From the Control Panel, select **Administrative Tools** → **Services**
 - b Select OVPI Timer from the list of services.
 - c From the Action menu, select **Start**.

UNIX: As root, do one of the following:

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

Package Removal

If you remove a report pack, the associated tables and all the data in those tables are deleted. If you want to preserve the data in those tables, archive the data before removing the report pack.

Follow these steps to uninstall the Cisco IP Telephony Statistics Report Pack and Cisco GSU Datapipe:

- 1 Log on to the system. On UNIX systems, log on as root.
- 2 Stop OVPI timer and wait for processes to stop running.
Windows: Do the following:
 - a From the Control Panel, select **Administrative Tools** → **Services**
 - b Select OVPI Timer from the list of services.
 - c From the Action menu, select **Stop**.
 UNIX: As root, do one of the following:
 - HP-UX: `sh /sbin/ovpi_timer stop`
 - Sun: `sh /etc/init.d/ovpi_timer stop`
- 3 Start Package Manager.
 - a Launch Performance Insight and select **Management Console**.
 - b Select **Tools** → **Package Manager**
The Welcome window opens.
- 4 Click **Next**. The Packages Location window opens.
- 5 Click the **Uninstall** radio button.
- 6 Click **Next**. The Report Undeployment window opens.
- 7 If Cisco IP Telephony Statistics reports were deployed on this server, accept the default for Undeploy Reports; also accept the defaults for application server name and port. Otherwise, continue with step 9.
- 8 Enter the *ovpi* user name and password.
- 9 Click **Next**. The Package Selection window opens.
- 10 Click the check box next to the following packages:
 - *Cisco IP Telephony Statistics*
 - *Cisco IP Telephony Statistics_Location*
 - *CiscoGSU_Datapipe*
 - *Cisco IP Telephony Statistics_Thresholds* (if installed)
 - *Cisco IP Telephony Statistics_Demo* (if installed)
- 11 Click **Next**. The Selection Summary window opens.
- 12 Click **Uninstall**. The Progress window opens. When the uninstall process is complete, a removal complete message appears.
- 13 Click **Done** to return to the main window.

14 Restart OVPI Timer.

Windows: Do the following:

- a** From the Control Panel, select **Administrative Tools** → **Services**
- b** Select OVPI Timer from the list of services.
- c** From the Action menu, select **Start**.

UNIX: As root, do one of the following:

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



Removing the Cisco IP Telephony Statistics Report Pack automatically removes the datapipe even if the datapipe was not selected for removal.

Configuration

This chapter covers the following topics:

- Configuring Distributed Systems
- Specifying the Source Data Directory
- CallManager Clusters
- Resource Utilization Thresholds
- Viewing Reports
- Performance Data in Reports

Configuring Distributed Systems

If you are running the Cisco IP Telephony Statistics Report Pack on a distributed system, you installed the report pack and the datapipe on the central server and on each satellite server. You must now configure the central server and each satellite server so that they work together. This is done by making changes to various process files on the central server and each satellite server.

Configuring the Central Server

Follow these steps to configure the central server:

- 1 If the central server is not going to be a polling device, do not install the Cisco GSU Datapipe on the central server.
- 2 Set up the connection with the satellite server database:
 - a Start the Management Console.
 - b Click the **Systems** icon on the lower left. The **System/Network Administration** pane opens.
 - c Right-click the **Databases** folder. When prompted, select **Add OVPI Database**. The Add Database Wizard opens.
 - d Click **Next**.
 - e Type the hostname and port number for the database you want to add; click **Next**.

- f** Review the Summary. Repeat Steps 4 and 5 for each additional database.
- g** Click **Finish** when you are done.
- 3** Open the following file:
`$DPIPE_HOME/scripts/Cisco_IP_Telephony_Statistics_Daily.pro`
- 4** To configure trendcopy pull commands from the central server for each satellite server, modify the block0 in
`$DPIPE_HOME/scripts/Cisco_IP_Telephony_Statistics_Daily.pro`
as follows:
 - a** Remove “#” before each line in block0, including the begin and end lines.
 - b** Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name.
 - c** Replace *THIS_MACHINE_DATABASE* with the central server name.
- 5** If there is more than one satellite server, create a copy of block0 for each satellite server and repeat step 4 for each block.
- 6** Save and close:
`$DPIPE_HOME/scripts/Cisco_IP_Telephony_Statistics_Daily.pro`
- 7** Make sure that all system clocks are synchronized.

Configuring a Satellite Server

Daily aggregations need to be switched off. Follow these steps:

 This procedure assumes that the satellite server is not performing local reporting and that the `Cisco_IP_Telephony_Statistics_Location` module is not installed.

- 1** Locate the `$DPIPE_HOME/lib/trendtimer.sched` file.
- 2** Comment out the lines referencing *Cisco_IP_Telephony_Statistics_Daily.pro*.
- 3** Make sure that the system clock is synchronized with the central server.

Specifying the Source Data Directory

Before the Cisco GSU Datapipe can begin to collect data, it needs to know where the source data files are located. According to the default, the raw data files from Cisco Gateway Statistics Utility should be located on the server that is running the Cisco GSU Datapipe. If the raw data files are located on a remote server, the Cisco GSU Datapipe can be configured to use FTP to retrieve those files.

The default directory for the location of the raw data files is:

```
$ENV{DPIPE_HOME}/Gateway
```

The Cisco GSU Datapipe includes a preprocessor. The purpose of the preprocessor is to filter the raw data and put the raw data into a format that can be manipulated by the Cisco GSU Datapipe. The preprocessor (a perl script, `CiscoGSU_PP.pl`) produces the following output:

- `CManager.dat`
- `Gateway.dat`
- `Channel.dat`

The preprocessor stores these files in the source data directory. The Cisco GSU Datapipe reads the output from the preprocessor and imports the data into the OVPI database using the `CiscoGSU_Collection.pro` file and the following specialized configuration TEEL files:

- `CiscoGSU_Cmanager.teel`
- `CiscoGSU_gateway.teel`
- `CiscoGSU_channel.teel`

Prior to package installation, the TEEL files are located in:

```
{DPIPE_HOME}/packages/CiscoGSU_Datapipe/CiscoGSU_Datapipe.ap
```

After installation, the TEEL files are located in:

```
{DPIPE_HOME}/packages/CiscoGSU_Datapipe/CiscoGSU_Datapipe.ap
```

```
{DPIPE_HOME}/lib
```

```
{DPIPE_HOME}/scripts
```



If you make changes to the TEEL files after installation, make the change to the TEEL files in both `{DPIPE_HOME}/lib` and `{DPIPE_HOME}/scripts`.

Changing the Source Directory Path

If raw GSU data files are located on a remote system, you must modify a line in a file. Follow these steps:

- 1 Open the `{DPIPE_HOME}/scripts/CiscoGSU_Collection.pro` file
- 2 Locate this line:

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

- 3 Add this to the end of the line:

```
-f 1 -m <Remote_Host_Name> -u <Username> -p <Password> -r  
<Remote_directory>
```

If the data source directory is not the same as the default directory described in the preceding section, make the following changes:

- 1 Navigate to the appropriate directory (see the discussion above regarding which directories are involved).
- 2 Open the `CiscoGSU_Collection.pro` file.
- 3 Locate the following line:

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

- 4 Add this to the end of the line:
`-l <new directory path>`
- 5 Open the following files:
 - CiscoGSU_Cmanager.teel
 - CiscoGSU_gateway.teel
 - CiscoGSU_channel.teel
- 6 Locate the line beginning with `Sourcefile =`
- 7 Change the path, replacing the existing path with the complete path name to the new directory; begin the new path name just after the equals sign (=). The source directory specified would normally be the directory created to receive the output from the Cisco Gateway Statistics Utility.

 Leave the filename as specified in the original SourceFile.

Changing Source Disposition

TEEL files are also used to specify what to do with a data file once the data has been imported. The default behavior for the Cisco GSU Datapipe is to delete the preprocessed files. Because raw data files are archived, there is no need to archive data output by the preprocessor.

CallManager Clusters

Although the Cisco IP Telephony Statistics package operates without importing custom property information, none of the cluster nor location-oriented reports provide meaningful data (for example, all CallManagers would be combined into one group called “Location Unassigned”).

The Cisco IP Telephony Statistics Report Pack allows the user to place the devices (CallManagers and gateways) into logical groups:

- Groups of CallManagers (based on cluster or other criteria)
- Groups of gateways (based on geographic location or user-defined criteria)

The grouping of these objects is enabled by creating a cluster name and assigning CallManagers or gateways to the cluster. For example, if the CallManagers *s1ccm1* and *s1ccm2* are assigned to a cluster named *cluster1* and similarly if the CallManagers *s2ccm1* and *s2ccm2* are assigned a cluster named *cluster2*, the Report Pack aggregates the data belonging to these four CallManagers into two groups (*cluster1* and *cluster2*).

To get cluster information into reports, configure a CallManager cluster. You see clusters in reports immediately after OVPI processes your updated import file.

Configuring a CallManager Cluster

To configure a CallManager cluster, do the following:

- 1 Create a cluster name:
 - a Launch the Management Console (piadmin).
 - b Click **Objects**. The Object/Property Management window opens.
 - c Select **File** → **New** → **Create a new CallManager Cluster**. The Configure A New CallManager Cluster form opens.

The screenshot shows a web browser window titled "/admin/Cisco_IPT_Admin_Forms/CreateCluster.frep". The main heading is "Cisco IP Telephony" with the HP logo and "Configure A New CallManager Cluster". Below the heading is a paragraph of instructions: "This form allows a new CallManager Cluster to be created. Enter the name of the new cluster; the description is optional. Click the OK button to create the cluster and close the window. Click the Apply button to create the cluster and leave the window open to create additional clusters. Click the Cancel button to cancel." Below this is a section titled "Currently Configured Clusters" with a table:

Cluster Name	Description
default	
Cluster1	Cluster1

Below the table is a section titled "Add a New Cluster" with two input fields: "Cluster Name" (containing "default") and "Description" (empty). At the bottom right are three buttons: "OK", "Apply", and "Cancel".

- d Enter a name for the cluster and a brief description.
- e Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

- 2 Assign CallManagers or gateways to the cluster:
 - a From the Object/Property Management window, select **View** → **Change View** → **Location**.
 - b Select a location.
 - c Highlight the Location Unassigned folder
 - d Double-click on **Assign CallManagers to a Cluster** under “Object Specific Tasks.” The Assign CallManagers to a Cluster form opens.

Cisco IP Telephony

Assign CallManagers to Clusters

This form allows to assign a CallManager to a cluster. Select a CallManager from the CallManager selection list and then choose the cluster from the drop down list below. Click the OK button to update the cluster information and close the window. Click the Apply button to update the cluster assignment and leave the window open to assign other CallManagers to clusters. Click the Cancel button to cancel.

CallManager Name	Cluster Name
Cluster1_CCM1	Cluster1

Cluster Name:

OK Apply Cancel

- e Highlight a CallManager name in the CallManager List and select the cluster name to which it is assigned.
- f Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Resource Utilization Thresholds

The Cisco_IP_Telephony_Statistics_Thresholds sub-package imposes nine default thresholds for resource utilization monitoring. When performance reaches one of these default thresholds, the Thresholds sub-package sends a trap to the Network Node Manager (NNM). The following table describes the condition behind each threshold and the severity of the alarm sent in response to the condition.

Threshold	Default Value	Condition	Severity
PRIOverUtilization	95%	95% of PRI channels or more were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
PRIOUnderUtilization	5%	5% of PRI channels or less were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
CASOverUtilization	95%	95% of CAS channels or more were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
CASUnderUtilization	5%	5% of CAS channels or less were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
FXOOverUtilization	95%	95% of FXO ports or more were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
FXOUnderUtilization	5%	5% of FXO ports or less were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
FXSOverUtilization	95%	95% of FXS ports or more were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
FXSUnderUtilization	5%	5% of FXS ports or less were occupied for each monitored device (CallManager or Gateway) during the previous day.	Warning
DeadChan	N/A	A channel was in OutofService status all the time during the previous day.	Warning

Modifying Gateway and CallManager Thresholds

Threshold values can be modified, using forms, for a gateway or CallManager. To modify a threshold value, do the following:

- 1 Launch the Management Console (piadmin).
- 2 Click **Objects**. The Object/Property Management window opens.
- 3 Select **View** → **Change View** → **Cluster**.
- 4 Select a gateway or cluster.

- Under “Object Specific Tasks,” double-click **Configure Gateway Thresholds** or **Configure CallManager Thresholds**.

The following is an example of the Configure Gateway Thresholds form. The form for Configure CallManager Thresholds looks similar to this form.

The screenshot shows a web browser window with the URL `/admin/Cisco_IPT_Admin_Forms/GatewayThreshConfig.frep`. The page title is "Cisco IP Telephony" and the main heading is "Configure Gateway Thresholds". The HP logo is in the top right corner. Below the heading, there is a paragraph of instructions: "This form allows to configure the threshold values for the gateways. Enter/modify the threshold 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." The form contains eight input fields, each with a label and a value: "PRI Channel Max. Util" (95.00), "PRI Channel Min. Util" (5.00), "CAS Channel Max. Util" (95.00), "CAS Channel Min. Util" (5.00), "FXO Port Max. Util" (95.00), "FXO Port Min. Util" (5.00), "FXS Port Max. Util" (95.00), and "FXS Port Min. Util" (5.00). At the bottom right, there are three buttons: "OK", "Apply", and "Cancel".

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

Modifying Channel/Port Thresholds

The channel/port threshold value (DeadChan) can be modified:

- Start Report Builder.

On a Windows system, select **Programs** → **HP OpenView** → **Performance Insight** → **Builder**.

On a UNIX system, cd to `$OVPI_HOME/bin` and type `./builder`.

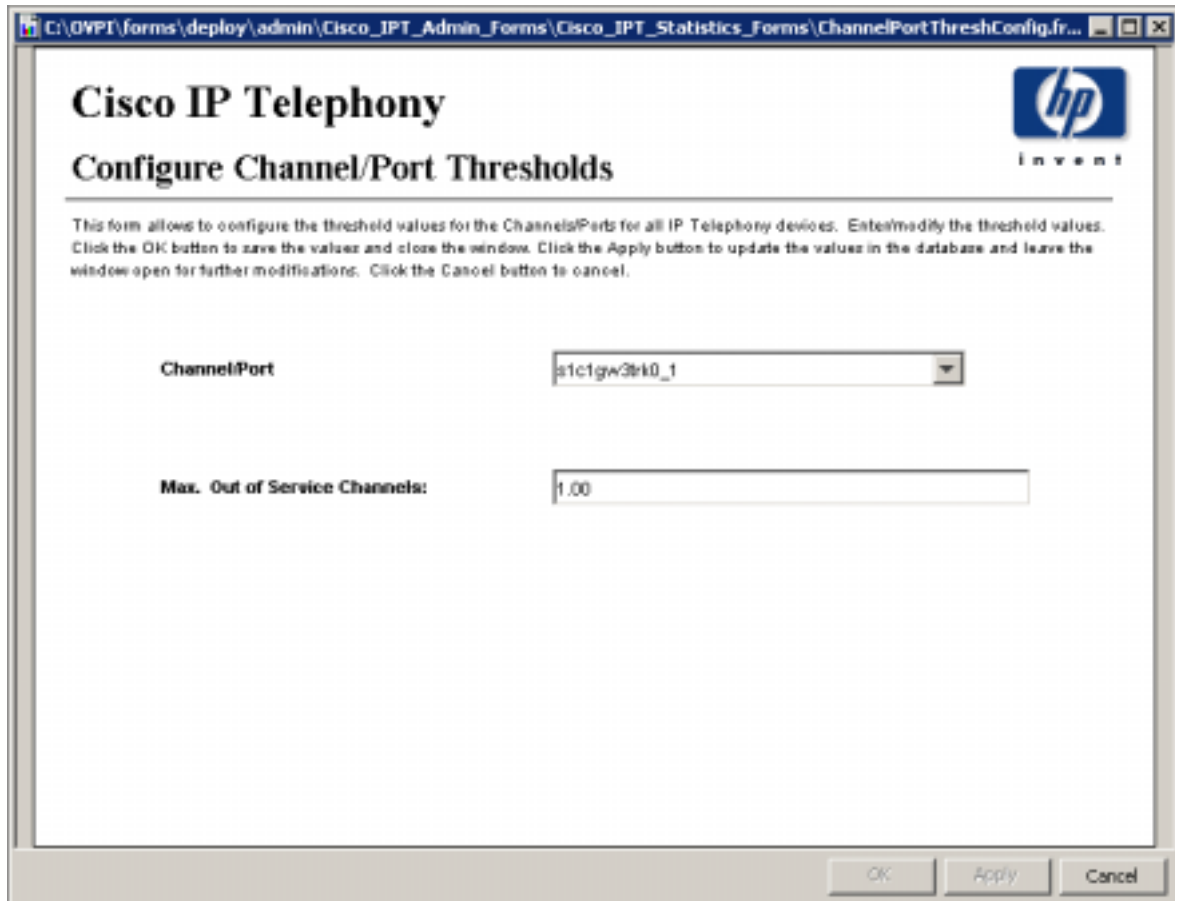
For more information about Report Builder, refer to the *Guide to Building and Viewing Reports* manual.

- From Report Builder, select **File** → **Open**.

3 Open the following file:

%OVPI_HOME%\forms\deploy\admin\Cisco_IPT_Admin_Forms\
Cisco_IPT_Statistics_Forms\ChannelPortThreshConfig.frep

The Configure Channel/Port Thresholds form opens.



The screenshot shows a web browser window displaying the "Cisco IP Telephony" interface. The title bar indicates the file path: C:\OVPI\forms\deploy\admin\Cisco_IPT_Admin_Forms\Cisco_IPT_Statistics_Forms\ChannelPortThreshConfig.fr... The main content area features the HP logo and the text "invent". Below the logo, the heading "Configure Channel/Port Thresholds" is displayed. A descriptive paragraph states: "This form allows to configure the threshold values for the Channels/Ports for all IP Telephony devices. Enter/modify the threshold 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." The form contains two input fields: "ChannelPort" with a dropdown menu showing "s1c1gw3bt0_1" and "Max. Out of Service Channels:" with a text input field containing "1.00". At the bottom right, there are three buttons: "OK", "Apply", and "Cancel".

4 Modify the threshold.

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

Viewing Reports

Before reports can be viewed using a web browser, they must be deployed. If you enabled the Deploy Reports option during the preceding installation steps on the central server, the Cisco IP Telephony Statistics reports are deployed and available for remote viewing.

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

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

Performance Data in Reports

Some reports populate with data sooner than others. Most of the reports need at least one full day's worth of data before any results are viewable.

As you would expect, until data has been collected for several days, the daily charts contain very little data, and until data has been collected for several months, the monthly charts contain very little data.

Top Ten Reports

The Cisco IP Telephony Statistics Report Pack contains five Top Ten reports: two cluster reports, two CallManager reports, and one location report. The cluster reports aggregate statistics for groups of devices belonging to each cluster. The location report aggregates statistics for groups of devices at various locations.

All five versions of the Top Ten reports display average utilization for yesterday and forecasts for future performance based on busy hour utilization over the baseline. Since these reports are driven by hourly utilization levels that were recorded yesterday, you can expect the contents of these reports to change from day to day.

Use this report to gain a good grasp of which CallManagers, CallManager Clusters, or locations are ranking worst in terms of resource utilization.

The Cluster Call Activity Top Ten does the following:

- Sorts CallManager Clusters by highest average active calls for yesterday
- Sorts CallManager Clusters by rate of increase in active calls

The Cluster Port Utilization Top Ten does the following:

- Sorts CallManager Clusters by highest port utilization rate for yesterday
- Sorts CallManager Clusters by highest rate of increase in port utilization

The CallManager Call Activity Top Ten does the following:

- Sorts CallManagers by highest average active calls for yesterday
- Sorts CallManagers by rate of increase in active calls

The CallManager Port Utilization Top Ten does the following:

- Sorts CallManagers by highest port utilization rate for yesterday
- Sorts CallManagers by highest rate of increase in port utilization

The Location/Gateway Top Ten does the following:

- Sorts locations by highest port utilization for yesterday
- Sorts locations by rate of increase in port utilization
- Sorts gateways by highest port utilization for yesterday
- Sorts gateways by highest rate of increase in port utilization

The rate of increase is calculated by taking the 30-day forecast and dividing that value by the baseline average. The baseline average is derived from averaging all the busy hours reported over the baseline period.

An example Top Ten report, the CallManager Call Activity Top Ten report, is shown.

Most Active Calls			Active Calls Increase		
Mon Apr 21 12:00 AM			Mon Apr 21 12:00 AM		
Call Manager	Average Active Calls		Call Manager	Baseline	+ 30 / 60 / 90 Days
1	s2com2	28	1	s2com1	12 / 12 / 12
2	s1com2	12	2	s1com1	12 / 12 / 12
3	s1com1	12	3	s1com2	12 / 12 / 12
4	s2com1	12	4	s2com2	27 / 27 / 28

The **Most Active Calls** table ranks CallManagers by highest average call volume. Use this table to find CallManagers handling the highest number of calls.

The **Active Calls Increase** table ranks CallManagers based on the F90 forecast value. Use this table to find out which CallManagers will be experiencing the highest call volume three months from now.

Summary Reports

Summary Reports add depth to Top Ten Reports. They focus on a particular element type—by *aggregating* data according to the element type—and plot a variety of metrics over time. (See [Chapter 1, Overview](#) for a definition of each metric.) Use the Summary Reports to find out whether performance appearing in a Top Ten report reflects a temporary condition or an on-going trend.

Two examples are shown: Cluster PRI Channel Activity Summary and DS1 Usage Summary. All Summary Reports provide access to hourly, daily, and monthly data. Use the hourly graph to identify anomalies and time of day usage patterns. The daily and monthly graphs provide evidence of trends and views of normal activity.

Cisco IP Telephony Statistics



Cluster PRI Channel Activity Summary

The Cluster PRI Channel Activity Summary Report presents PRI Channel Activity metrics aggregated for all CallManager(s) for a given cluster. This report can be used to view historical trunk utilization metrics and to identify call distribution patterns across the CallManager clusters.

CallManager Cluster Selection Table

Mon Apr 21 2003

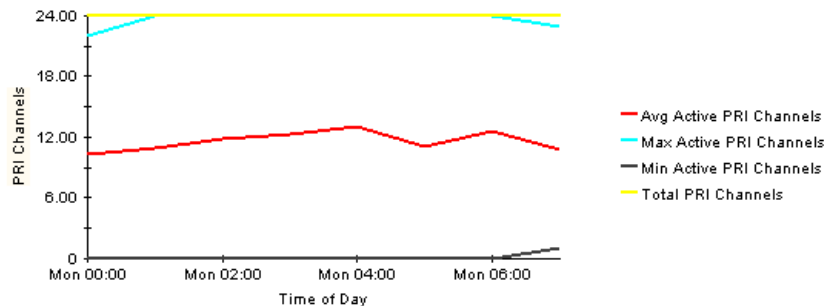
CallManager Cluster Name	Busy Hour Calls	Total PRI Channels	Busy Hour Active PRI Channels	Total CAS Channels	Busy Hour Active CAS	Total FXO Ports	Busy Hour Active FXO	Total FXS Ports	Busy Hour Active FXS
West Coast Cluster1	24	0	0	0	0	12	7	36	21
East Coast Cluster1	38	24	14	24	14	6	4	36	19

Hourly | Daily | Monthly

PRI Channel Activity

East Coast Cluster1

Mon Apr 21 12:00 AM - Mon Apr 21 07:00 AM



The **CallManager Cluster Selection** table sorts clusters by busy hour call activity, from highest to lowest. This table reports events for yesterday. Selecting a cluster updates the PRI Channel Activity graph to reflect the activity for the selected cluster.

In the **PRI Channel Activity** graph, if the average or busy hour levels for PRI channel activity in the hourly graph (see the full report) seem unusual, compare the hourly graph to the daily graph. The daily graph gives you a feel for what has been normal for the last few weeks. If the hourly graph diverges significantly from the daily graph, yesterday's levels were not typical. The daily tab includes busy hour. If conditions are normal, busy hour and average utilization will not converge.

Cisco IP Telephony Statistics



DS1 Usage Summary

The DS1 Usage Summary Report presents the usage metrics for a given DS1. This can be used to view the channel utilization at the DS1 level and also to identify any dramatic changes in the usage patterns of a given DS1 (for example a sudden increase in "out of service" state).

CallManager Cluster Selection Table

Mon Apr 21 2003

CallManager Cluster Name	Busy Hour Calls	Total PRI Channels	Busy Hour Active PRI Channels	Total CAS Channels	Busy Hour Active CAS Channels	Total FXO Ports	Busy Hour Active FXO Ports	Total FXS Ports	Busy Hour Active FXS Ports
West Coast Cluster1	24	0	0	0	0	12	7	36	21
East Coast Cluster1	38	24	14	24	14	6	4	36	19

CallManager Selection Table

West Coast Cluster1

Mon Apr 21 2003

CallManager Name	Avg Active Calls	Total PRI Channels	Avg. Active PRI Channels	Total CAS Channels	Avg. Active CAS Channels	Total FXO Ports	Avg. Active FXO Ports	Total FXS Ports	Avg Active FXS Ports
s1ccm1	11	0	0	0	0	6	3	18	9
s1ccm2	11	0	0	0	0	6	3	18	9

Gateway Selection Table

s1ccm1

Mon Apr 21 2003

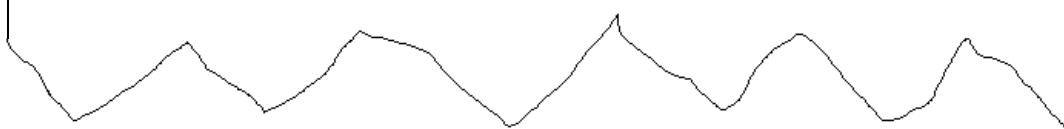
Gateway Name	Total PRI Channels	Avg. Active PRI Channels	Total CAS Channels	Avg. Active CAS Channels	Total FXO Ports	Avg. Active FXO Ports	Total FXS Ports	Avg Active FXS Ports
s1c1gw1	24	12	0	0	0	0	10	5
s1c1gw2	31	16	0	0	0	0	8	4

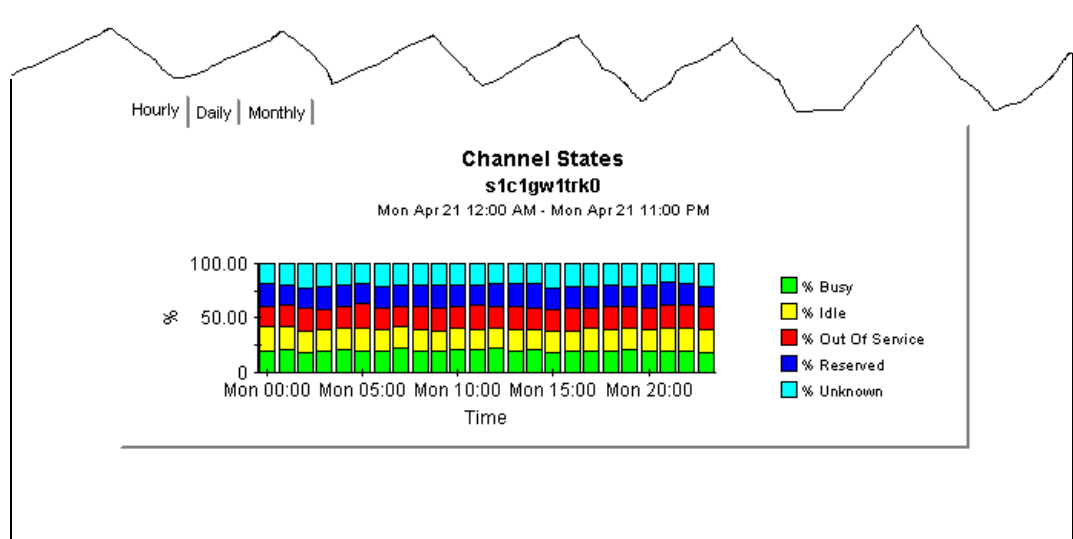
DS1 Selection Table

s1c1gw1

Mon Apr 21 2003

DS1 Name	% Busy State	% Idle State	% Out Of Service State	% Reserved State	% Unknown State
s1c1gw1tk0	20	20	20	20	20
s1c1gw1tk1	20	20	20	20	20





The **CallManager Cluster Selection** table sorts clusters by busy hour calls, from highest to lowest. Use this table to see which clusters require further investigation and which type or types of metrics need more attention. This table reports events for yesterday. Select a cluster to view call activity by CallManager in the CallManager Selection table.

The **CallManager Selection** table sorts CallManagers by call activity for the selected cluster (selected in the CallManager Cluster Selection table), from highest to lowest. This table reports events for yesterday.

The **Gateway Selection** the **DS1 Selection** tables present data aggregated at various levels in the hierarchy. They are similar to the CallManager Cluster and CallManager selection tables. In this example, the DS1 selection table is the lowest level in the hierarchy. Selecting a DS1 updates the Channel States graph with metrics for that DS1.

The **Channel States** graph displays the percentage of time spent in various states by the channels that belong to the selected DS1. Data is displayed at hourly, daily and monthly levels depending upon which tab is selected. If the hourly graph diverges significantly from the daily graph, yesterday's levels were not typical.

Forecast Reports

The following forecast reports alert you to port over-utilization and port under-utilization:

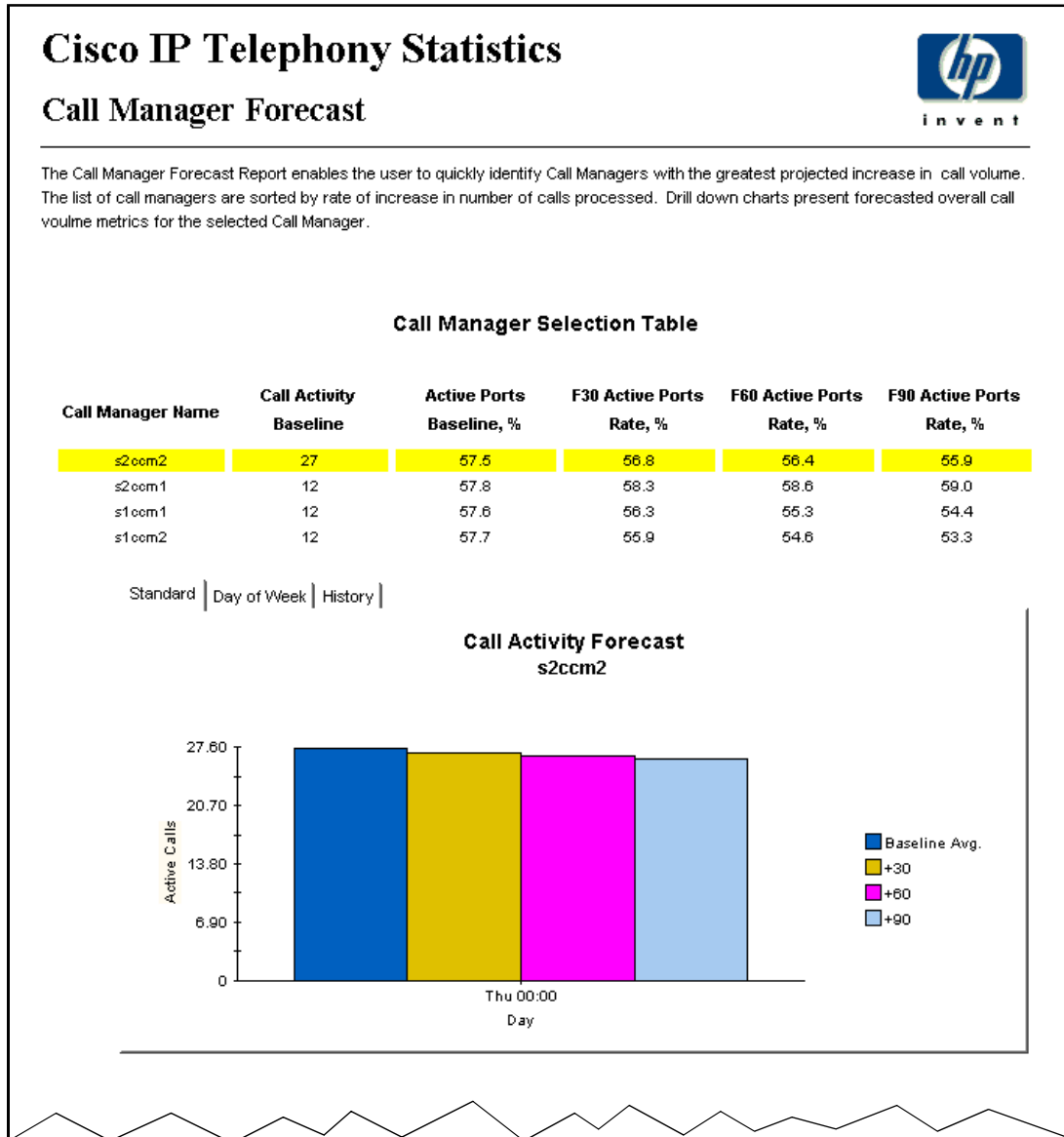
- CallManager Cluster Forecast
- CallManager Forecast
- Gateway Forecast by CallManager
- Location Forecast
- Gateway Forecast by Location

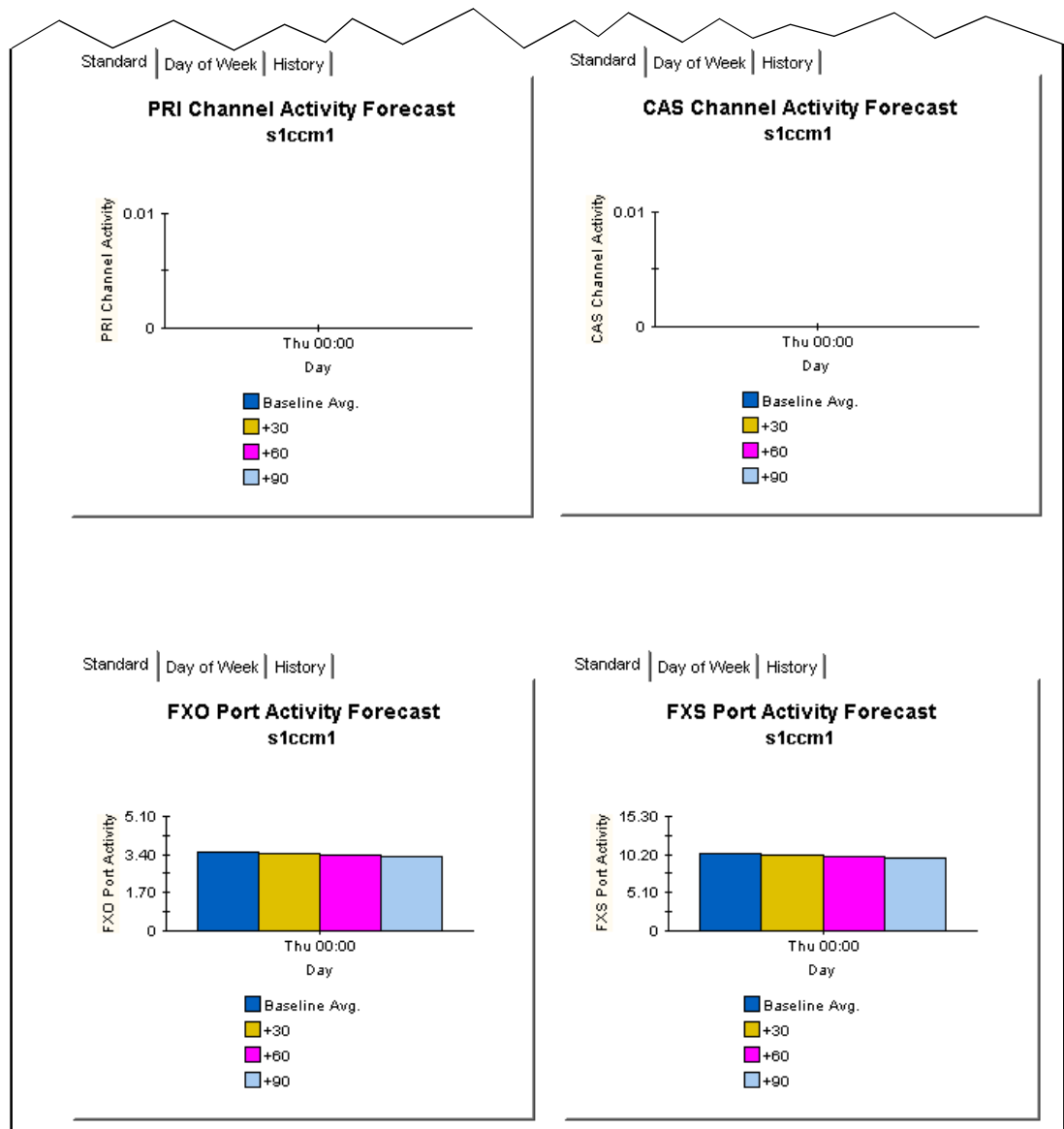
In the forecast reports, the standard tab compares the baseline to F30, F60, and F90 values. The Day of Week tab aggregates data by day, allowing you to see whether overall growth is generally the same throughout the week or whether there is a significant difference on a particular day. In addition, this view factors “downdays” out of the forecast equation, allowing you to see what values are like when they have not been skewed by abnormal levels of utilization on certain days.

The graphs in each report vary from report to report. See the following table for details.

	CallManager Cluster	CallManager	Gateway Forecast by CallManager	Location	Gateway Forecast by Location
Call Activity	X	X			
PRI Channel Activity	X	X	X	X	X
CAS Channel Activity	X	X	X	X	X
FXO Port Activity	X	X	X	X	X
FXS Port Activity	X	X	X	X	X
Call Activity	X	X			

An example report, the CallManager Forecast report, is shown.





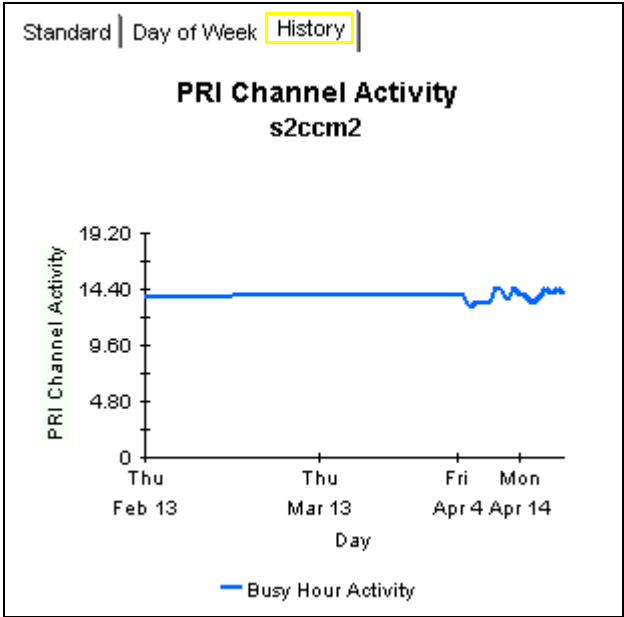
Use the **Call Activity Forecast** bar chart on the standard tab to find out where utilization is headed. This particular graph indicates that utilization is expected to remain the same for the next 90 days.

Standard | Day of Week | History

PRI Channel Activity - Day of Week Forecast s2ccm2

Day of Week	Baseline Avg.	+30	+60	+90
Thu	14	14	14	15
Fri	14	18	18	20
Sat	14	14	15	15
Sun	14	19	23	26
Mon	14	15	17	18
Tue	14	16	19	21
Wed	13	12	12	11

Selecting the **Day of Week** tab displays a table with baseline busy hour average utilization percentages and future estimates on a per day-of-week basis. This particular graph indicates that PRI Channel Activity is headed up on certain days of the week (Sundays) and down on other days of the week (Wednesdays).



Selecting the **History** tab displays the busy hour metrics on which the forecast values are calculated.

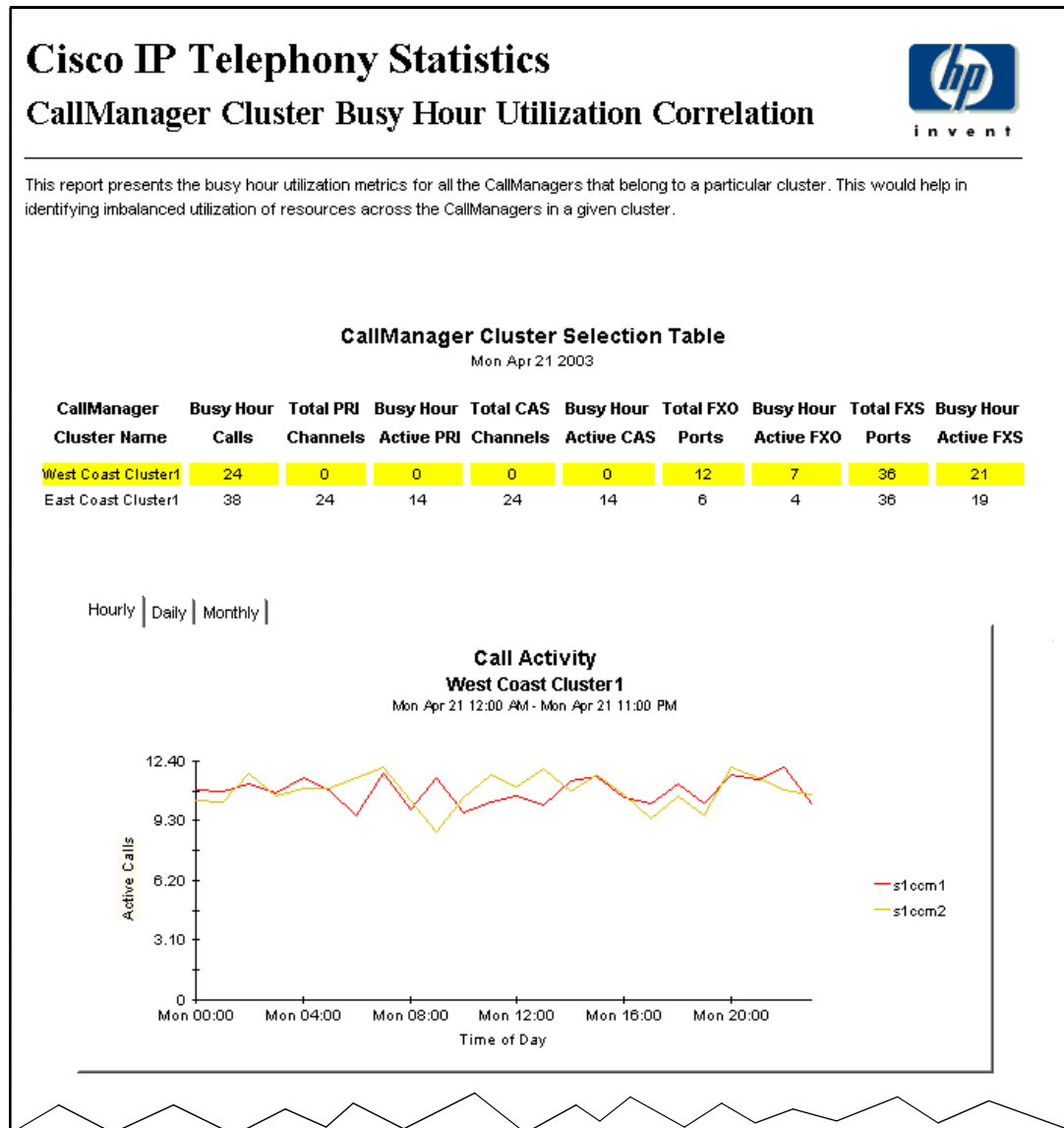
Correlation Reports

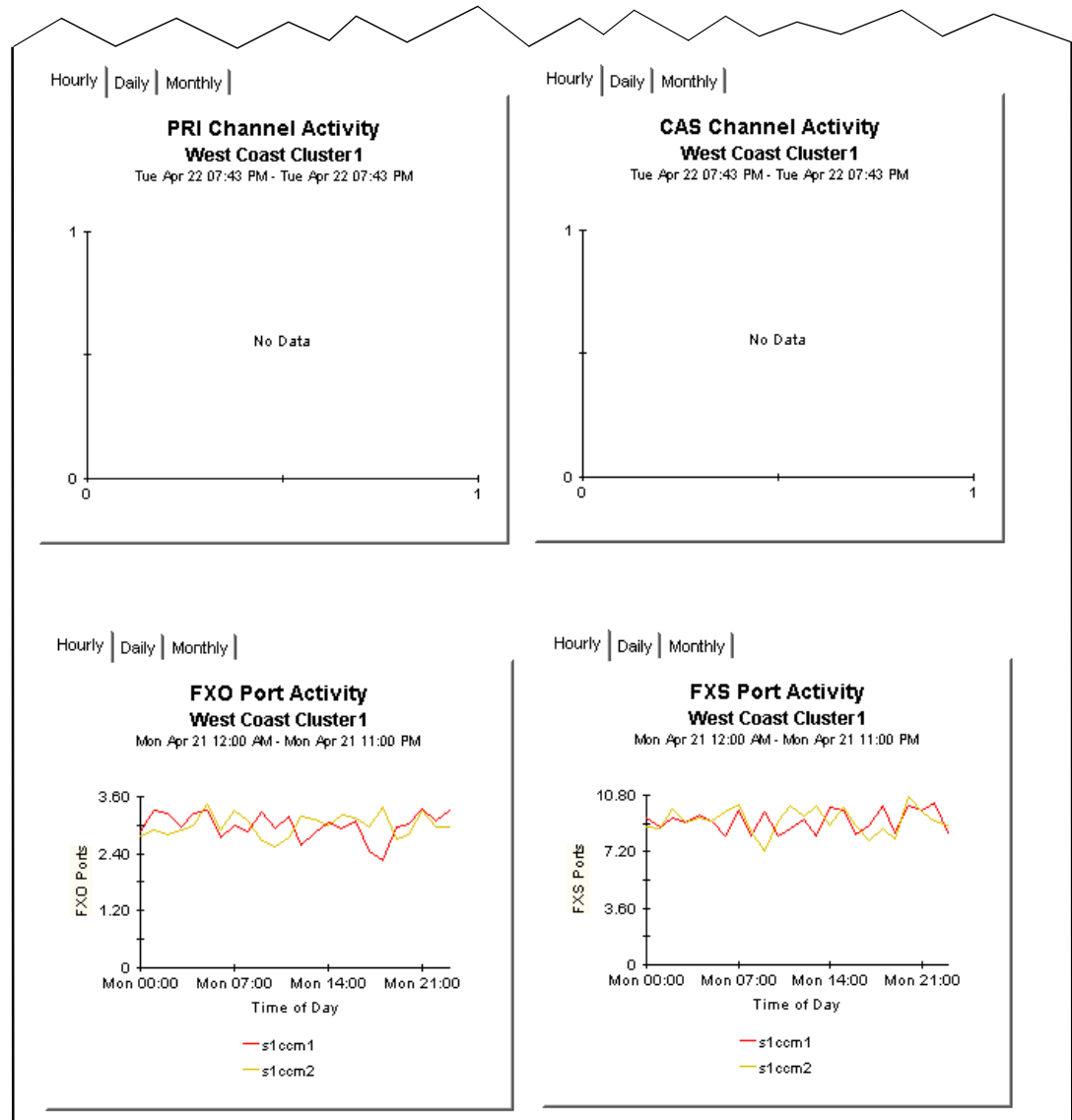
Correlation Reports compare performance metrics for different resources within the same group (for example, CallManagers within a cluster or DS1 within a gateway). These reports help identify imbalanced utilization of resources within a group.

The following correlation reports alert you to imbalanced utilization of resources:

- Cluster Busy Hour Utilization Correlation
- Cluster Peak Utilization Correlation
- DS1 Usage Correlation by Location

An example report, the CallManager Cluster Busy Hour Correlation report, is shown.





Selecting a cluster in the **CallManager Cluster Selection** table updates all the graphs with statistics for the CallManagers that belong to the cluster. In the **FXO Port Activity** graph, the FXO port utilization displays for the two CallManagers in the “West Coast Cluster1” cluster.

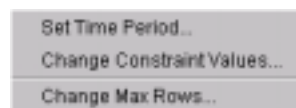
Editing Tables and Graphs

There are multiple ways to view tables and graphs in reports. Although the default view may be the view you use most of the time, you can easily change to a different view by right-clicking the object and selecting one of the optional views. Table view options are different from graph view options.

View Options for Tables

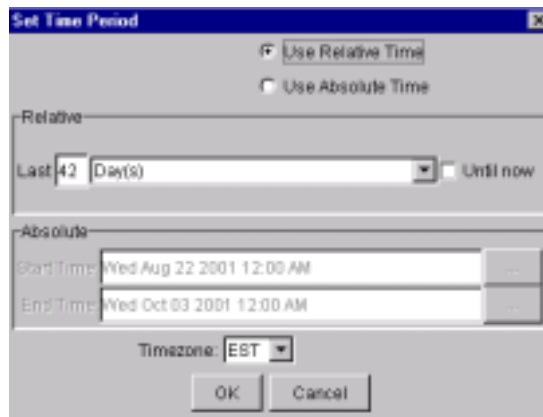
Right-clicking a table opens a menu with three view options.

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



Set Time Period

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



The defaults for a table containing data for 42 days are:

- Use Relative Time
- Last 42 Days

You may shorten the period of time covered by the table by changing 42 to 30 days, 14 days, or 7 days. If you are interested in a specific period of time that starts well in the past and stops *before* yesterday, click **Use Absolute Time** and select a start and end time.

Change Constraint Values

Select this view to display more data, or less data, by tightening or loosening a constraint. The Change Constraint Values window opens.

Response Times Greater than 200 (ms)
Ordered by Highest SNMP Response Time
Sun Dec 16 2001

Daily | Hourly |

Customer	Protocol	# Int.	Max	Avg
Unknown Customer	ethernet-csmaacd	265	10328	393
Unknown Customer	softwareLoopback	6	7640	254
Unknown Customer	ppp	83	7610	250
Unknown Customer	iso-88025-tokenRing	1	7062	371
Enterprise 1	ethernet-csmaacd	25	7047	361
Big Telco	ethernet-csmaacd	65	6969	497

R
Wed Dec '01

Change Constraint Values

Statistic Name	Operator	Value
AND TOTSNMPPRespons...	>	200
and TOTSNMPPRespons...	=	Protocol
and TOTSNMPPRespons...	=	Customer
and customer_name	<=>	NULL

In this example, the first row of this table indicates the following:

- The statistic is response time

- The operator is greater than (>)
- The value is 200 ms.

To loosen the constraint, lower the default to a value below 200. To tighten the constraint, increase the default to a value above 200.

Change Max Rows

Select this view option to increase or decrease the number of rows in the table. The default is 50. Using the default ensures that tables display as quickly as possible. If you choose not to limit the display and you are trending a large network, this table may require more time to display.

View Options for Graphs

Right-click any graph to open a list of view options.

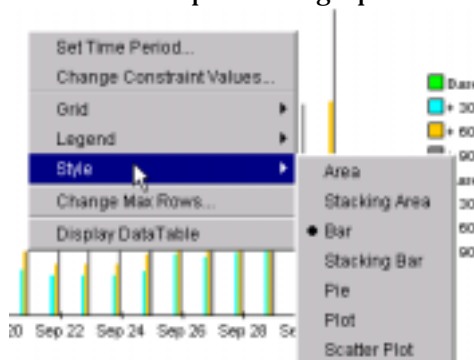


The following table explains each option.

Option	Function
Set Time Period	Same as the table option above.
Change Constraint Values	Same as the table option above.
Grid	Allows you add these to the graph: X axis grid lines Y axis grid lines X and Y axis grid lines
Legend	Alter placement of the legend or eliminate the legend. The options are below, to the right, to the left, and none.
Style	See below.
Change Max Rows	Same as table option above.
Display Data Table	See below.

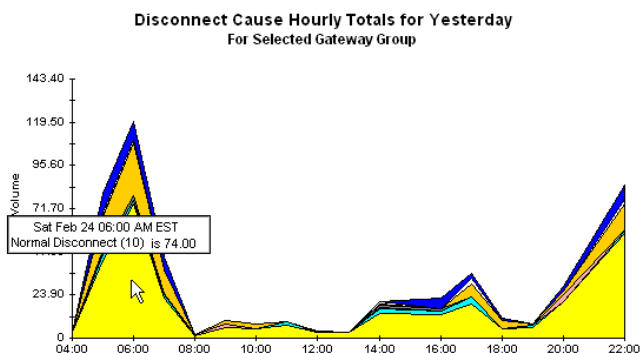
Style Options

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



Style → Area

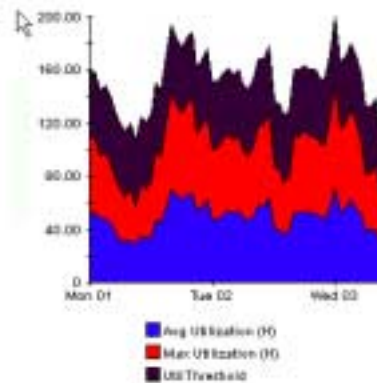
The default plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. However, if you click anywhere within a band of color, the exact value for that location in the graph appears in a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



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.

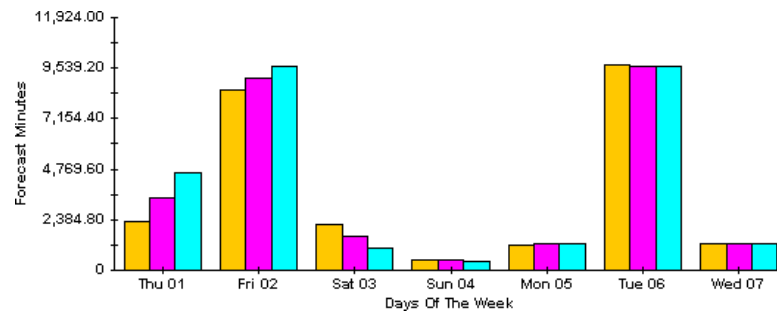
Style → Stacking Area

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



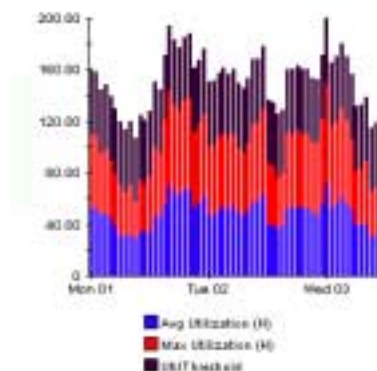
Style → Bar

The default line 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.



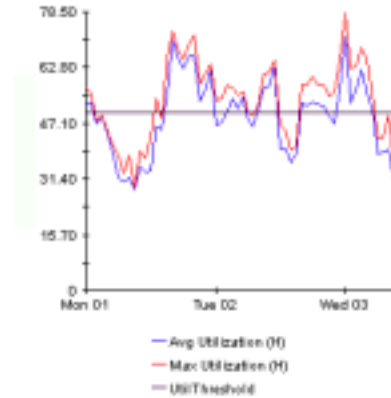
Style → Stacking Bar

The default 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.



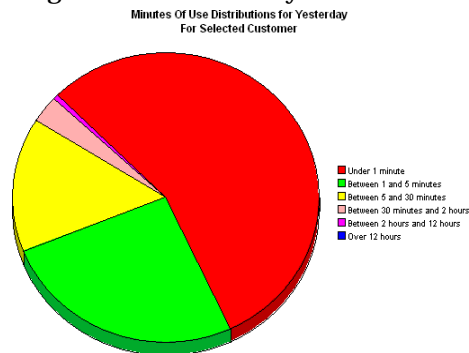
Style → Plot

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.

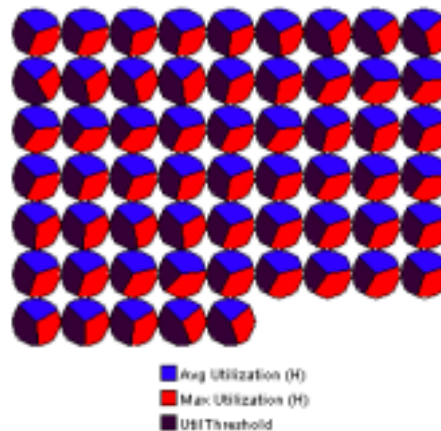


Style → Pie

An area graph becomes a 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 see multiple pie graphs, one for each day.



Display Data Table

This option changes a graph into a spreadsheet. After the graph is in this format, there are several way to manipulate it. Each method is highlighted below.

1. Double-click a column header to sort the column in descending order.

2. Click and hold a column header to drag and drop it anywhere in the table.

3. Hold down the SHIFT key and double-click a column header to sort the column in ascending order.

	Normal Disconnect (10)	User Busy (11)	No User Response (12)	No User Answer (13)	No Circuit (22)	No Resource (2F)	Unassigned Number (01)	No Route To Destination (03)	Invalid Number (1C)	Call Id In Use (54)	Recovery On Timer Expires (66)	Unknown Disconnect Code (?)
1	58.00	1.00	0.00	0.00	1.00	0.00	0.00	14.00	0.00	0.00	3.00	8.00
2	20.00	0.00	0.00	0.00	4.00	0.00	0.00	2.00	0.00	0.00	0.00	3.00
3	6.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
4	5.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	1.00
5	19.00	4.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	3.00	3.00
6	13.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	6.00
7	14.00	2.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
8	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
10	7.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	5.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00
12	6.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	22.00	2.00	0.00	0.00	1.00	0.00	0.00	13.00	0.00	0.00	0.00	7.00
15	74.00	2.00	0.00	0.00	0.00	0.00	3.00	29.00	0.00	0.00	2.00	10.00
16	43.00	3.00	0.00	0.00	1.00	0.00	2.00	18.00	1.00	0.00	2.00	10.00
17	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Click and hold a row number to drag it up or down in the table.

active ports rate

A measure of the percentage of total active channels/ports divided by the total channels/ports.

baseline average

The average of all samples during the baseline period. The baseline period is a rolling period comprising the previous 91 days

busy hour

Busy hour is the maximum hourly average for the day. This value is the basis for calculating future performance. Unlike the average for the day, this value does not smooth out daily peaks and valleys. In addition, unlike the daily maximum, or peak, and the daily minimum, this value represents a relatively persistent phenomenon, not a momentary condition. Since busy hour is an average, the actual utilization could have been well above the average for a portion of that particular hour, as well as well below the average for a portion of that particular hour.

Cisco IP Telephony Statistics Report Pack calculates a busy hour for the following metrics:

- Number of calls
- Active PRI channels
- Active CAS channels
- Active FXO ports
- Active FXS ports

CallManager

A Cisco AVVID IP Telephony service whose primary function is the control and routing of calls from voice-enabled IP device.

CAS

Channel Associated Signaling. A scheme for transmission of call signaling information that relies on interleaving the call signaling within the media information that the interface transmits.

channel name

The concatenation of DS1Name and Channel Index.

daily

Performance over the preceding 30 days for the following metrics:

- PRI channel activity
- CAS channel activity
- FXO port activity
- FXS port activity

The most recent day in this view is yesterday.

day of week

A forecast, derived from baseline data, that correlates growth rate to each day of the week.

F30, F60, F90

The level where utilization is expected to be 30, 60, and 90 days from now. Calculated by applying linear regression to busy-hour levels over the baseline period.

FXO

Foreign Exchange Office. A VoIP gateway providing analog access to central office's line termination.

FXS

Foreign Exchange Station. A VoIP gateway providing analog to a Plain Old Telephone Service (POTS) station.

gateway

A device that provides real-time, two-way communications between the packet-based network and other stations on a switched network.

growth rate

Also known as rate of increase. F30 utilization divided by average busy-hour utilization.

hourly

A view of yesterday's performance for the following metrics:

- PRI channel activity
- CAS channel activity
- FXO port activity
- FXS port activity

location

The place where gateways are located. Value imported by the Common Property Tables provisioning process. If not provisioned, field reads *unassigned*.

PRI

Primary Rate Interface. An ISDN interface containing 24 or 32 channels for the communication of media and signaling information.

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